

# ROOFING SHINGLES

## INSTALLATION INSTRUCTIONS

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## 1.

### General recommendations

# 1. General recommendations

The specified roof temperature and humidity can be ensured only if its structure includes solid vapor sealant, insulation thickness required for this region, a diffusive layer, and ventilated subroof space.

Do not use packages with different production codes for the same roof. Possible slight difference in color hues is not a defect. To avoid undesired color unbalance that could appear in visible color spots on a roof, it is recommended to mix shingles from 5 or 6 random packages.

Below outside temperature of +5°C please store roofing shingles in a warm, dry place and take them out by batches of 5 or 6 bundles prior to installation.

Below outside temperature of +5°C a hand-held hot air welding gun must be used to warm the adhesive strip on a shingle in order to improve adhesion.

To prevent damaging the roof's integrity, the material must be cut on the roof on a special board placed underneath.

Pallets of shingles should be stored in a covered, ventilated space where temperatures will not exceed 40°C. To avoid sticking of shingles inside the package do not expose them to direct sunlight. Transportation and storage of pallets in two or more rows is possible only when using the racks and special shelving units.

In order to ensure unobstructed separation of roofing shingles from one another, it is recommended to slightly bend and shake the bundle before opening.

**ATTENTION!** In order to avoid the appearance of stains and shoe marks, it is not recommended to walk on the roof in sunny or cold and moist weather. Special tracks shall be used to move at the roof slope.

## 1.1. Applied materials

### Roofing shingles

Roofing shingles are a construction material for residential roofing application that is used on roof slopes of 12° or greater. It consists of three main elements: the fiberglass base, modified bitumen, and granules of volcanic rock basalt.



### Hip & ridge shingles

Hip & ridge shingles produced with SBS modified bitumen are extremely flexible; they are used for quick and easy installation of a initial row along eaves.



These pre-cut shingles can be separated into three smaller pieces for further application on hips and ridges to add the perfect aesthetic finish to your roof. Maximum protection against wind, snow and rain is provided. Available in a wide range of colors to match any chosen roofing color solution. Dimensions: 1 m x 0,25 m. Coverage per a package: 12 lin. m (hips & ridge).

### Underlayment with mechanical fixation

#### MIDA LIGHT S / G\*

MIDA LIGHT S / G is an SBS modified bitumen membrane reinforced with fiberglass. The top side of the material is covered with anthracite or sand, back side is covered by sand.



Mounted mechanically by nails.

#### MIDA SELF PRO\*

MIDA SELF PRO Elastometric bitumen sheet, intended to be used as underlay or intermediate layer for roofs and waterproofing of other engineering structures. Self-adhesive, should be additionally fixed mechanically. Suitable for new roofs and roof renovations. Not for single or top layer application.



#### MIDAFLEKS EKM

Valley roofing and waterproofing bitumen roll material. Used as waterproofing underlayment in roof valleys that are prone to leakages under snow and rain loads, and thus require extra protection. This material is also good to seal joints between roofing and piping or vertical walls.



### Eaves and fronton flashings

Eaves and fronton flashings are made of metal with a special coating. They are intended for reinforcement of eaves and fronton edges and ensure efficient water disposal.

### MIDA MASTIC 2200

MIDA MASTIC 2200 is a multicomponent material consisting of bitumen, butadiene-styrene thermoplastic elastomer or its modifications, filler, solvent, and technological additives. The compound is intended for sealing of roofing shingle joints, gluing of valley membrane, gluing of underlayment joints and



abutments to brick chimneys and walls.

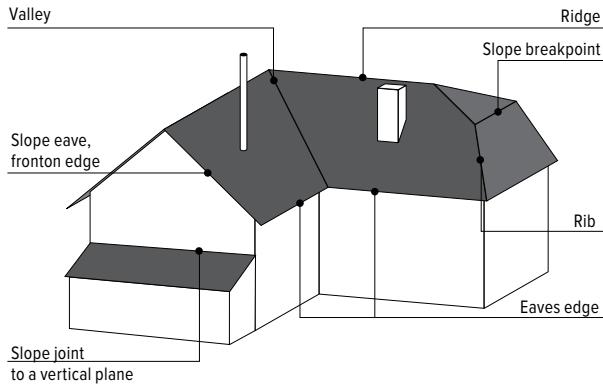
#### **Roofing nails**

Special corrosion resistant roofing nails 30 mm long. Nail head diameter is 9 mm minimum. Nail rod diameter is 3 mm minimum. Applied for reliable fixation of roofing shingles and all its components.

#### **Ventilation systems**

Ventilation elements are ready for installation.

### **1.2. Building structure elements**





## 2.

### Preparation of roof deck

## 2. Preparation of roof deck

### 2.1. Roof ventilation

Proper engineering of ventilation system along with right materials and accessories extend service life of the whole construction and of the roof, in particular.

Ventilation is a system of intake and exhaust that creates a flow of air in order to remove extra heat and moisture from under the roof.

The system of roof ventilation includes three main elements: an opening for fresh air inflow, a ventilation gap (space over thermal ventilation layer) for air circulation, and exhaust openings in the top part of the roof. In order to ensure normal roof functioning, proper ventilation must be ensured.

An overheated attic, combined with moisture, can cause a number of problems, including damage to roof decking and roof shingles, ice dam formation in cold weather and moisture accumulation in the deck and/or building insulation.

This can lead to deck and shingle distortion and can significantly shorten the life of a shingle.

#### Ventilation arrangement in a cold attic

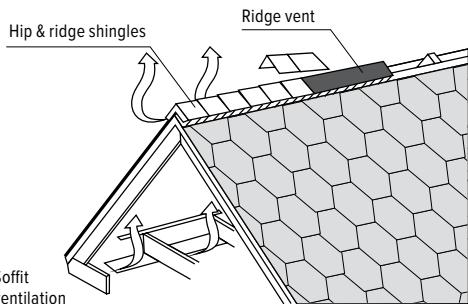
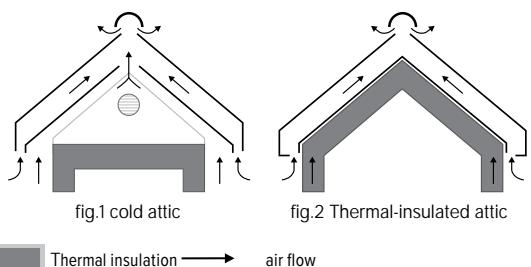
When constructing a roof with a cold attic (Fig. 1), it is necessary to prevent heat leakage into its volume from residential premises, qualitatively insulating the attic ceiling and sealing the ventilation ducts and a chimney passing through the attic.

It is necessary to ensure intensive ventilation of the entire space of the cold attic chamber with the outside air.

In case of natural ventilation of attic premises, it is most rational to place ventilation openings under the overhang of the roof evenly along the perimeter of the building and in the roof ridge along its entire length.

#### Ventilation arrangement of a heat-insulated attic

When constructing a roof with a heat-insulated attic (Fig. 2), it is necessary to prevent heat leakage into the under-roof space qualitatively performing the roof insulation, as well as to ensure intensive ventilation of the entire under-roof space with outside air.



The system of sub-roof ventilation includes three main elements: an opening for fresh air inflow, a ventilated gap (space over thermal ventilation layer) for air circulation, and exhaust openings in the top part of the roof. The area of the ventilation openings in a roof structure should make up 1/300–1/500 of the attic thermal insulation area. Pressure in the attic should be lower, therefore the area of exhaust openings should exceed that of the intake ones by 10–15%. Such location of vents will ensure intensive air circulation in the entire space of the attic.

Air must freely penetrate the ventilation gap and come out of it. If wooden wind boards are nailed to slope edges, use special ventilation elements – soffit strips. Exhaust ventilation systems are presented by ready-made ridge and point ventilation elements.

The ventilation gap is made using a wooden beam of counter lathing. The beam is mechanically fixed using notched nails or self-tapping screws for wood.

Counter batten should have the air way height of at least 50 mm for roof space ventilation with less than 20° slope angle. If the slope of the angle decreases (less than 20°), air way height must be increased to 80 mm.

Free air flow must be ensured in the ventilation gap by the installation of counter lathing; covering of air movement areas is not allowed.

**IMPORTANT!** If the above rules of the ventilation arrangement are not observed, it can result in such consequence as:

1. Accumulation of moisture, leading to formation of condensate on rafters and a substructure, and subsequently mold and fungus, destroying the wooden elements;
2. Formation of ice hillock on the roofing material and, as a result, damage to the roof and gutter system, penetration of melt water under the roofing during thaws;
3. Overheating of roofing material and the interior of the attic in the summer;
4. Humidification of thermal insulation, leading to a sharp decrease in its thermal resistance and increased cost for heating the house;
5. Increased cost for air conditioning.

## 2.2. Deck construction for roofing shingles placement

When selecting material for sparse lathing, apply mostly coniferous wood of grade 2 or higher with a relative humidity of 20% maximum.

Clear distance between lathing:

- in rows: according to calculation;
- on eaves overhang: solid base of boards having a width equal to the distance from the eaves extension to the inner wall surface;

The material shall be fixed with nails or self-tapping screws for wood, 2 each per connection.

The transversal connection of two elements of sparse lathing in the same row shall be made so as to ensure that the connection of boards matches a rafter leg mechanically fixed with 2 fasteners per each board edge.

Joints of sparse lathing in adjacent horizontal rows must be displaced by one run of rafters minimum. The length of the boards must not be less than two spans of rafters.

### Solid base

Base for roofing shingles laying must be solid, rigid, and flat. Elevation drops shall not exceed 1–2 mm.

The solid planking of the base must be made of the following materials:

- tongue-and-groove or straight edged boards of coniferous woods of grade 2 or higher with relative humidity not exceeding 20%, sorted by thickness;

- oriented strand boards with increased moisture resistance (OSB-3) or exterior plywood with increased moisture resistance placed upon sparse lathing.

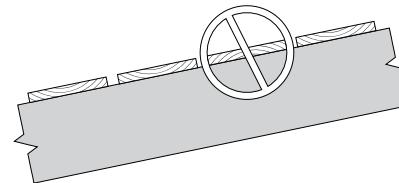
**IMPORTANT!** Solid deck thickness depends on the distance between the rafters, cross-section and spacing of wooden lathing. Selection of the roof construction must be performed based on the calculation of permanent and temporary loads, as well as on the roof shape and materials weight. Always follow the technical requirements set out in the National Building Codes.

**IMPORTANT!** It is not allowed to install roof deck structures from raw or poorly dried wood. Violation of this requirement can lead to irreversible deformation of the roofing and as a consequence of its waterproofing function dismiss.

### Tongue-and-groove or straight edge board

During installation of solid wooden deck, make sure that fragments of annual rings are oriented with their convexities downwards.

To place shingles, make a selection of boards in terms of thickness, so as to make sure that thickness varies gradually with thicker boards installed closer to the eaves overhang. Board length joints shall be located on supports, 4 nails minimum shall be driven into the joint spots.



### OSB-3 or exterior plywood

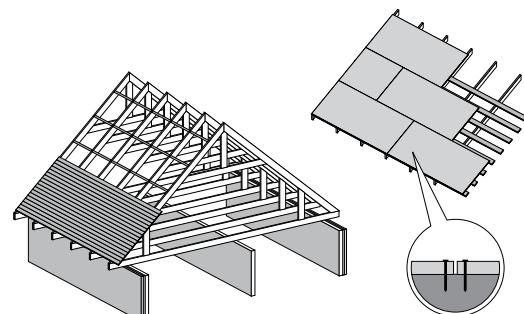
Solid OSB boards are installed with alternating joints. The minimum alteration value must correspond to rafter spacing.

A gap of 3 to 5 mm must be left between sheets. Fixation must be made using notched nails or self-tapping screws.

Sheets of solid boards are placed with the main axis (long side) perpendicular to the rafter legs. Horizontal joints (long edges) must rest on the auxiliary support (sparse lathing).

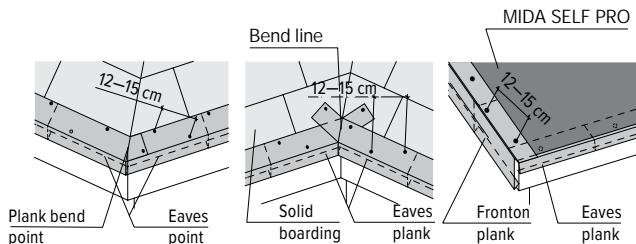
Nails for mechanical fixation are placed along the whole perimeter of the sheet with spacing according to the calculation.

When installing a roof window, it is necessary to place the joints of the solid substrate sheets with the seaming misalignment avoiding the coincidence with the window area.



## 2.3. Eaves overhang reinforcement

The roof eaves overhang is reinforced with metallic eaves planks. These are fixed with special roof nails alternately every 120–150 mm, and every 20–30 mm in overlapping spots. Plank overlapping should be 30–50 mm.



## 2.4. Installation of underlayment

### General recommendations for underlayment installation

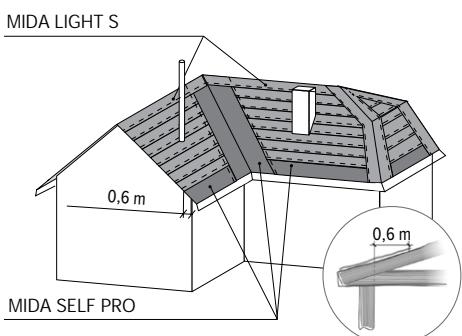
Installation of underlayment shall be carried out in the same temperature mode (without sudden temperature changes, for example, from the evening to the morning). When rolling the material over the surface and fixing it, it is necessary to ensure the tension of the backing material and look over that the covering rests against the surface without waves and creases during the fastening.

Before fixing, it is necessary to straighten and stretch the material so that no waves or creases form between nails.

Installation in winter (air temperature below +5 °C): immediately before installation, the materials shall be kept in a room at a temperature of +23 °C for at least 24 hours. Deliver materials on the roof in the amount that will be mounted immediately.

MIDA SELF PRO underlayment is first laid in the valley.

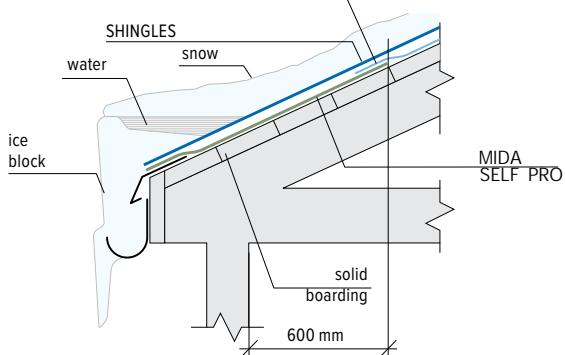
MIDA SELF PRO laid in the valley shall be 1 m wide (500 mm for each slope).



**IMPORTANT!** If possible, try to ensure solid underlayment (without overlaps) along the whole length of the valley. Otherwise, underlayment shall overlap and the joints must be thoroughly glued on the top part of the roof. The width of overlap is 100 mm. Below outside temperature of +5°C, it is recommended to additionally fix the underlayment with roofing nails with a wide head every 300 mm.

After MIDA SELF PRO underlayment is installed in the valley, it must be installed in the eaves overhang. The underlayment is laid at the eaves overhang equivalent to the size of the eaves overhang plus 600 mm from the inner wall surface towards the inner side of the building\*.

### MIDA LIGHT S



**Underlayment must be installed on the whole roof of any slope:**

- MIDA SELF PRO self-adhesive underlayment or any other material with the same specifications\* is installed in valleys and eaves overhangs;
- MIDA LIGHT S stick underlayment with a mechanical fixation or any other material with the same specifications\* is installed on the remaining surface of the roof.

### MIDA LIGHT S and MIDA BASE 1500

Place MIDA underlayment (with mechanical fixation) on the remaining part of slope. Same as during installation of adhesive underlayment.

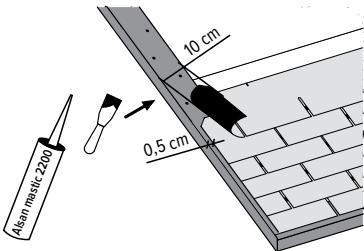
Fix the material along the perimeter, including the points of overlaps, with roofing nails with a stepout from the underlayment edge of 50 mm every 200–250 mm.

\* This rule covers the roofs with a slope up to 60°; if the slope is more than 60°, the underlayment shall be installed with a width of 1 meter from the eaves edge.

Cover the overlap points with Mida Mastic 2200 in a 100 mm wide strip. The attached gluing longitudinal mounting bands exclude the use of bituminous adhesive Mida Mastic 2200 when forming longitudinal joints, thereby facilitating and speeding up the installation.

#### 2.4. Reinforcement of fronton overhang

The roof fronton overhang is reinforced with metallic fronton planks. The fronton plank shall be placed on top of the underlayment with a 30–50 mm overlap, having cut the plank on site in advance. Fix the plank with special roofing nails alternately every 120–150 mm.



#### 2.5. Valley preparation

Roofing shingles can be installed in the valley using two methods: open method and “undercut” method. Valley preparation depends on the selected method.

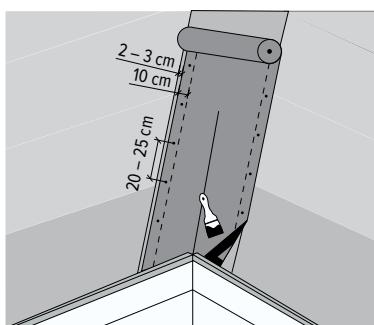
##### “Open valley” method

The valley roll material is placed along the valley centerline upon the self-adhesive underlayment.

**IMPORTANT!** The valley roll material at the lower edge must be cut with a slight rounding (tab).

Valley roll material must be folded in half along the whole length of the valley and the bend line must be pressed.

Next lay down the valley roll material.



**IMPORTANT!** Carefully stretch the fabric in order to avoid folds and uneven surfaces.

Cover the valley roll material along the perimeter of the rear side with Mida Mastic 2200 to a width of 100 mm.

Fix the valley roll material with special roofing nails on the front side with a 20–30 mm step-out from the edge every 200–250 mm.

Fixed valley roll material.

**IMPORTANT!** If the valley is arranged using the open method, a metallic sheet with corrosion resistant coating may be used instead of valley roll material (recommended for regions with a hot climate).

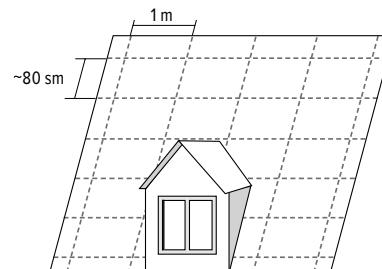
##### “Close valley” method

This method of roofing shingles installation does not require valley arrangement.

#### 2.6. Slope marking

Marking lines play the role of guides and help align roofing shingles horizontally and vertically. They also align roofing shingles, if any roof element is cut into the slope or if the roof slope geometry is disturbed. The spacing of vertical lines corresponds to the width of the course shingles, while the spacing of the horizontal lines is marked for every 5 rows of shingles (~800 mm).

**IMPORTANT RECOMENDATION!** Marking lines are for the horizontal and vertical reference only. They do not guide shingles in line.





## 3. Installation of roofing shingles

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#### 3.1. General recommendations for roofing shingles installation

Do not use packages with different production codes for the same roof. Possible slight difference in color hues is not a defect.

To avoid undesired color unbalance that could appear in visible color spots.

Below outside temperature of +5°C please store roofing shingles in a warm, dry place with air temperature of +18°C minimum for at least 24 hours. Then take them out by batches of 5 or 6 packages prior to installation. Below outside temperature of +5°C a hand-held hot air welding gun must be used to warm the adhesive strip on a shingle in order to improve adhesion.

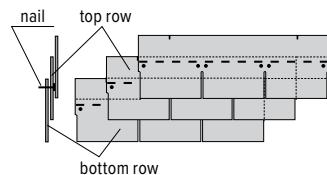
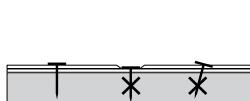
To prevent damaging the roof's integrity, the material must be cut on the roof on a special board placed underneath.

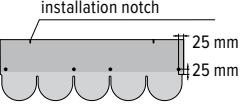
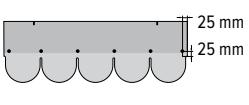
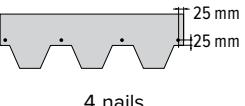
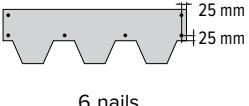
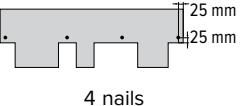
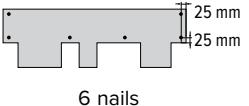
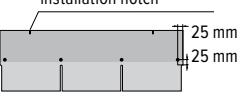
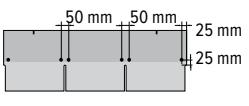
**ATTENTION!** In order to avoid the appearance of stains and shoe marks, it is not recommended to walk on the roof in sunny or cold and moist weather. Use roof ladders and walkover bridges to move on the roof slope.

#### 3.2. Course shingles fixation

Each course shingle is fixed to the roof base using special galvanized roofing nails with wide heads in the amount depending on the slope angle.

Correct nailing is critical. Nails must be driven so as to make sure that the head is in the same plane with the roofing shingles surface and does not cut through it.



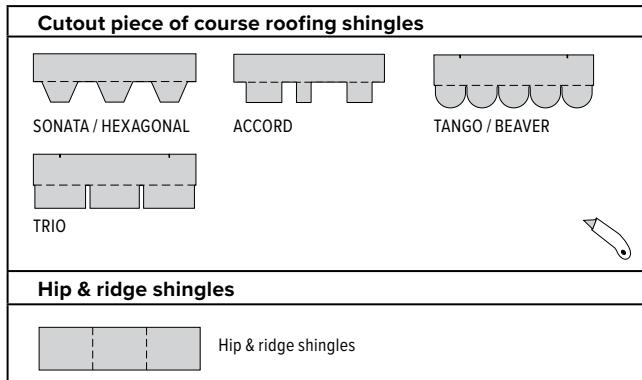
Slope angle	
12°–44°	45°–90°
<b>TANGO / BEAVER</b>	
	
4 nails	6 nails
<b>SONATA / HEXAGONAL</b>	
	
4 nails	6 nails
<b>ACCORD</b>	
	
4 nails	6 nails
<b>TRIO</b>	
	
4 nails	6 nails

#### 3.3. Initial strip fixation

Universal hip & ridge shingles, cutout piece of course shingles or course shingles are used as a initial strip. Options of initial strip construction depending on the shingles cutting pattern:

Type of cutting pattern	Starter at eaves
SONATA / HEXAGONAL	Hip & ridge shingles / Cutout piece of course shingles
ACCORD	Hip & ridge shingles / Cutout piece of course shingles
TRIO	Cutout piece of course shingles
TANGO / BEAVER	Hip & ridge shingles / Cutout piece of course shingles

Initial strip for SONATA / HEXAGONAL, ACCORD, TRIO, TANGO / BEAVER cutout patterns may be cut out from course shingles.



The dashed line shows where to cut the shingles. If the cutout piece is made of course shingles, shingle tabs must be cut along the earlier marked line.

If required, remove the film from the cut off shingles.

If course shingles are cut to a certain pattern or if course shingles are used as a initial strip, cover the rear side with MIDA mastic 2200 where no adhesive layer is present.

Hip & ridge shingles, the cutout piece of course shingles or course shingles are glued on top of underlayment with a step-out of 10–20 mm from the eaves plank bend point.

Step-out value depends on slope length and angle, and it increases if they are increased.

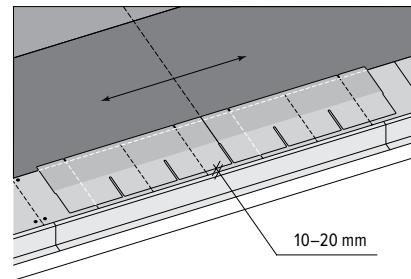
Hip & ridge shingles and cutout pieces of course shingles are fixed with roofing nails in the amount of 12 nails minimum per shingle. Course shingles shall be fixed according to the table on page 30.

### 3.4. Fixation of the first and following rows of shingles

It is recommended to place the first row on long slopes from the slope center to ensure the convenience of horizontal leveling. The first row is laid with a step-out of 10–20 mm from the initial strip.

**IMPORTANT!** The first row of shingles must cover the points of the initial strip's mechanical fixation.

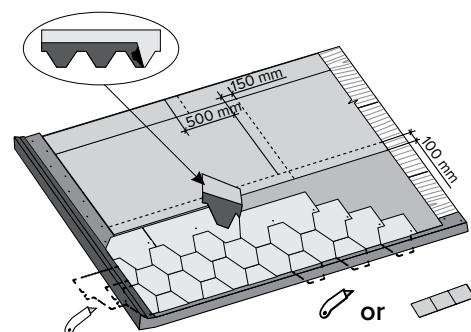
The installation shall be performed in diagonal strips.



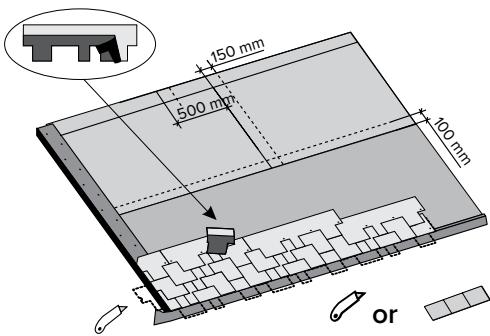
The second row is installed from the slope center, alternating to the left and to the right by half the tab. Roofing shingles must be nailed so that the bottom edge of the tabs is flush with the top edge of the cutouts in the first row.

The third row is laid with a displacement relative to the second one by half the tab to the right or to the left depending on the originally selected direction.

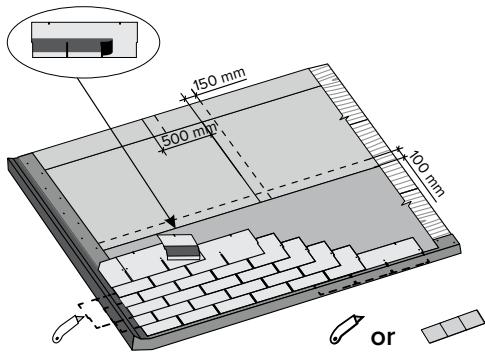
SONATA / HEXAGONAL pattern



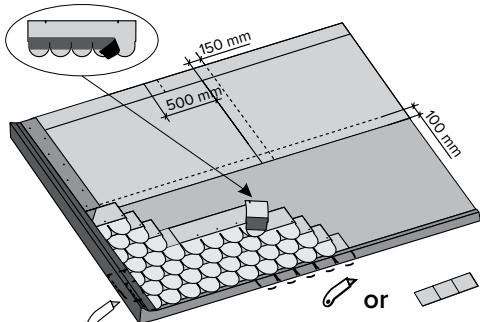
## ACCORD pattern



## TRIO pattern



## TANGO / BEAVER pattern



Shingles installation must be started from the slope center in the form of strip or pyramid.

To ensure maximum efficient protection against slanted rain, cover the course shingles in the fronton area with MIDA mastic 2200: apply a 100 mm wide strip of MIDA mastic 2200.

Roofing shingles must be installed with a 15–20 mm step-out from the inner bend of the fronton plank.

**IMPORTANT!** The top corners of shingles approaching the metallic fronton must be cut by 20–30 mm to divert water.

The minimum distance between the fronton and fixed shingles must be at least 200 mm.

The cutout of the course shingles with a width less than 200 mm must be fixed with two roofing nails minimum.

## 3.5. Valley arrangement

### “Open valley” method

Mark out the valley roll material:

1. Undercut lines (2) towards the valley center line (1). Valley gutter width varies from 50 to 150 mm.

2. Flexible shingles fixation line (3) at a distance of 300 mm minimum from the valley center line.

Mark out chalk lines for cutting and fixation using a chalk line.

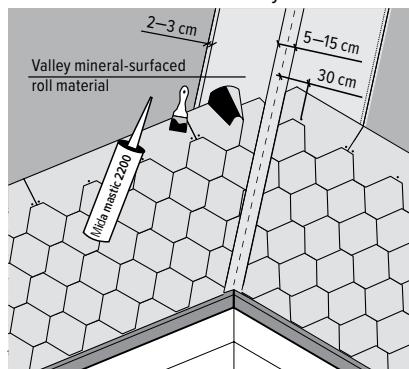
Lay course shingles to the cut line towards the valley center line and mark out the cut line.

Cut the course shingles along the cut line using a special wooden pad to prevent damaging the integrity of waterproofing layer.

Fix each shingle on each slope surface using roofing nails along fixation line (3) (at a distance of 300 mm minimum from valley center line (1)).

Cut each shingle by 20–30 mm to divert water in the valley.

Cover the shingles with MIDA Mastic 2200 on the rear side by 100 mm in points without an adhesive layer.



Shingles must be covered with MIDA Mastic 2200 at each slope surface.

**IMPORTANT!** The MIDA Mastic 2200 must be applied not only to the valley roll material but also to the underlying shingle as well to ensure more reliable insulation.

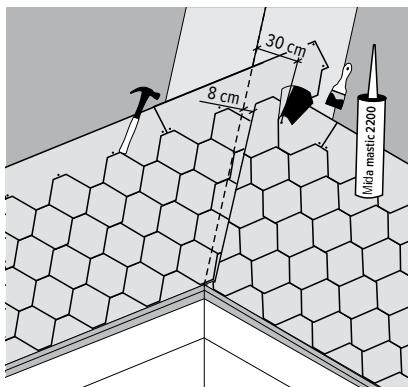
**NOTE!** If the slope water drainage system differs significantly, the valley gutter must be displaced towards the lower water flow to offset flushing of the valley roll material with water.

#### **“Close valley”**

General view and designations:

- 1 – valley center line;
- 2 – roofing shingles fixation line (distance of 300 mm minimum from the valley's center line);
- 3 – cut line (distance of 80 mm minimum from the valley center line);
- 4 – shingle undercut for water diverting;

Mark out the underlayment with fixation lines (2) of flexible shingles at a distance of 300 mm minimum from the valley center line (1). Place shingles starting from the low pitched slope with an overlap to a steeper slope by at least 300 mm. Mark out the chalk line for fixation using a chalk line. Fix each shingle of shingles using roofing nails along the fixation line (at a distance of 300 mm minimum from the valley center line). Do not drive special nails closer to the fixation line (2) (at a distance of 300 mm from the valley center line (1)). Mark out the chalk line for undercut (3) at a steeper slope using a chalk line at a distance of 70–80 mm from the valley center line (1). Place shingles at a steeper slope (red outline) over earlier installed shingles on the low pitched slope (green outline), so as to make sure the shingle end protrudes beyond the undercut line (3).



Cut the course shingles from the steeper slope along the chalked cut line using the special wooden pad to prevent damaging the integrity of the waterproofing layer.

Cut each shingle by 20–30 mm to divert water in the valley. The shingles without adhesive layer should be glued with Mida Mastic 2200 on the rear side by 100 mm.

**IMPORTANT!** The Mida Mastic 2200 must be applied to shingles of a low pitched slope, and to the underlying shingle from a steeper slope as well to ensure more reliable adhesion.

#### **3.6. Installation of slope ribs and ridges**

Two methods are available for installation of slope ribs and ridges:

Method 1 is based on the use of hip & ridge shingles;

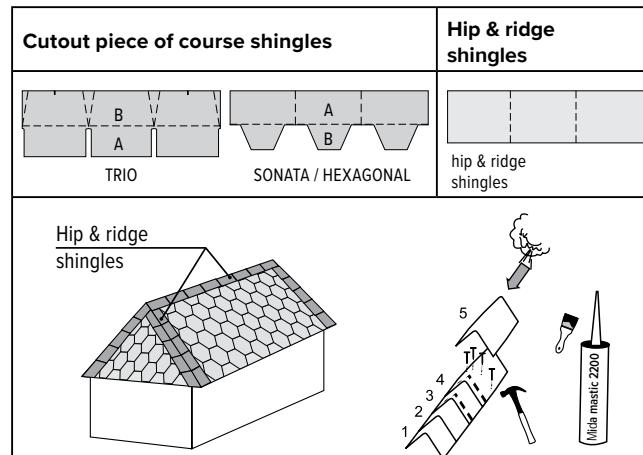
Method 2 is based on the use of the cutout of course shingles.

Table for selection of slope ribs and ridges installation method depending on cutting type:

Type of cutting pattern	Rib, ridge
SONATA / HEXAGONAL	Hip & ridge shingles / Cutout piece of course shingles
ACCORD	Hip & ridge shingles
TRIO	Cutout piece of course shingles
TANGO / BEAVER	Hip & ridge shingles

The cutout piece of course shingles are the shingles separated according to cutout pattern.

Ridge shingles for TRIO and SONATA / HEXAGONAL cutting patterns may be cut out from course shingles. In this case, the top part of the Roofing shingles SONATA / HEXAGONAL shingles is visible and the lower part is covered:



The dashed line shows where to cut the shingles; A – visible part; B – covered part.

**IMPORTANT!** In order to prevent formation of fractures during the cold season (at temperatures below +5°C), it is recommended to make a bend on metallic preheated pipe with a diameter of about 100 mm on Roofing shingles.

#### Material preparation

Before arranging slope rib and ridge, separate:

1. Hip & ridge shingles into 3 parts by the points of perforation.
2. Course shingles into 3 parts according to cutout pattern.

#### Hip & ridge shingle.

Remove the anti-adhesion film from the rear side of hip & ridge shingles.

### 3.7. Roofing shingles installing on dome shaped and conical structures

There are two recommended methods for Roofing shingles installing on curved surfaces: segmental and seamless. In both cases, underlayment is placed first.

The segmental method implies separation of the dome or cone surface into equal segments with chalkline. Course shingles are applied to each segment. Joints between segments are covered by ridge shingles, similar to roof ribs and ridge. The dimensions of the segments and the width of the ridge shingles must correspond to the size of the surface being covered.

The seamless laying method requires special attention to slope marking. Chalk dots must be applied to the roof base with distance between them equal to half of the flexible shingle tab size. Chalk lines get connected from the roof. Next, cut course shingles to separate tabs and install the first row. The above rows of pre-cut shingle tabs must be placed with a displacement by half of a tab size in the underlying row of shingles. Shingles shall be cut according to drawn chalk lines. As soon as the width of course shingle tabs in a row becomes two times smaller than the original one, the next row placing starts with shingle tabs of original dimensions. The installation is continued in this sequence up to the top of the roof.

The roof vertex is decorated with a metallic cap.

### 3.8. Joints arrangement

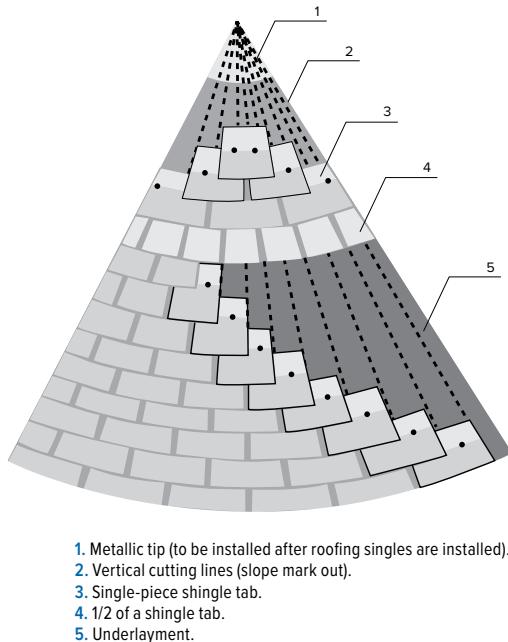
#### Joint with vertical surface

Straight joint General view of a joint with a slope angle over 135°:

**IMPORTANT!** If the straight joint angle is:

- up to 135° inclusively, moulding must be installed\*;
- over 135°, moulding is not required.

If a vertical wall has a brick surface, it must be preplastered and primed with Mida Mastic 2200.



1. Metallic tip (to be installed after roofing singles are installed).
2. Vertical cutting lines (slope mark out).
3. Single-piece shingle tab.
4. 1/2 of a shingle tab.
5. Underlayment.

\* A 50x50 mm diagonally split wooden beam or a regular wooden plinth may be used as moulding.

Install toothing at a height of 300 mm minimum from the horizontal section. Install underlayment and course shingles.

Apply Mida Mastic 2200 compound to the whole surface of the cutout valley roll material. A strip of valley roll material must be at least 500 mm wide.

Install strips of valley roll material on top of the course shingles: the strip is extended to the primed surface by at least 300 mm\*, and to the course shingles by 200 mm.

Mechanically fix metallic shield. Seal the shield with silicone or polyurethane sealant.

Side joint. Moulding is always required for a side joint for a wall height over 1 meter.

Underlayment must be brought over moulding to a primed vertical surface. Flexible shingles are installed up to the moulding.

Valley roll material is glued with bitumen compound similar to the arrangement of straight joint: the strip is extended to the primed surface by at least 300 mm, and to course shingles by 200 mm.

Mechanically fix metallic shield. Seal the shield with silicone, thiokol, or polyurethane sealant.

General view of side joint for the wall with height over 1 meter.

For wall height less than 1 meter.

Underlayment must be brought over moulding to a primed vertical surface.

Valley roll material is glued with bitumen compound. The strip is extended to the primed surface by at least 300 mm, and to the underlayment by 200 mm.

Mechanically fix metallic shield. Seal the shield with silicone or polyurethane sealant.

Roofing shingles are extended to the cutout piece from the valley roll material so as to make sure that the trough between the shingles and moulding is 80 mm wide. Cover the shingles with Mida Mastic 2200 on the rear side by 100 mm in points without an adhesive layer. General view of side joint for the wall with a height less than 1 meter.

#### Joints with chimneys and vents

Joints with chimneys must be made using moulding in the point of the roof slope contact with the vertical surface. Bring the underlayment to the moulding and cut on site.

Cut out a piece of valley roll material.

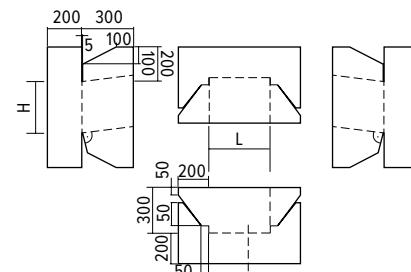
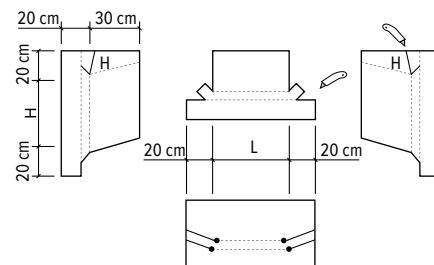
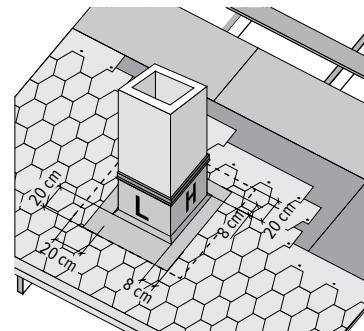
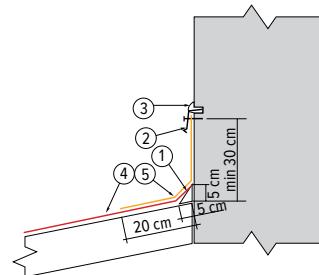
The cutout piece is extended:

- to the vertical surface: by at least 300 mm from the slope surface (the height may vary depending on snow region);
- to the horizontal section: ~200 mm depending on the type of moulding applied.

Bend or cut obtained cutout pieces in certain points according to the diagram.

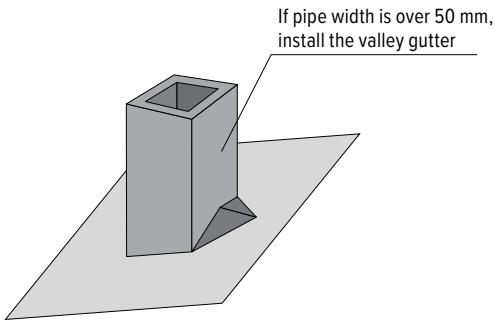
Valley roll material cutout pattern.

\* This value may be increased for climates with increased snow loads.



Install front cutout with extension to course shingles of 200 mm minimum.

Install left and right parts extending underneath shingles so as to make sure that an 80 mm wide gutter may be installed afterwards between the shingles and moulding.



Lastly, install rear cutout piece extending underneath the shingles so as to make sure that an 80 mm wide gutter may be installed afterwards between the shingles and moulding.

Install shingles. Shingles in the left and in the right parts are extended to the cutout piece from the valley roll material so as to make sure that the trough between the shingles and moulding is 80 mm wide.

Cut each shingle by 20–30 mm to divert water in the valley.

Cover the shingles with Mida Mastic 2200 in points of cutout piece joint with course shingles on the rear side by 100 mm in points without an adhesive layer.

Lay shingles on rear side. Make sure that the trough between the shingles and moulding is 80 mm wide.

Mechanically fix metallic shield.

Seal the shield with silicone polyurethane sealant.

**NOTE!** To prevent snow accumulation beyond chimneys and vents with cross section exceeding 500 x 500 mm and those located across the slope, it is recommended to install a valley gutter.

### 3.9. Arrangement of roof penetrations

The bottom parts of roof penetrations, antennas, and utility pipes are sealed with special penetration elements.

#### Sealing of ventilation component

Place the pass component so as to make sure that its bottom edge extends over shingles by at least 20 mm.

If there is not a possibility for extension of the bottom edge of the pass component to shingles, a cutout piece of underlayment must be made to meet this requirements so as to make sure that the underlayment extends underneath the pass component by at least 100 mm.

Mark the future location of penetration at the solid base and cut out a hole.

Apply Mida Mastic 2200 to the base or bottom part of the pass component skirt and glue to the base.

Mechanically fix the pass component using roofing nails along the perimeter. Apply Mida Mastic 2200 on the front face of the penetration element skirt. Install course shingles precut to match the dimensions of the pass component. Fill the joint between the pass component and shingles with bitumen mastic. Cover the bitumen mastic with basalt granules to ensure protection against UV radiation.

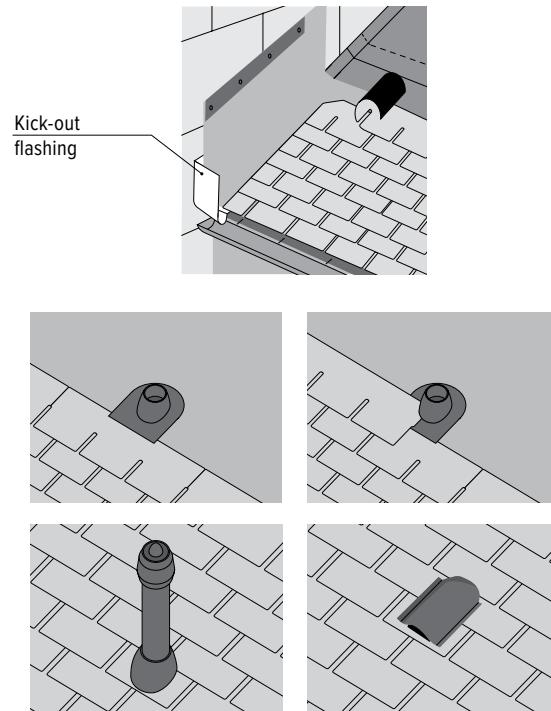
**INTERESTING FACT!** Basalt granules may be obtained by rubbing pieces of refuse cutoffs of course shingles against each other.

Install the required roof outlet at the pass component.

Install the KTV ventilation component.

#### Joint sealing using a rubber seal

Apply Mida Mastic 2200 to the lower side of the rubber seal skirt. Glue rubber seal to the base. Apply bitumen mastic on the front face of the rubber seal skirt. Install course shingles pre cut to match the dimensions of the seal. Fix metallic clamp.





# 4.

## Roof maintenance recommendations

## 4. Roof maintenance recommendations

Roof inspection must be done in spring and autumn.

It is recommended to remove leaves, branches and other small debris from the roof with a soft brush. Usage of sharp tools is unacceptable.

If there is a threat of growth of moss or algae on the surface of roofing shingles, it is recommended to apply the roof care concentrated preservative or any other special treatment advisable for roofing shingles.

Sharp edged objects must be removed from the roof by hand.

To ensure free water drainage from the roof, clean water gutters and funnels as they get clogged.

If there is a threat of formation of a large snow layer, it must be cleaned off using wooden shovels. Remove the snow from the roof in layers, leaving a protective layer of 100 mm on the roof.

For preventive purposes, inspect and, if required, repair installation openings, holes and parts of metallic sheets.



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