

# VMZ Standing seam G3

Simple and elegant flashing for fast installation

Installation guide



# VMZ Standing seam G3

## Intro

### VMZ Standing seam G3 ridge

- can be used in warm and cold roof applications
- gives an aesthetic value to the roof
- is a standard VMZINC element
- it can easily be installed

VMZINC is continuously improving its systems. Since the introduction of the Standing seam by VMZINC, numerous adjustments have followed in succession.

In order to differentiate the most recent developments of the Standing seam from previous generations, it has been given the name G3.

This 3rd generation displays significant changes and aims at 2 key objectives:

1. To promote the aesthetics of the roof: the aesthetic is now characterized by a greater purity of lines and shapes, this appeals to both architect and client.
2. To improve the simplicity of installation: The simplicity and speed of execution will clearly play to the advantage of the roofer by means of measurable time efficiency on the site.

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## Area of application

The ridge cap and its accessories can be used in all systems described in the "Installation manual Standing seam". For the warm roof systems, you should use the eaves/verge apron strip in VMZ ZINC PLUS. For the Compact roof and the structural roof, provide a wooden framework that is firmly attached to the supporting structure so that you can secure the eaves apron strip and the verge on to this.

All these elements were tested and approved by Umicore and are exclusively to be used with the products of VMZINC. Their use with other products takes place under the responsibility of the installer.

# VMZ Standing seam G3

## The elements

The VMZ Standing seam system exists of standard components to create an easthetic roof finish at the ridge and on the verge. Other elements such as the mono-screws contribute to a faster installation process but can't be applied on every roof build.



clip G3

### Ridge/ hip G3

- easy installation
- fixed with screws: the ridge is fixed to the clip with a screw, the clip is not fixed to the standing seam



### connection piece ridge G3

- piece to connect two G3 ridge elements



decompression ribs

### eaves apron strip/ verge G3

- 2 decompression ribs ensure the watertightness
- nose is 30 mm



### decompression strip G3

- completes the watertightness of the complex and the ventilation of the ridge



### mono-screw sliding clip

- easy and fast installation with only 1 screw



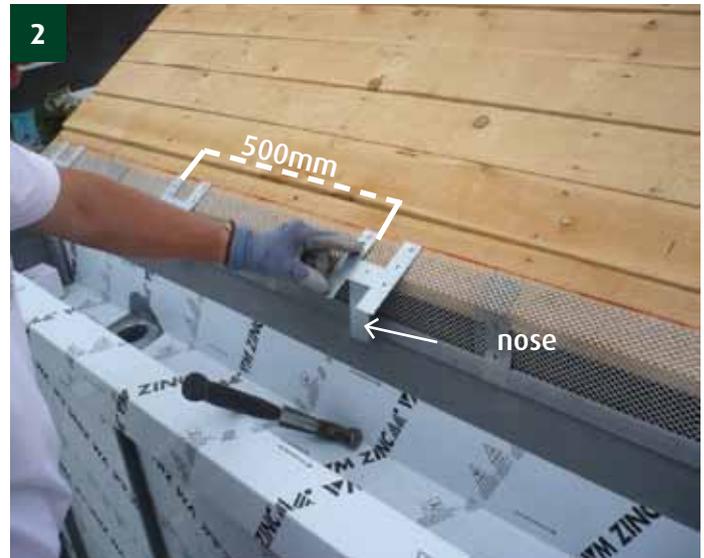
### mono-screw fix clip

- easy and fast installation with only 1 screw

# VMZ Standing seam G3 eaves apron strip G3



1  
First position the half round gutters or box gutters. Allow them to protrude 55 mm beyond the verge of the supporting surface of the roof (e.g.: boarding planks or plywood sheeting).



2  
The clips are placed every 500 mm. First measure then fasten. If ventilation is needed (vented roof), make sure you allow appropriate space between the back of the gutter and the eaves apron strip. Do not forget to install an insectmesh.



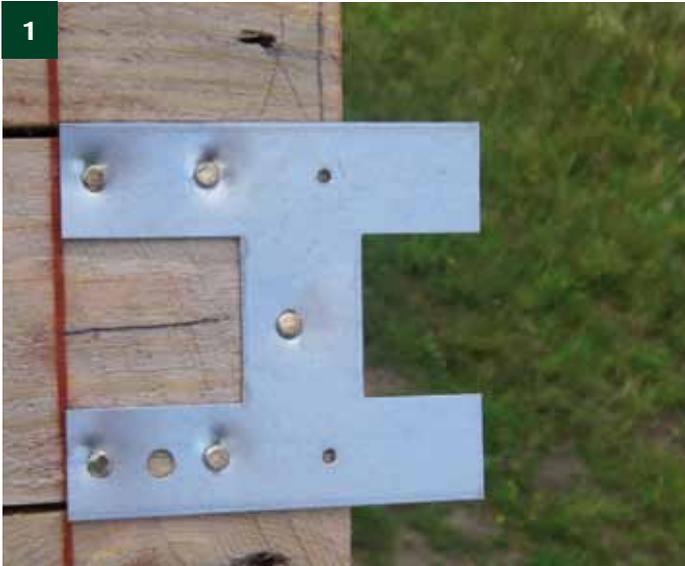
3  
Hook the eaves apron strip onto the supporting clips. Nail the eaves apron strip firmly below the uppermost decompression vig. Ensure that the eave strips overlap each other by 50 mm. Use ring shank or screws galvanized or stainless steel, minimum  $\varnothing$  2.5 mm, length = thickness of the supporting surface + 5 mm minimum. Spacing 500 mm.



4  
The first and the last eaves apron strip must protrude 30 mm beyond the verge edges of the supporting surface of the roof (e.g.: boarding planks, plywood sheeting etc.). The drip of the first and the last eave strip G3 (at each exterior corner of the roof) must be shortened by 20 mm over the complete height.

# VMZ Standing seam G3

## Verge G3



1 Align the sheet clips and fasten them, leaving a space of 10 mm between the verge and the downstand in order to be able to easily slide the eaves apron strip over the clip.



2 Hook the verge strip firmly into the sheet clips and nail them firmly just as you did for the eave. The elements overlap each other by 50 mm. Place the verge G3 from bottom to top.



3 In order to obtain a perfect aesthetic result we recommend you to first fold the eaves apron strip at 90°. The drip of the first verge G3 (at each interior angle of the roof) is cut off at the bottom, in order to fit into the profile of the gutter used.



4 For curved roofs (minimum radius of curvature 3 m). Provide a vertical incision in the drip of the verge G3. The incision must be made to one tenth of the value of the radius of the curve (for example: radius of curvature of the roof is 5 m => incision in the verge every 500 mm). For more information please refer contact our services.

# VMZ Standing seam G3

## Standing seam trays

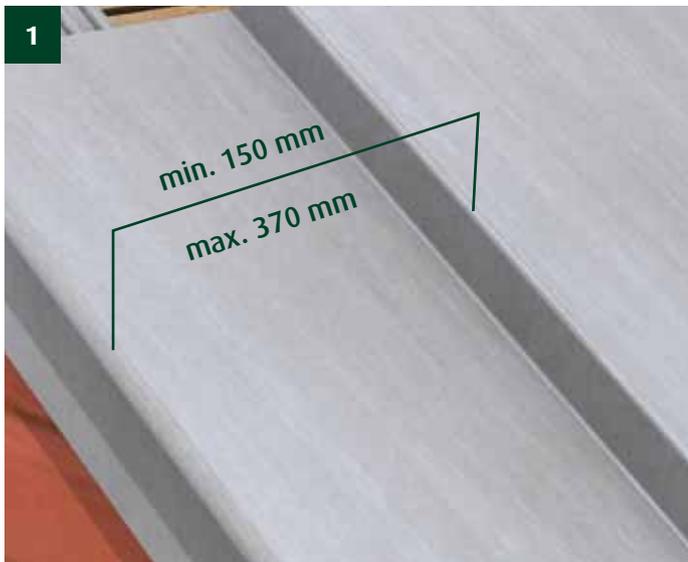
Depending on the chosen installation method, the profiles of the Standing seam trays differ for each roof.

### Central positioning followed by the placement of the side edges:

- the external profile of the last Standing seam trays on the left and right must be an 'L'-profile.
- The Standing seam strip on the side edges must have a 'U' profile.

### Placement of the first Standing seam on the side edge, followed by placement of Standing seam on the central part:

- the first Standing seam side edge must have an 'L'-profile on the side. The last Standing seam length must have a 'U'-profile on the side.



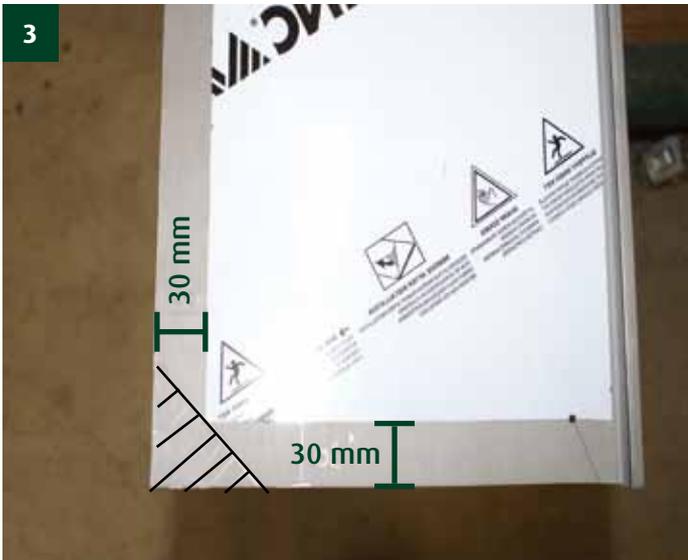
When measuring out remember that the useful width of the edge strip amounts to a minimum of 150 mm and maximum of 370 mm. Symmetrical measurement results in a better aesthetic result. For curved roofs, the radius of curvature must not be less than 3 m. The positioning of the trays begins from the centre or at one of the outer ends of the roof.



Connecting the verge trays. The preparation: cut the outside of Standing seam tray, on the visible width (minimum 150 mm and maximum 370 mm) + 35 mm.

# VMZ Standing seam G3

## Standing seam trays



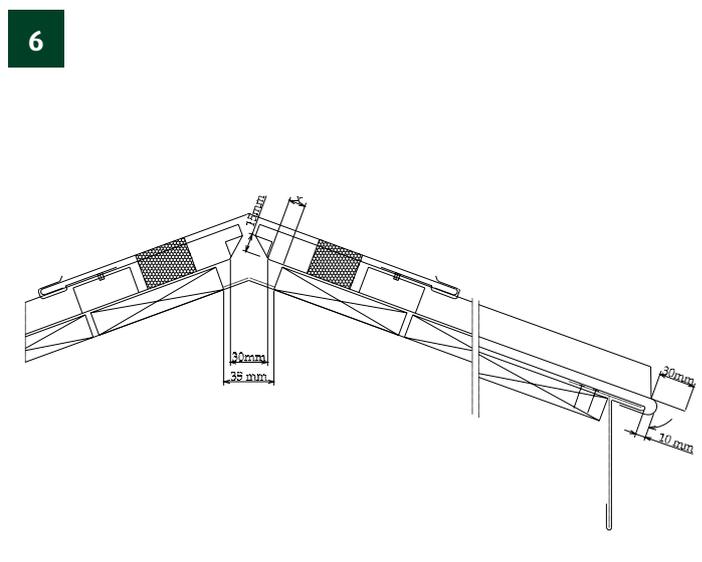
Trace out and remove the protective film over a width of 30 mm underneath and on the non-profiled side of the edge strip. Underneath the edge strip cut away the exterior angle at 45° (30/30 mm), close the angled incision on profiled side.



Fold the underside at 180° (height of the fold: 30 mm) across the whole width of the strip and fold the outside across its entire length at 110° (height of the fold: 30 mm).



In the case of a vented roof, between the last boarding planks of each roof pitch provide a ventilation opening, protected by the insect mesh, (minimum 35 mm). The space between the Standing seam trays on the each side of the roof must be 30 mm wide.



Cut the Standing seam trays according to the length of the roof incline (of the outside edge of the eaves apron strip to the end of the last boarding planks at the top of the roof incline) + 55 mm + the length «X» that is needed in order to retain the opening of 30 mm between the head of the trays.

**Tip:** with a warm roof application, the upstand may amount to 25 mm and no opening should be provided between the head of the trays. When a clip is used once, don't use it again.

# VMZ Standing seam G3

## Standing seam trays



After the placement of the Standing seam trays on the Verge G3, one folds the overhanging outside edge over the nose of the eaves apron strip G3. Finally, close the prepared fold around the eaves apron strip G3 with flat folding pincers.



In order to realize the side edge more easily, we recommend executing the fold as follows:

- Either with the bending machine in the workshop. (bending machine adapted to the length of the trays)
- Or on site, prior to the placement, with tools for that purpose (for example: WUKO Unibender)

# VMZ Standing seam G3

## Standing seam trays



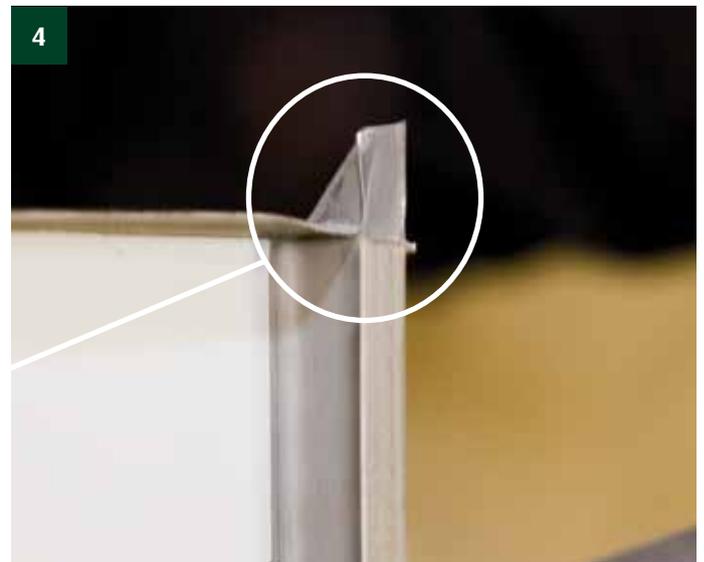
1 Make the nose of the strip in the traditional way: A 30mm fold hooks onto the eaves apron strip G3, so as to make the expansion possible.



2 For the realization of the head: trace the strip on 15 mm.



3 Fold this 15 mm at 90°, with a handkerchief fold.



4 Pinch the "folds" shut in line with the Standing seam. The folded angles may then be beaten down against the upstand if this further facilitates placement.

For the further placement of the Standing seam trays we refer you to the (latest) version of the installation manual Standing seam.

# VMZ Standing seam G3 ridge G3



When all Standing seam trays have been positioned and double closed, the placement of the ridge may begin.



By means of a ridge element, that has been correctly mounted on the axis of the roof, but has not yet been fastened: mark and remove the protective film on both sides of the ridge, at the head of the Standing seam trays, using a sliding blade utility knife (without damaging the zinc).



Place the clips G3 on both roof inclines. Place the underside of the clips on the line of the cut-off of the film. Manually slide the clip into the Standing seam without opening the Standing seam.



The placement of the clip is easy; it should not be twisted into the Standing seam. The position of the clip may be easily adjusted by sliding it upwards or downwards. If necessary use a bevelled nylon or wooden mallet. Take care that the clip G3 has not been twisted or has not been poorly placed in the Standing seam or been damaged.

# VMZ Standing seam G3 ridge G3



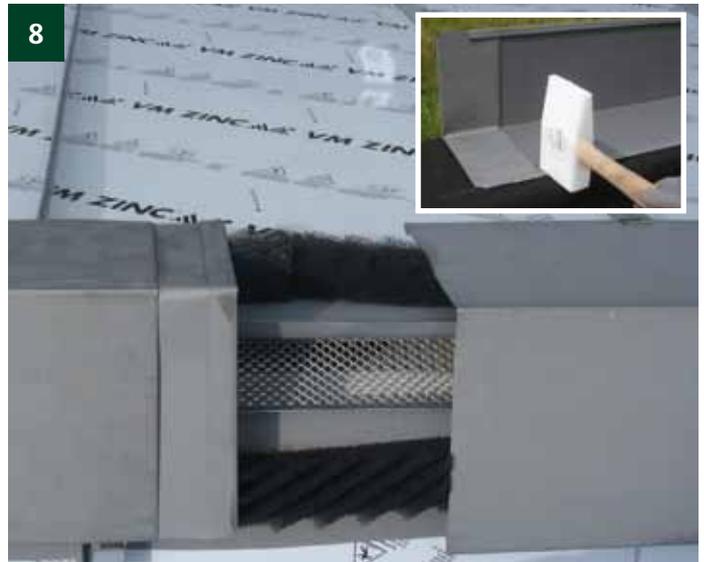
Stick the decompression strip onto the Standing seam panel, just above the clips (minimum 10 mm from 15 mm upstand). Length of each decompression strip = width of the strip + 20 mm. It is permissible to recover the leftovers, which have a minimum length of 150 mm.



Press the decompression strips properly against each other (maximum 1 joint per Standing seam width) in order to ensure a continuous weather tightness. The VMZINC® must be dry and free from dust before the decompression strips are mounted. Please ensure the continuity of decompression strip on the ridge ends.

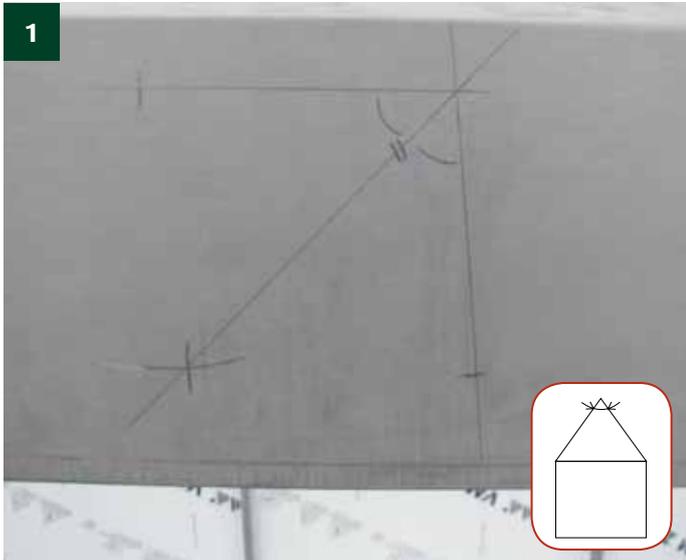


Adjust the angle of the ridge cap using a folding machine/angle bending machine in proportion to the roof incline and then click it firmly into each of the clip (you should hear a click). In one movement screw in and properly tighten a stainless steel screw type SPS 3-7,1-4.5 x 18mm from SFS or equivalent. Use a number SR1 bit for this.

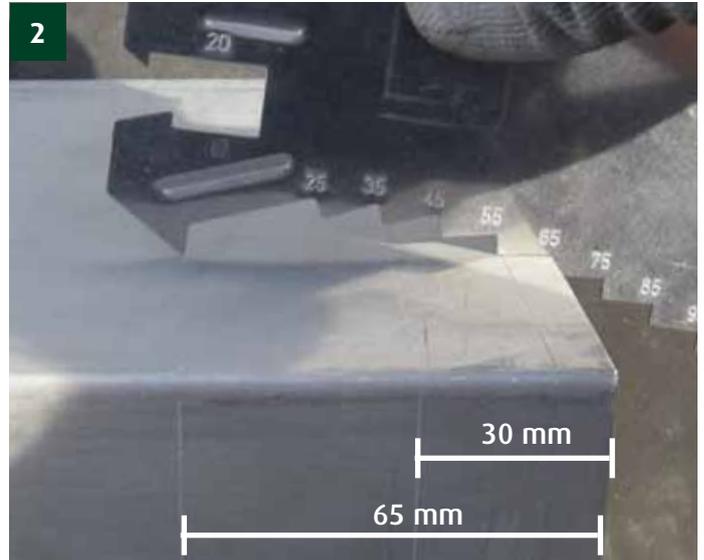


For the use of the ridge element on a wall application (> 75° to 90°), a double crimping of the Standing seam is required at the top, over a distance of 200 mm. The connecting pieces of the ridge are slid halfway into the ridge element. These are blocked by squeezing the fold to close it (see photo in the top right corner). Slide the next ridge element over the connecting piece.

# VMZ Standing seam G3 ridge end finish



Measure the angle of the roof and divide it into two equal parts.



Trace a line at 30 and 65 mm from the edge of the ridge element.



Trace 65 mm on the double fold.



Cut away the piece of the double fold.

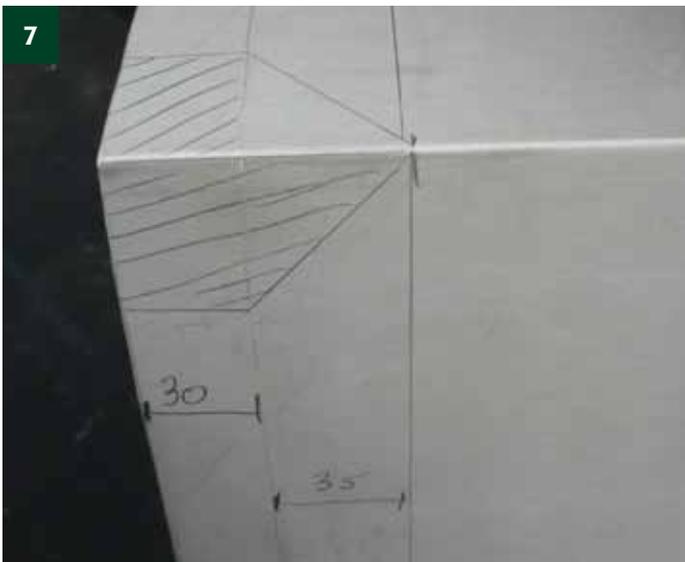
# VMZ Standing seam G3 ridge end finish



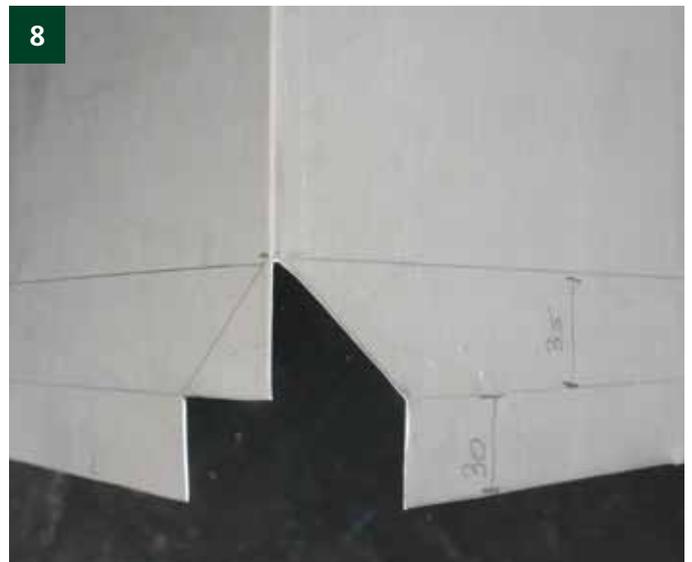
Trace the 'half angle' of the roof. The angle is marked off from the 65 mm line.



At the intersection of the diagonal line (half angle of the roof) and the 30 mm line, draw a perpendicular line to the edge of the ridge element.

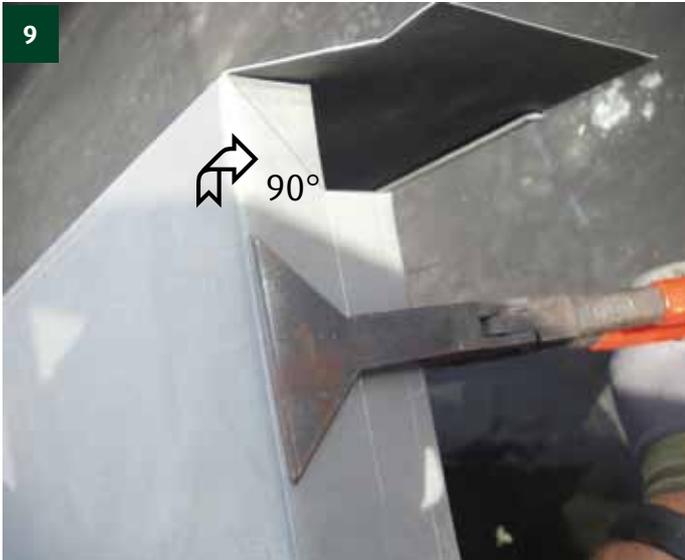


Cut out the shaded part.



You obtain the following result.

# VMZ Standing seam G3 ridge end finish



# VMZ Standing seam G3 ridge end finish



Position the last ridge element by hooking the fold back in under the Verge G3.



Fasten the ridge G3 element into the verge edge with a stainless steel screw. Do this on each side.

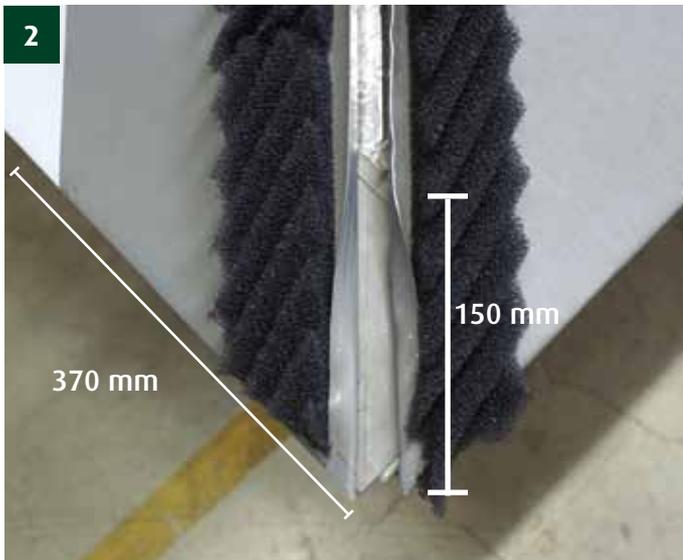
# VMZ Standing seam G3

## Hip G3

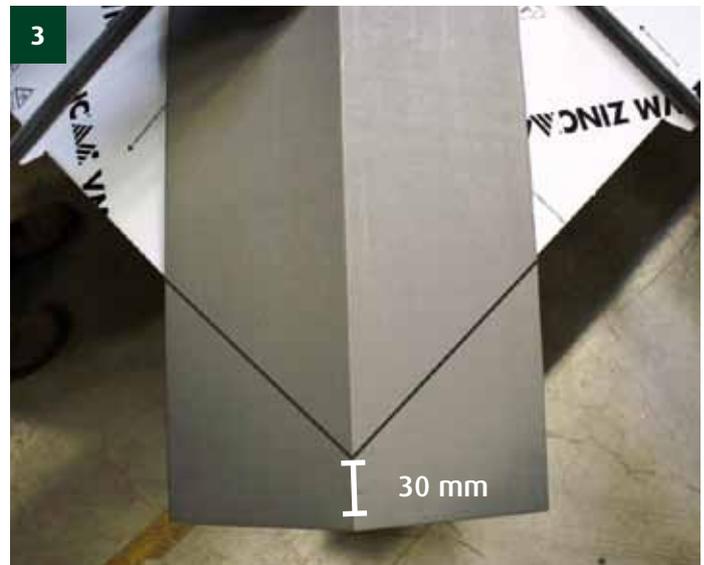
- The installation is done from bottom to top, element by element, according to the same installation technique as that of the ridge.
- The standard connecting elements are not used.
- They are replaced by an overlap of 100 mm from the upper element on the lower element (after the reinforcing fold of the element has been cut away over a distance of 100 mm) In the event that the incline of the angle rafter is <math><25\%</math>, the elements with an overlapping of 30 mm are soldered onto each other.
- The distance between 2 clips is a maximum of 940 mm.



In order to prevent the G3 Hip element from sliding away, a stainless steel screw (self-tapping stainless steel Type SPS 3-7,1-4,5x18mm) is screwed into each clip. Use a bit number SR 1.



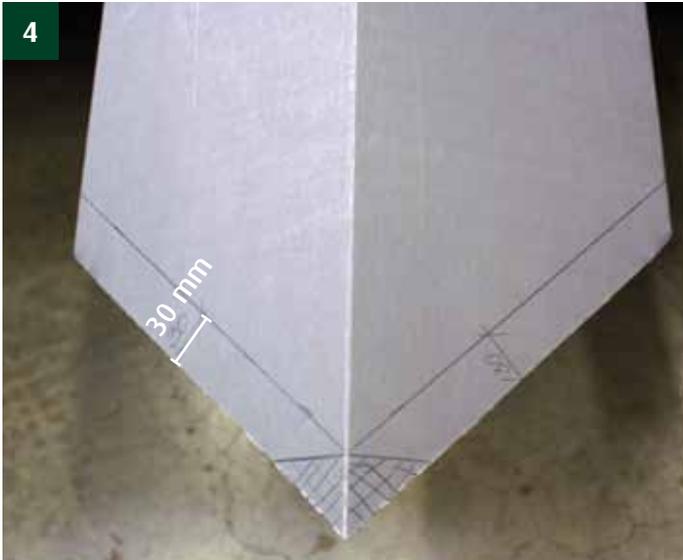
Attention, the distance between the first Standing seam and the point of the hip must be at least 370 mm. Preparation of the piece: fold down the upstands by 15 mm on the 2 first Standing seam trays by 150 mm.



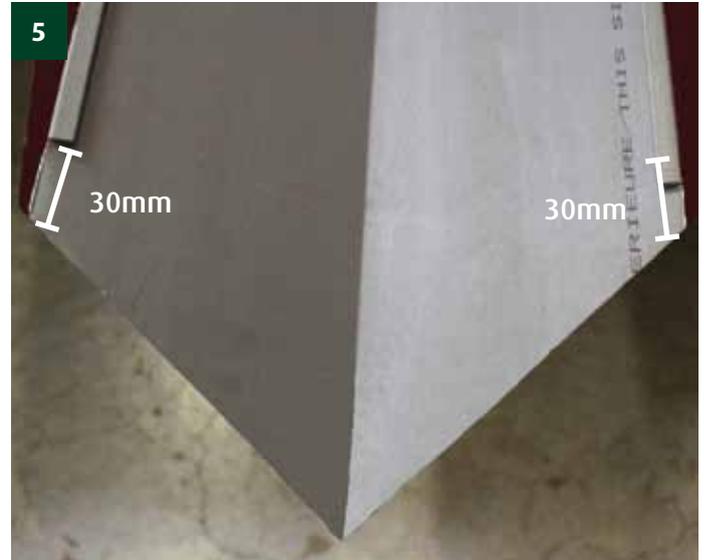
Mark off the fold line on the Hip G3 after you have properly positioned the Hip G3, in the longitudinal direction of the foot of the Standing seam. Keep a minimum of 30 mm in reserve.

# VMZ Standing seam G3

## Hip G3



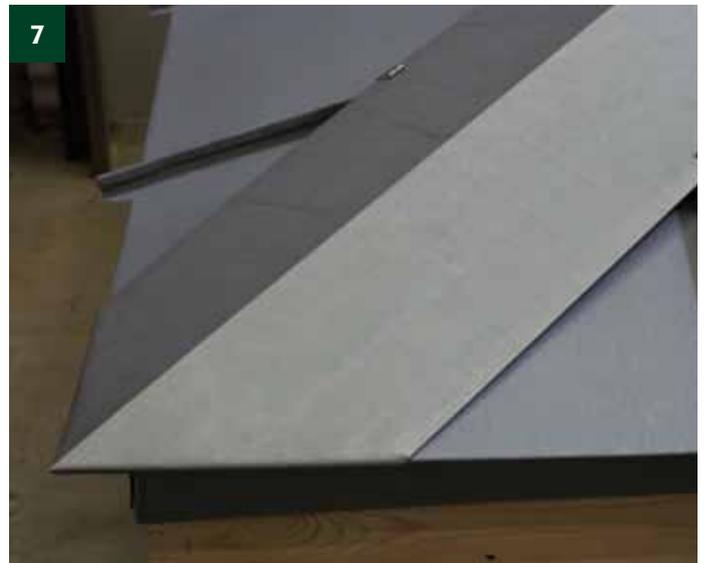
Then mark off a 2nd line on the element. Draw a line, 30mm inboard. After that, cut away the point of the hip, 30 mm left and right, as shown on the picture.



On the underside of the Hip G3 element, cut away the reinforcing fold 30 mm left and right.



Make the hook-on fold.



Slide the Hip G3 element over the angle, clips the hip and place the safety screws.

# VMZ Standing seam G3

## Hip G3



1 Cut the ridge G3 (length that's needed + 100mm over the ends) Place the ridge G3 element without fixing it Trace on both sides a line on the crossing between the hip and the ridge G3 element.



2 Cut the centre line of the hip element, upto the intersection of the 2 other lines.



3 Cut away the folds on both sides upto the drawn lines.



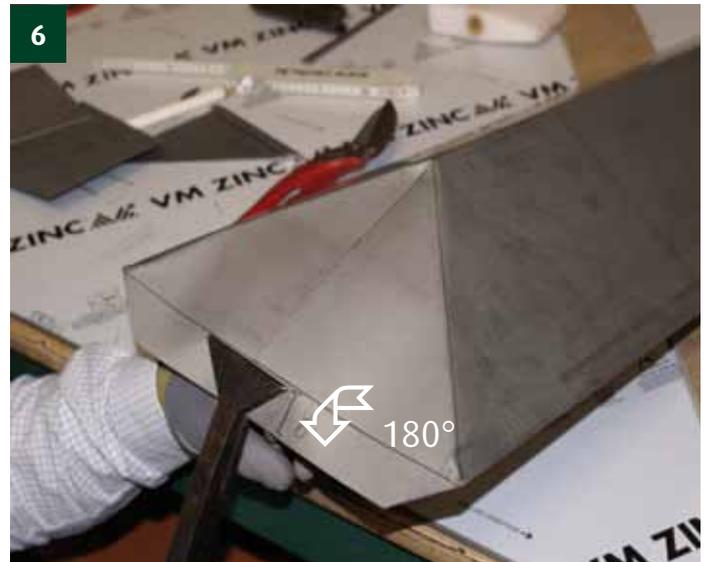
4 Fold both sides of the element, use the lines as the indicator on where to fold, take also the pitch into consideration.

# VMZ Standing seam G3

## Hip G3



Place the ridge element on the roof, trace a horizontal line 30 mm below the edge of the ridge element.



Cut the piece below the 30mm line and cut on both sides a corner of 45° and fold that strip at 180°. Make sure while folding, not to change the angle of the ridge element.



Push the fold together with a hammer.



Position the ridge cap and click it firmly into the G3 clip.  
Connect the end of the ridge cap with the outer wings of the hip by means of a screw or a rivet.

## Mono-screw G3

### Mono-screw:

The mono screw is patented (Umicore patent). They are made of AISI 304 austenitic stainless steel (X5 CrNi18-10) with a thickness of 0.4 mm. This thickness makes it easier to mount them and limits the read through in the crimped Standing seam. The Mono-screw have single reinforcements; there is only room for 1 countersunk screw. These ensure a higher stability, better installation speed and optimum tensile strength.

### Screws:

The plywood screws to be used are of stainless or dichromate galvanized steel with a diameter of 5 mm, a continuous screw thread, a flat milled head and are a minimum of 40 mm long. The screws should be highly resistant to extreme wind gusting of > 95 daN (Pk => 143 kN) for the intended supporting surfaces.

### Application domain

The Mono-screw may be used in all systems described in the Guide for Standing seam instructions and placement. With the exception of the compact roof (on cellular glass), the structure roof (on PUR, PIR and mineral wool) and the use of OSB- and chipboards. Buildings with a maximum height of 40 m  
New build or renovation  
Minimum incline of 3° (5 %) and maximum slope of 60°

### Use

The fastenings of the substrate should be adjusted in order to absorb the upload force of the single screw and to ensure that the system retains mechanical strength. Plywood sheet type requires the use of VMZ ZINC PLUS.

### Screws:

Screwing always takes place perpendicular to the support surface. Take care that the clip does not turn while tightening.

Make sure that **the head of the screws do not protrude above the casing of the Mono-screw.**

The casing of the Mono-screw must be countersunk into the supporting substrate. Avoid the screws being screwed down too tightly. It is necessary to use an electric screwdriver, which is provided with a depth stop, or a torque limiter (adjusted as a function of the type of support surface)

Position the screws centrally in the boarding (at least 40 mm from the edges).

### The Mono-screw

In the case of renovation or beyond non-standard use. In the case of a renovation project wherein the existing bearing structure remains retained in solid wood, the contractor must take the necessary measures in order to ensure that this structure is adequate for this use. It is recommended to have an on the spot measurement carried out of the anchoring value of the

## Mono-screw G3

fixtures provided in accordance with the norms in force. One should check whether the obtained value is greater than 143 daN. If this is not the case, the values of the spacing of the mono-screw must be modified by applying the following formula:  $\text{spacing} = (\text{Pk site}/143) \times \text{spacing from the table}$ .

When the roof covering is outside the foreseen limitations, consult the technical service department at VMZINC® in order to calculate that the distance between the mono-screw is in function of the following criteria:

- the depression that occurs on the roof covering, to be supplied by the contractor.
- the acceptable resistance to extreme wind loading of the VMZINC® Mono-screw
- the acceptable resistance of the screws (see above)
- In any case, the spacing between the clips must not be greater than that shown in the spacing table.

### For curved roofs:

- The radius of curvature may be not less than 2 m with solid wooden bearing elements (boarding).
- Contact our technical service department for the fastening on plywood sheeting.

### Calculation of the spacing:

The spacing between the fixed mono-screw and the mono-screw sliding is a maximum of:  
75 cm in the central area  
50 cm in the verge and eaves

### Fixed mono-screw:

Make sure the back of the clip connects properly to the raised edge of the Standing seam, both before and after screwing it down. The spacing between the clips is identical across the entire width of the roof and corresponds with the space calculated for the side edge of the building.

The top of the fixed part is located above the long Standing seam trays, and no more than 10 m from the bottom. We then position mono-screw sliding above and below the fixed section. The spacing between the mono-screw sliding is dependent on the wind zones. Above the fixed part, the same as this is provided for the verge and the first clip must be placed at a distance from the top which is equal to the distance provided along the gutter and at the corners. The fixed part consists of 5 fixed mono-screw with one screw over a maximum length of 3 m.

### Mono-screw:

Make sure the hooking of the back of the Mono-screw clip sliding part connects properly to the overhanging edge of the Standing seam, both before and after screwing it down. Position the sliding part in the centre of the Mono-screw clip so that the VMZINC can expand/contract.

### Subject

This document is intended for specifiers (building project architects and design teams) and users (companies responsible for installation on the building site) of the designated product or system. Its purpose is to provide the main information, text and diagrams, relating to specification and installation (including supporting structures) and flashing installation.

Any use or specification outside the area of use and/or specifications contained in this manual requires specific consultation with the Umicore technical departments. This does not commit the latter to any responsibility with regard to the feasibility of the design or implementation of these projects.

### Countries of application

This document applies exclusively to the specification and installation of the designated products or systems on building sites in United Kingdom and the Republic of Ireland.

### Qualifications and reference documents

Please note that the correct use of this manual requires knowledge of VMZINC® materials and of the zinc-roofing profession.

While construction is underway all standards in force must be respected, including:

- British Standard Code of Practice for control of condensation in buildings, BS5250:2002.
- Calculation procedure in BS EN ISO 13788:2001.
- BS 5250: 2002: Code of practice for control of condensation in buildings.
- BS 5427: Part 1: 1996: Code of practice for the use of profiled sheet for roof and wall cladding on buildings.
- BS 6229: 1982: Flat roofs with continuously supported coverings. Code of practice.
- BS 6399 Part 2: 1997: Loading for buildings. Code of practice for wind loads.
- BS EN 501: Roofing products from metal sheet. Specifications for fully supported roofing products of zinc sheet.
- BS EN 988: Zinc and zinc alloys. Specification for rolled flat products for building.
- BS EN 12056: Part 3: 2000: Gravity drainage systems inside buildings. Roof drainage, layout and calculation.
- BS EN ISO 13788: Hygrothermal performance of building components and building elements. Internal surface temperature to avoid critical surface humidity and interstitial condensation. Calculation methods.
- CP 143: Part 5: 1964 Zinc: Code of practice for sheet roof and wall coverings. Zinc.

Furthermore, Umicore offers training courses specifically for professionals.

### Responsibility

The specification and installation of VMZINC® products manufactured by Umicore are the sole responsibility of the architects and building professionals who must ensure these products are used in a way suited to the end purpose of the construction and that they are compatible with other products and techniques used. The specification and installation of the products implies respecting the standards in force and the manufacturer's recommendations. In this regard, Umicore publishes and regularly updates specification and installation manuals for specific geographic areas and provides training courses. All the information on the latter can be obtained from the local VMZINC team. Unless otherwise agreed in writing, Umicore cannot be held responsible for any damages resulting from a specification or installation that does not respect all of Umicore's specifications and the above standards and practices.