



# NVS RP Application Guide

Safe, Secure, Sustainable

# Introduction

**NVELOPE® NVS cladding brackets and rails simplify the complexity of installing facades. NVELOPE® systems are designed to provide a support for most cladding panel substrates. NVELOPE® NVS RP brackets allow for final alignment and adjustment whilst offering improved thermal performance. NVELOPE® NVS RP brackets and retaining plate combinations are utilised to support Kingspan AlphaCore Pad insulation systems eliminating the need for secondary penetrative, direct fixing. When NVS RP is used in combination with NVELOPE® Thermal Pad the highest level of thermal performance may be achieved.**



Single NVS Bracket

Stainless steel brackets should be utilised where greater resistance to thermal bridging is required. Made from superior 316 grade, our stainless steel bracket range exhibits greater resistance to localised corrosion in marine environments and atmospheric pollution. Our universal NVS single bracket can be fitted to all usual substrates and does not require an isolator. Our single bracket is usually utilised at sliding point locations, with the rail fixed via the elongated holes.



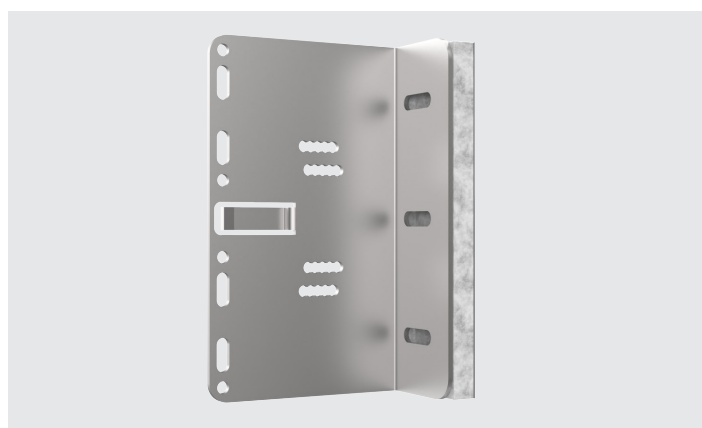
Double NVS Bracket

Rails are attached to brackets by a combination of fixed and sliding points to assure dead load and dynamic load performance. Each rail should have one fixed point usually provided by a double bracket which fixed via the round holes. We provide a full range with 6.5mm slots for Steel Stud substrates and 11mm for masonry.



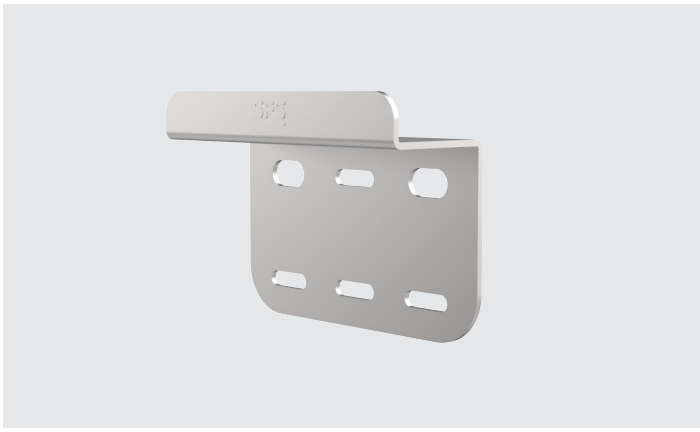
NVS+Thermal Single Bracket

For our highest level of thermal performance the NVS bracket can be complemented with an SFS Thermal Pad to provide the ultimate point loss reduction.



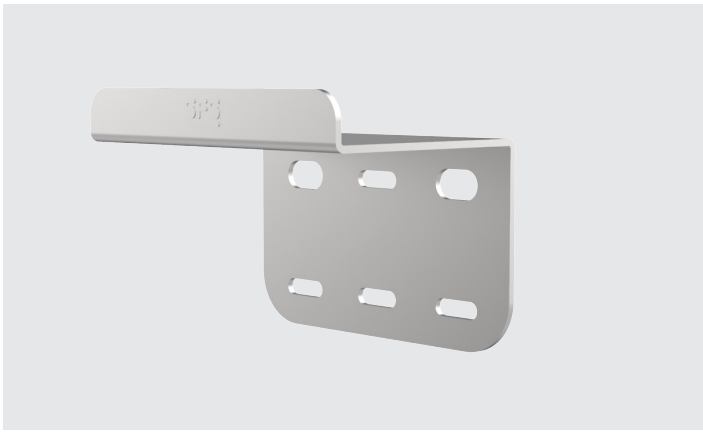
NVS+Thermal Double Bracket

Our highest thermal performing bracket is also available as a double option to assure the subframe system deadloads.



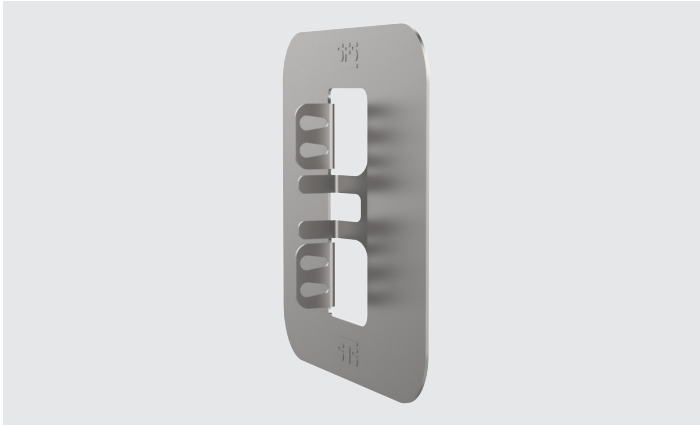
**NVS Starter Bracket Small**

The NVS starter bracket (small) is used at alternate floor levels to support each respective column of AlphaCore Pads. The starter bracket (small) can support single, double or triple layers of AlphaCore up to a combined thickness of 40mm.



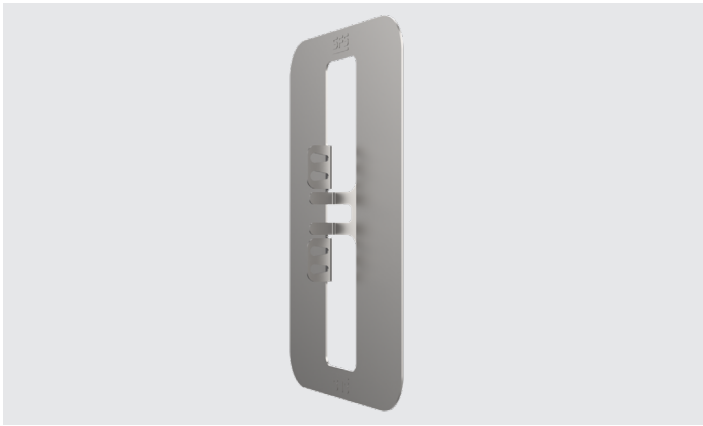
**NVS Starter Bracket Large**

The NVS starter bracket (large) will support combined AlphaCore thicknesses up to 80mm.



**NVS Retaining Plate (RP) Single**

The NVS retaining plate (RP Single) is used in combination with single NVS brackets. It is used to securely support Kingspan AlphaCore Pad insulation within rainscreen facades and eliminates the need for direct insulation fixation.



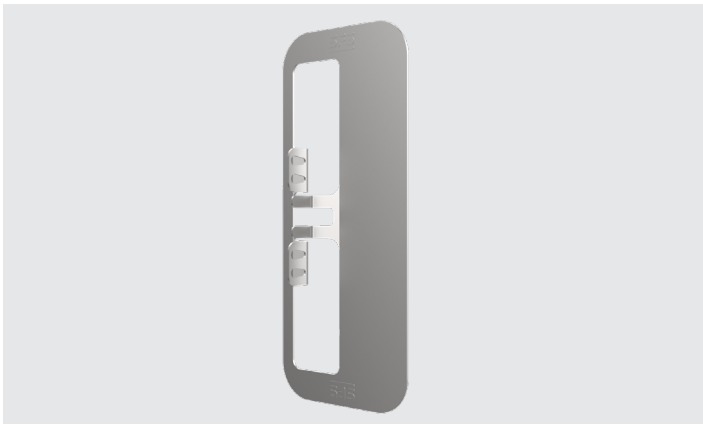
**NVS Retaining Plate (RP) Double**

The NVS retaining plate (RP Double) is used in combination with either NVS single or double brackets and is usually utilised at cruciform corners where AlphaCore Pads meet.



**NVS RP End Plate Single**

Utilised to securely support AlphaCore Pad insulation without the need for secondary mechanical fixings and used in combination with NVS brackets. Eliminates overhang from end of runs. RP Single End Plate is compatible with NVS Single brackets. It must be installed in the correct orientation to ensure it does not oversale the AlphaCore Pad edge.



**NVS RP End Plate Double**

RP Double End Plate is universal and can be used with either NVS Single or Double. It must be installed in the correct orientation to ensure it does not oversale the Alphacore Pad edge.

# Component guide

## Brackets

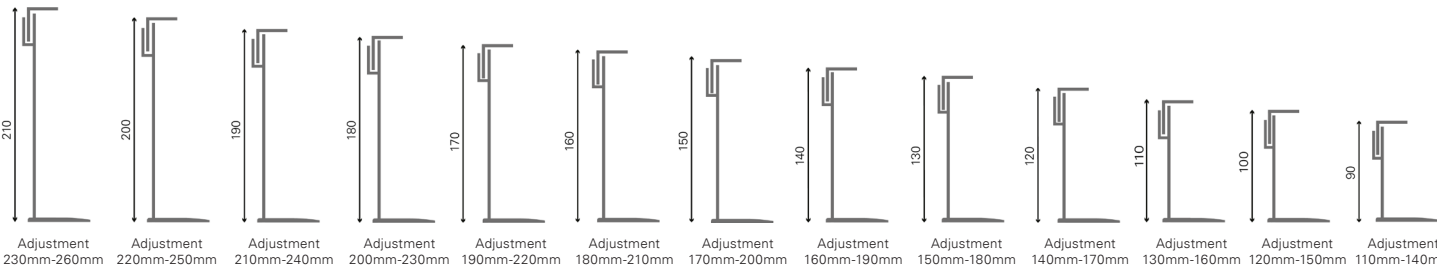
The Stainless steel NVS range includes single and double variations of each bracket size, the difference being the depth of the bracket (75mm single, 150mm double). A double bracket is capable of supporting higher cladding loads, and is used in the fixed point location for projects that feature more demanding wind or cladding loads.

The substrate slot variations on NVELOPE® brackets are to suit a wide range of substrate materials. For steel and timber substrates 6.5mm slots are used; for brick, block and concrete, the 11mm slots are used. The single bracket includes both slot variations so is suitable for all substrates.

Bracket Size	Minimum AlphaCore Pad insulation depth	Maximum AlphaCore Pad insulation depth	Minium Cladding Zone depth*	Maximum Cladding Zone depth*
90mm	15mm	32mm	110mm	140mm
100mm	25mm	42mm	120mm	150mm
110mm	35mm	52mm	130mm	160mm
120mm	45mm	62mm	140mm	170mm
130mm	55mm	72mm	150mm	180mm
140mm	65mm	82mm	160mm	190mm
150mm	75mm	92mm	170mm	200mm
160mm	85mm	102mm	180mm	210mm
170mm	95mm	112mm	190mm	220mm
180mm	105mm	122mm	200mm	230mm
190mm	115mm	132mm	210mm	240mm
200mm	125mm	142mm	220mm	250mm
210mm	135mm	152mm	230mm	260mm

\*Assumes 60mm leg inserted on a standard 60:40 L profile rail

## Cavity depths



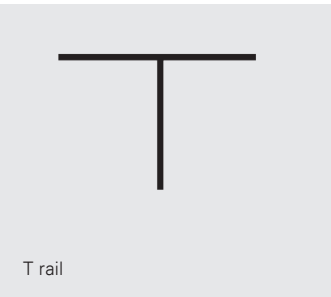
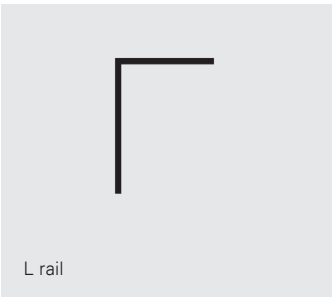
# Component guide

## Profiles

Generally, profiles are cut to lengths that reflect the height of the panels that are going to be fixed to them. Typically storey-height profiles are cut so that the panels are located on one set of vertical profiles and do not 'bridge' the expansion gap between two profiles.

These are secured to the bracket using a secondary fixing.

SFS are able to offer an optimised solution, minimising wastage on site by cutting profiles to length in our factory and delivering precut ready to install directly to the project.



Type	Dimensions	Material number
L Profile	60 x 40 x 2.2 x 3000	1521357
L Profile	60 x 40 x 2.2 x 3600	1521365
L Profile	60 x 40 x 2.2 x 4850	1521370
L Profile	60 x 40 x 2.2 x 6000	1521375
T Profile	40 x 100 x 2.2 x 3000	1521413
T Profile	40 x 100 x 2.2 x 6000	1521417
T Profile	60 x 100 x 2.2 x 3000	1521423
T Profile	60 x 100 x 2.2 x 4850	1521431
T Profile	60 x 100 x 2.2 x 6000	1521434
T Profile	60 x 140 x 2.2 x 3000	1521445
T Profile	60 x 140 x 2.2 x 6000	1521447



# Component guide

## Level 1 Fixings: Fixing subframe/insulation back to the substrate

**Fixing Design and Specification Consideration: NVELOPE® subframe systems can be used in conjunction with most types of primary wall substrates and includes: masonry – brick, concrete, block & stone; lightweight steel framing systems (SFS); timber frame and structural insulated panels (SIPS).**

The method of (Level 1) fixation depends on the type of substrate the NVELOPE® system is going to be fixed to. Our level 1 fixing range includes insulation fasteners and support anchors designed to fix to a variety of substrates including concrete, steel and timber.

Further considerations must also be made regarding the design loading capabilities of level fixings as defined by Technical Performance Values within European Technical Approval (ETA) standards or determined via on-site “Pull-Out” strength testing. Windload evaluation and calculations derived from our Project Builder digital tool can be utilised to accurately predict the vertical and horizontal centres of our NVELOPE® subframe supporting brackets for any particular project.



### Primary fixings

Used to fix the NVS brackets back to the building substrate

**SX3/28-S16-6.0x48**  
For fixing into aluminium  
or steel  
**1575777**



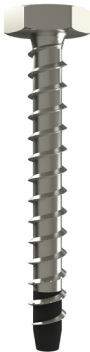
**TDA-S-S16-6.5x60**  
For fixing into timber  
**1526326**



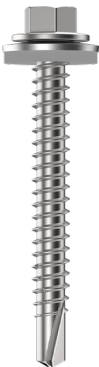
**SXR-10-80-FUS-A**  
For fixing into masonry  
**1551174**



**MULTI-MONTI-10x85**  
For fixing into concrete  
**1480024**



**SX5/36-S16/A4**  
For fixing through  
Sheathing boards  
into steel  
**1570614**



\*fixing images not to scale

## Level 2 Fixings: Fixing rails/brackets within the subframe

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**Fixing Design and Specification Consideration: SFS Level 2 fixings are support structure fasteners and are used to connect our NVELOPE® profiles (rails) to each other and various bracket combinations.**

Our SFS fixings used for level 2 subframe applications assure:

- Long-term performance. All our fixings are available in corrosion resistant stainless steel and available as A4 (AISI 316)
- High shear loads offering greater security
- Permanent fixation. Our SDA5 fixings feature a “unique thread geometry” which allows overwinding during installation and at the same time prevents unwinding once installed

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### Secondary fixings

Used to connect NV rails and RP system to the NVS brackets.

**SDA5/5.5x22**  
**1507572**



**Polygrip-4.8x10**  
**1433923**



\*fixing images not to scale



# Installation guide

## 1. Secure NVS or NVS+Thermal brackets to substrate

1.1 Position of brackets is derived from Project Builder and with due consideration to the assuring adequate support to each Kingspan Alphacore Pad.

1.2 AlphaCore Pad is supplied in a standard format of 1000x600 and is available in a range of thicknesses.

1.3 AlphaCore Pads can be installed as single, double or triple layer. Please refer to Kingspan for further information.

1.4 Position NVS RP Starter Brackets horizontally to ensure each column of vertical Alphacore Pads will be supported adequately. A minimum of 2 brackets per column is recommended.

1.5 Secure using recommended primary fixing.

We recommend pull-out tests are carried out for fixings into blockwork and brick. These tests can be arranged with our technical department.

**Find out more** →



## 2. Install AlphaCore Pads

2.1 Insert Alphacore Pads carefully between the installed NVELOPE® NVS or NVS+Thermal brackets in accordance with Kingspan Insulations' instructions.

**Note:** If our NVS+Thermal bracket is used, you must add 10mm to the overall cladding zone to account for the SFS Thermal Pad.



## 3. Installation of the Retaining Plates (RP) Single and Double

3.1 Fix the appropriate RP (Single or Double) by sliding over the respective NVS bracket. The RP can be installed either way round. The RP should be supporting the AlphaCore pad securely. Do not over compress.

3.2 The RP Double is universal and can be installed into an NVS Single or Double bracket. The RP Single is installed onto NVS Single brackets.

3.3 Align the tear shaped slot on the RP with the overlapping slotted holes and identify where the tapered edge of the RP corresponds with a hole within the NVS bracket.

3.4 Fix in place in the correct position using a Gesipa Polygrip 4.8x10.0 (1433923).

3.5 For the outer vertical edges or end of the run apply RP End Plates (Single or Double) which are installed in a similar fashion to the standard RP Retaining Plate. The End Plate should be orientated so that the flange does not over-sail the installed AlphaCore Pad. Fix in place with Gesipa rivet and gun.



## 4. Insert Profiles into brackets

- 4.1 Once the NVELOPE® NVS brackets are aligned in correct positions, fit the required cut length profiles into the helping hand of the bracket, as described by the SFS Project Builder static calculation.
- 4.2 Push the profile into the brackets helping hand and adjust for line and level.
- 4.3 Check for line and level, ensuring a 10-12mm gap between the ends of rails to allow for expansion.



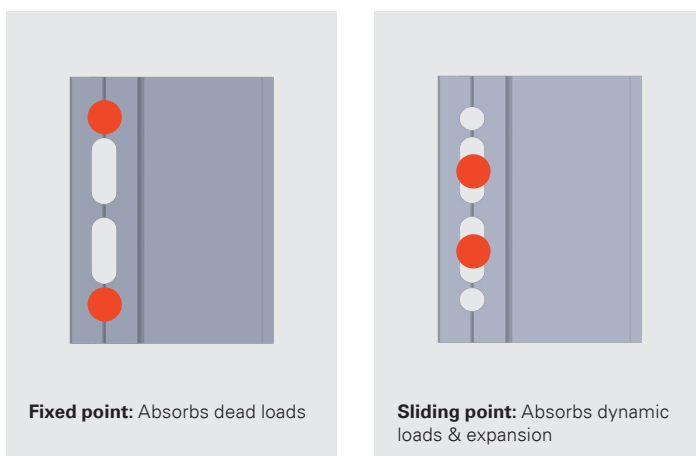
## 5. Fix the profiles to the brackets

- 5.1 Secure the profiles in the correct location using the SDA5-5.5x22 stainless steel fixing. Observe the correct number and fixing location as advised on the static calculation.

**Note:** Only one bracket per profile should have fixings in the fixed points (round holes), all subsequent brackets should have fixings in the sliding points (slots). See Figure 1.



Figure 1



Contact our  
technical team:  
0330 0555 888

# Installation guide

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## 6. Insert decorative cladding panels

6.1 Refer to relevant decorative panel supplier and SFS Technical Team for advice on panel fixing options.

**Note:** Typically, profiles are cut so that the panel(s) are located on one set of vertical profiles and do not bridge an expansion gap between two profiles.



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## 7. Check over

Once all brackets, retaining plates and profiles are installed to an area of cladding, final checks should be carried out.

- On the primary anchor torque settings
- To the line and level of profiles in relation to each other
- To the number of fixings and their position in each bracket
- Ensure the AlphaCore pads are securely clamped in place.



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## Notes

### Fixings

Suitable primary anchors are designed to fix the brackets to a pre-determined grid to suit the cladding panel layout. Stainless steel fixings also assist in preventing bimetallic corrosion.

The size and type of primary fixing for the connectors will always be determined by the dynamic and dead loads they have to resist. Please get in touch if you need further details.





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