

GRS Klip-Tite™

Global Roofing Solutions Klip-Tite™ Steel & Aluminium

ROOFING LIKE NO OTHER



Talk to **THE SMART ROOF PEOPLE**
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GRS Klip-Tite™

 **GRS**
GLOBAL ROOFING SOLUTIONS
BrownBuilt | HH Robertson



Typical Specification

Materials

The roofing shall be Klip-Tite™ profile, roll-formed in continuous lengths in one of the materials in the table below. Klip-Tite™ is obtained from Global Roofing Solutions.

Material	Metal Grade	Colour One Side	Colour Two Side
Galvanised Z275	ISQ 550	_____	_____
Prepainted Galvanised Z200		✓	Special
Prepainted Galvanised Z275		✓	Special
Zinc aluminium alloy coated AZ150	G550	_____	_____
Zinc aluminium alloy coated AZ200		_____	_____
Prepainted zinc aluminium alloy AZ150		✓	Special
Prepainted zinc aluminium alloy AZ100		✓	Special
Prepainted zinc aluminium alloy AZ200		✓	Special
Aluminium Mill Finish	3004 or 9017	_____	_____
Color-Tech G4		✓	Special

The Profile

The profile roll-formed from certified material complying with (select from the above table). The profile shall have 4 trapezoidal ribs at 233mm centres giving a nett cover of 700mm. The male rib shall have spurs to ensure a positive double interlocking action at side-laps. Each pan shall incorporate transverse stiffener ribs.

Assembly

It is recommended that Klip-Tite™ sheeting be laid by an approved contractor in strict accordance with the manufacturer's specifications. When using a GRS Approved Contractor, a five year guarantee on site-workmanship and water tightness may be issued after approval by Global Roofing Solutions.

Flashings

Stop endings must be formed at the apex and the pan turned down at the eaves to form a drip. The roof sheeting shall be closed as necessary with purpose-made flashings of a design approved by the supplier. These flashings shall be notched around ribs where necessary and fixed on S10 clips. All these operations must be performed with special tools available from the supplier.

Life Cycle Cost of Roofing

Aluminium's extended life expectancy and virtually maintenance-free characteristics makes it cost effective over the long term.

The cumulative cost chart was based on a study of a major industrial development in the Durban South area.

Site Handling

Klip-Tite™ sheets should be suitably supported clear of the ground, under well ventilated cover, away from risk of damage by building operations, contact with cement, dust, lime and abrasive dust, until required to be installed.

Cleaning Up

The complete roof must be kept clean and free of any swarf and debris.

Quality Assurance

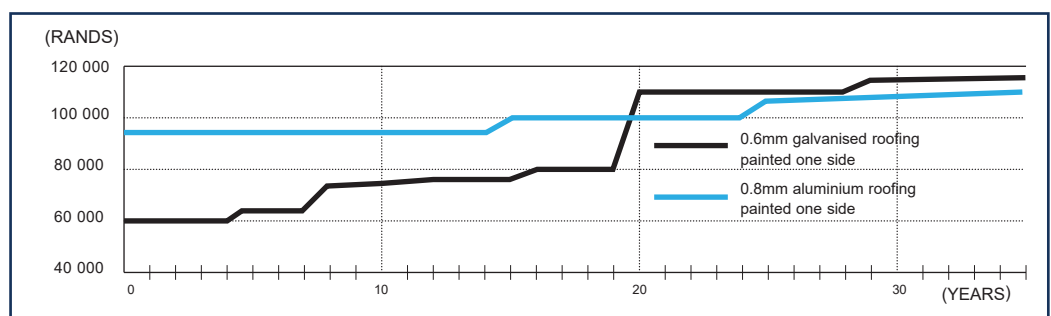
The manufacturer shall be assessed and certified as complying with ISO 9001:2015 Quality Management System.

Solar Clamp

Please refer to GRS PV Clamp brochure.

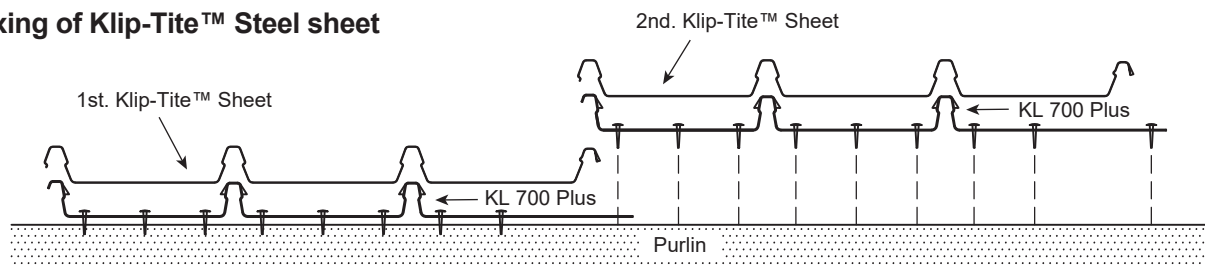
Note

A GRS / Brownbuilt installation warranty will only be honoured if PV Clamps are correctly installed with photovoltaic panels.



The Concealed Fixing Concept

Fixing of Klip-Tite™ Steel sheet



Fasteners for Steel Sheets

The recommended fasteners for fixing the KL 700 & KL 700 Plus clips to steel or timber purlins are as follows:

For Steel Purlins

At least 3 threads should protrude past the support.

1mm to 4,5mm thick

No.10 - 16 x 16mm long self-drilling Wafer head PH2 screws #3 drill point.

5mm to 12,5mm thick

No.12 - 24 x 38mm long self-drilling Wafer head PH3 screws #5 drill point.

For Timber Purlins

The screw should penetrate the purlin by the same depth recommended as if there were no insulation.

No.10 - 11 x 45mm long self-drilling Wafer head PH2 screws. Type 17 drill point.

Note

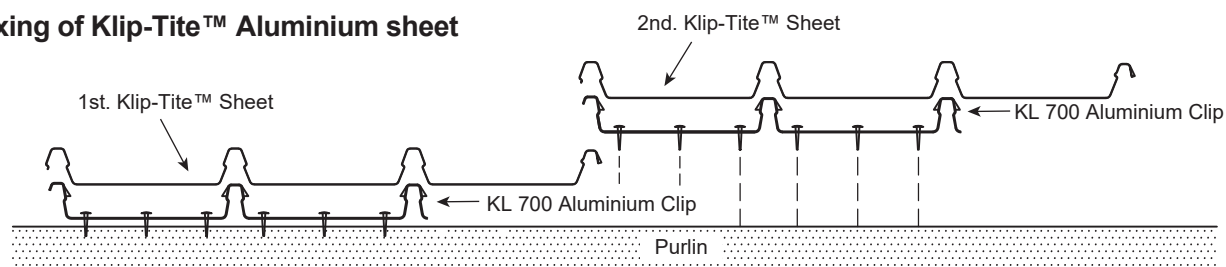
Where screws exceed 45mm long, they should be No.12 with a PH3 head.



Note

Fasteners must be selected to match the life expectancy of the roofing and cladding material. The coating class for fasteners, complying with SANS 1273, should be used in conjunction with all roofing and cladding material. For a full range of compatible fasteners, please refer to the GRS Installation Manual.

Fixing of Klip-Tite™ Aluminium sheet



Fasteners for Aluminium Sheets

The recommended fasteners for fixing the Aluminium KL700 clips to steel or timber purlins are 304 stainless steel fasteners as follows:

Steel Purlins - (1mm - 4.5mm thick)

No. 10 -16 x 22mm lg. 304 stainless steel bi-metal self-drilling wafer head PH2 screw, No. 3 drill point, ZAP Class 5.

Steel Purlins - (5mm - 12.5mm thick)

No. 12 - 24 x 38mm lg. 304 stainless steel bi-metal self-drilling wafer head PH3 screw, No. 5 drill point, ZAP Class 5.

*For extremely corrosive areas, please contact GRS

For 50mm insulation blanket over purlins:

No. 10 - 16 x 22mm lg. 304 stainless steel bi-metal self-drilling wafer head PH2 screw, No. 3 drill point, ZAP Class 5.

Timber Purlins

No. 10 - 11 x 45mm lg. 304 stainless steel self-drilling wafer head PH2 screw, Type 17 drill point, ZAP Class 5.



Where insulation is installed

Between purlin and sheeting, the length of screws should be increased, depending on the compressed thickness and density of the insulation. Please refer to the GRS Installation Manual for additional information on insulation fixing details.

*For light steel frame purlins less than 1mm thick, please contact GRS.

Additional Applications

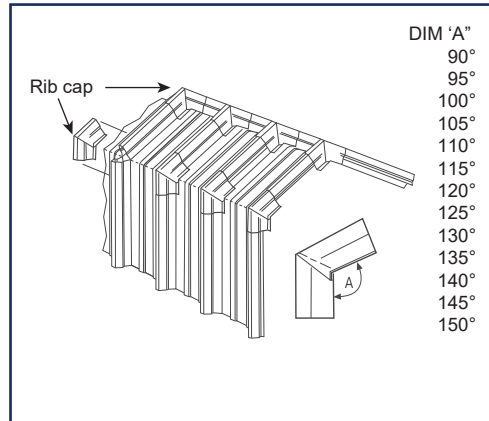
Sheet Lengths

Klip-Tite™ is available, ex-factory, in sheet lengths limited only by transport restrictions; normal loads 12.5m and abnormal loads 18.6m. Longer lengths can be milled on site, eliminating end laps which are not recommended.

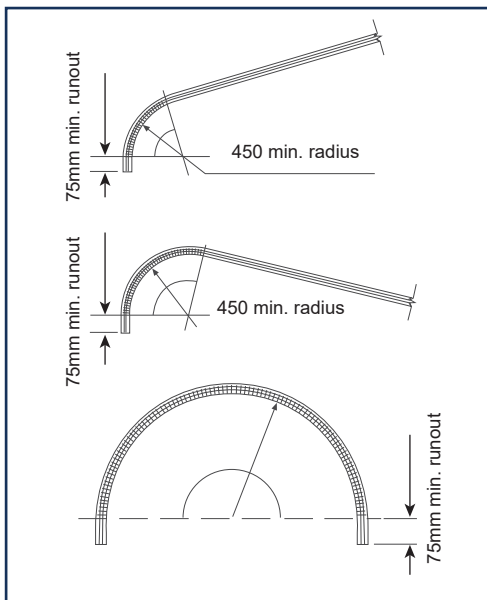
End lapping negates the concealed fix concept and no water tightness guarantee can be given.

End lapping reduces the life expectancy of the roof, due to corrosion.

Rib Cap Detail



Bullnosing and Cranking



Note

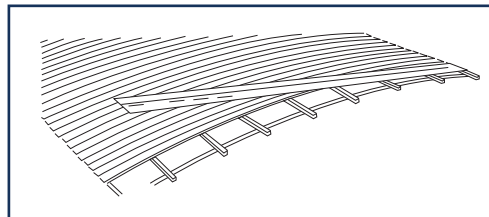
Reverse cranking is not possible.

Curving

Klip-Tite™ can be crank curved (convex only) to any radius over 800mm by increasing the distance between the "cranking" indentations across the sheet.

Springing

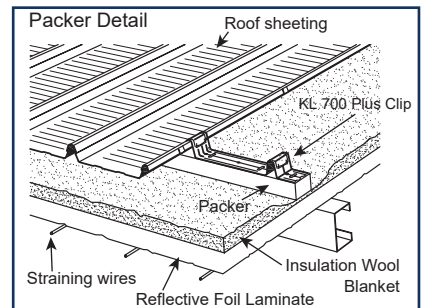
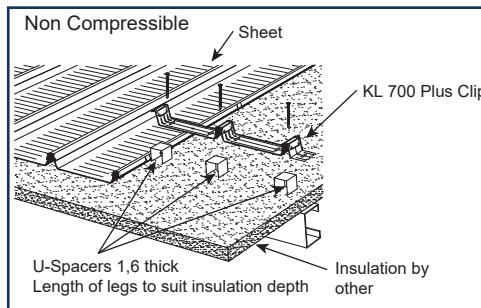
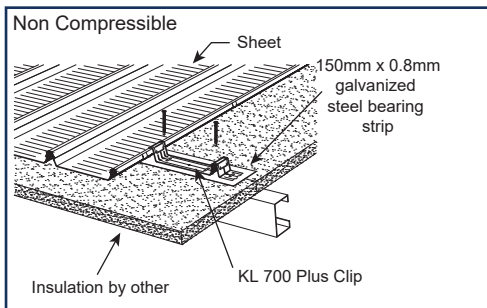
Klip-Tite™ can be sprung to a minimum radius of 36m convex and 50m concave with internal span of purlin 1.5m maximum



Note

Consideration for road transport has to be taken into account. Refer to the GRS Installation Manual for detailed dimensions and fixing instructions. Site cranking for milled sheets is available on application.

Insulation



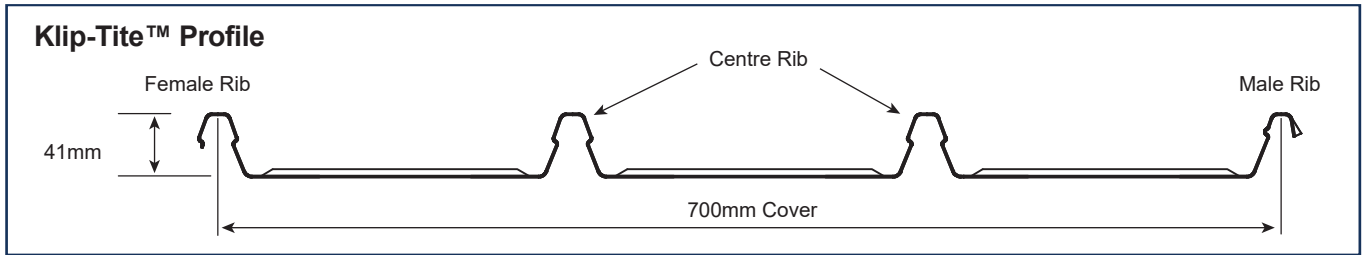
Note

Refer to installation manual for correct application for type of insulation, dependant on purlin centers, sheet lengths and torque setting of power tool used.



Profile: Klip-Tite™

An independent Consulting Engineer tested and found characteristic resistance to unclipping to 3.9kPa. This demonstrates the sheet's excellent stiffness and rigidity.



Load Span Table

The recommended purlin support centres are based on the following design criteria and obtained through testing. Maximum loads are applicable if installed by an approved contractor:

Ultimate Superimposed Distributed Load		Ultimate Uplift Load	
		Steel	Aluminium
ROOFS	1.50 kN/m ²	3.20 kN/m ²	3.20 kN/m ²

Note

At 1° slope, all roof supports must be in the same plane as slight variations can result in a zero or negative fall. This may even occur after completion of the building over time. Where possible it is wise to design for a minimum of 2° slope to ensure a positive fall.

Drainage Table

Maximum roof run (in metres) for roof slopes and rainfall intensities shown. These figures are based on unrestricted, free flow of water.

Klip-Tite™ Roof Slope	Rainfall Intensity mm/h				
	200	250	300	400	500
1°	150m	120m	100m	74m	60m
2°	201m	161m	134m	100m	80m
3°		196m	163m	122m	98m
5°			212m	159m	126m
7.5°				195m	156m
10°					182m

Maximum Allowable Support Spacings

Type of Span	0.47mm	0.5mm	0.53mm	0.55mm	0.58mm	0.8mm Aluminium
Roofs						
Single Span	1.300m	1.400m	1.500m	1.800m	1.800m	1.000m
End Span	1.600m	1.700m	1.900m	2.100m	2.100m	1.000m
Internal Span	1.900m	2.000m	2.300m	2.500m	2.500m	1.800m
Cantilever (unstiffened)	0.150m	0.180m	0.180m	0.200m	0.260m	0.100m
Cantilever (stiffened- max. sheet length of 13m)	0.350m	0.400m	0.400m	0.450m	0.600m	*
Nominal Mass kg/m ²	5.1	5.5	5.7	5.75	6.6	2.9

Available in Galvanised, Zinalume®, Zinal® and Chromadek®, Colorbond™, Colorplus®, Aluminium Mill Finish, Color-Tech G4

- Spans don't apply to natural sprung sheets. Consult GRS Technical Department.

- Spans for timber purlins to be in accordance with SANS 10400

* The cantilever distance is determined by point loading (foot traffic) and can be 250mm if supported from underneath when a point load is applied.

Aluminium in contact with other materials

Contact Material	Recommended Barrier
Aluminium (and alloys)	Not required
Stainless steel 304, 316 etc.	Not required
Zinc	Marginal / Use bituminous paint
Lead	Bituminous paint or Zinc chromate
Concrete, cement, lime	2 Coat bitumen or bituminous paint
Stone, brick	Aluminium, rubber bitumen-based paint, aluminised bituminous or protective plastic tape
Softwood	Aluminium, rubber, bitumen-based paint, or protective plastic tape
Hardboard	Compatible sealer, building paper or bituminous felt
Some insulation products, felt etc.	Bituminous paint, bituminous paper or felt
Glass Fibre insulation	Bituminous paint
Polycarbonate	Not required
Plaster	Bituminous paint
Sealant, caulking compounds, adhesives	Not required

Note

The grade of aluminium has been specially developed for Global Roofing Solutions to give increased properties, which are achieved with higher additions of magnesium during casting. This increases solid solution strengthening.

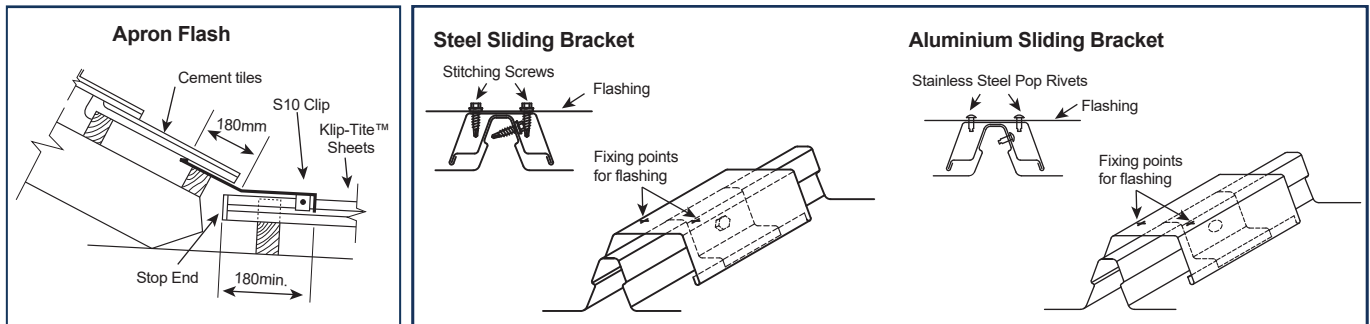
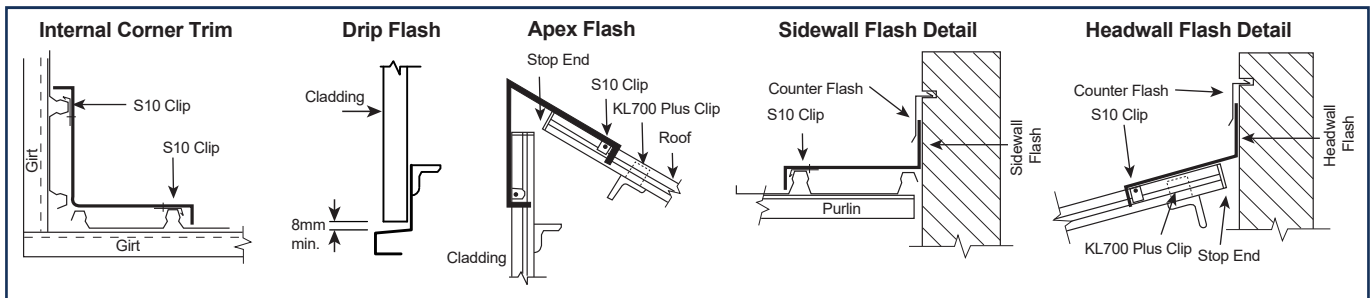
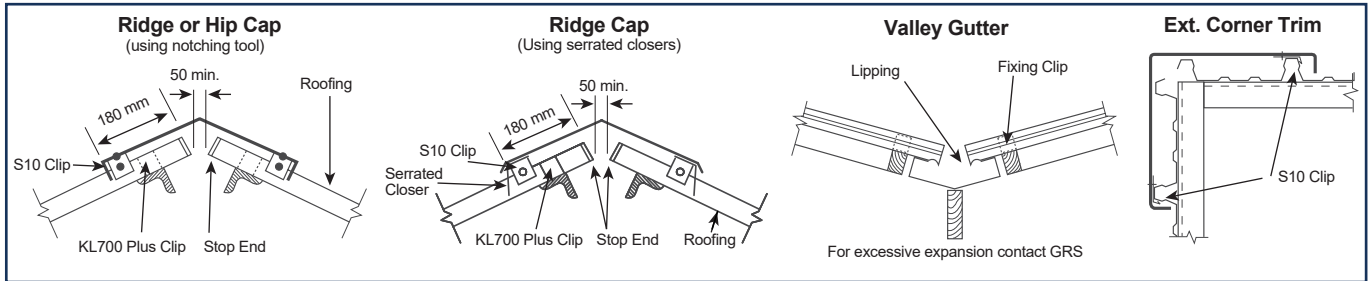
Aluminium in contact with other materials:

Aluminium in itself is exceptionally resistant to general weathering and corrosion. Contact with other dissimilar metals and materials may shorten its life. It is therefore recommended that the following steps are taken to isolate the aluminium and ensure maximum life. The sheeting must be isolated from steel purlins, in most situations, through the application of a suitable protective plastic tape (Denso Cladseal 300 or similar). In certain, non-corrosive, situations a high quality paint or galvanising system on the steel work might be adequate subject to there being no condensation occurring. However, no reliance can be placed on the paint coating present to provide protection against galvanic corrosion.

Popular Flashings

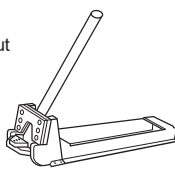
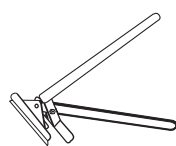
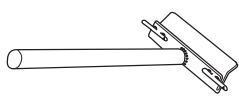
Available in 0.58mm / 0.8mm thick galvanised Z275 steel, 0.53mm thick Zinalume® AZ150 or 0.55mm thick ZincAL® AZ150. Or with a colour option Chromadek® (Galvanised Z200), Clean COLORBOND™ (Zinalume® AZ150) or COLORPLUS® (ZincAL® AZ150) finish to one / two sides.

Flashings are also available in aluminium to match sheeting.



*** When sheet lengths are over 30m (20m for Aluminium) flashings must be fixed to sheets using sliding brackets.**

Tools

<p>Notching Tool Used to notch out sheet ribs profile in the flanges of flashings to fit over sheet ribs.</p> 	<p>Turn-up Tool Used to stop end sheets upward at the top of the roof slope to prevent water blown up and over sheet end.</p> 	<p>Turn-down Tool Used to lip sheets downward at the eaves to prevent water flowing back on the underside of the sheets.</p> 
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Please visit our website or contact GRS for standard flashing details

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