



GFRP Key Clamps & Tube

Manufactured using surface veil and oxybenzone additives for enhanced UV protection.
Fire Resistant.

Lockinex[®]
great service, great quality



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INTRODUCTION

The Lockinex range of GFRP Key clamps, Tubing & Toe Boards are used in many types of industry. The mechanical properties make them suitable for the construction of Guardrails & Safety Barriers.

APPLICATION

Electrically "Non Conductive", lightweight and highly visible, their application lends them favourably to where these are a consideration for use.

Installations include industries such as, Power Stations, Railways (Track-side), Petro Chemical, Bio Mass, Waste & Re cycling.

DESIGN

The design of the Lockinex GFRP Key Clamps & Tubing ensure easy installation of standard readily available items.

Able to withstand loadings to accommodate current regulations, as stated to the end section of this document.

COMPOSITION, MANUFACTURE.

The clamps are manufactured from moulds & the finished items incorporate certain polymers, resins and pigments, to obtain the coloured finish.

The tubing & Toe Boards are Pultruded strands from a die and the finished items incorporate long strands of glass fibres, certain polymers, resins and pigments, to obtain the coloured finish.

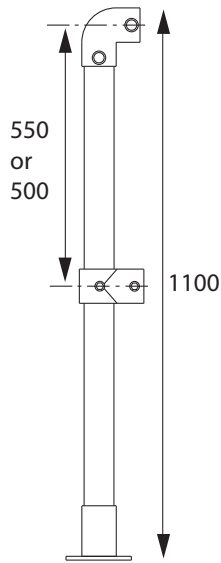
Oxybenzone is added to the resin in both cases to help retard UV damage to the pigmentation.

Surface veil techniques are also incorporated in pultruded tube profiles to enhance the appearance, and assist reduce UV damage to the pigmentation.

An element of fire resistance exists, however should you have a specific project or application that requires further protection please call to discuss.

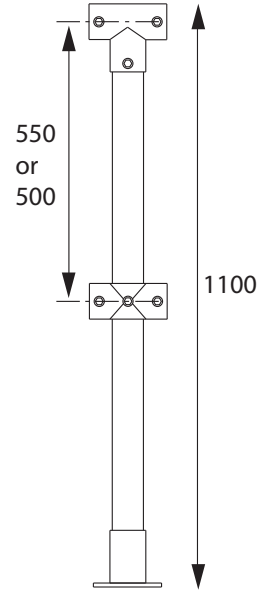


GRIPATEX-RM-END-550 (550mm rail centres)
GRIPATEX-RM-END-500 (500mm rail centres)



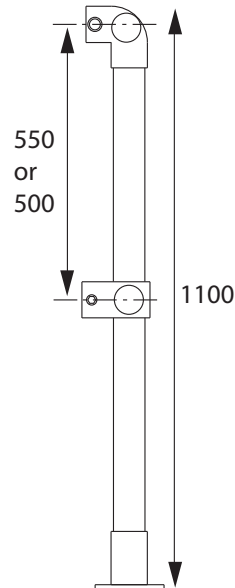
GRP key clamp ready made end post for rapid install on site. Finished top rail height of 1100mm with horizontal rail centres at 550 or 500mm (500mm centres typical used when installing a toeboard/kickplate). Comes with all clamps already fixed to upright post along with relevant fixings needed to insert and connect horizontal tubes.

GRIPATEX-RM-MID-550 (550mm rail centres)
GRIPATEX-RM-MID-500 (500mm rail centres)



GRP key clamp ready made mid post for rapid install on site. Finished top rail height of 1100mm with horizontal rail centres at 550 or 500mm (500mm centres typical used when installing a toeboard/kickplate). Comes with all clamps already fixed to upright post along with relevant fixings needed to insert and connect horizontal tubes.

GRIPATEX-RM-CORNER-550 (550mm rail centres)
GRIPATEX-RM-CORNER-500 (500mm rail centres)



GRP key clamp ready made corner post for rapid install on site. Finished top rail height of 1100mm with horizontal rail centres at 550 or 500mm (500mm centres typical used when installing a toeboard/kickplate). Comes with all clamps already fixed to upright post along with relevant fixings needed to insert and connect horizontal tubes.



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Gripatex - KC02



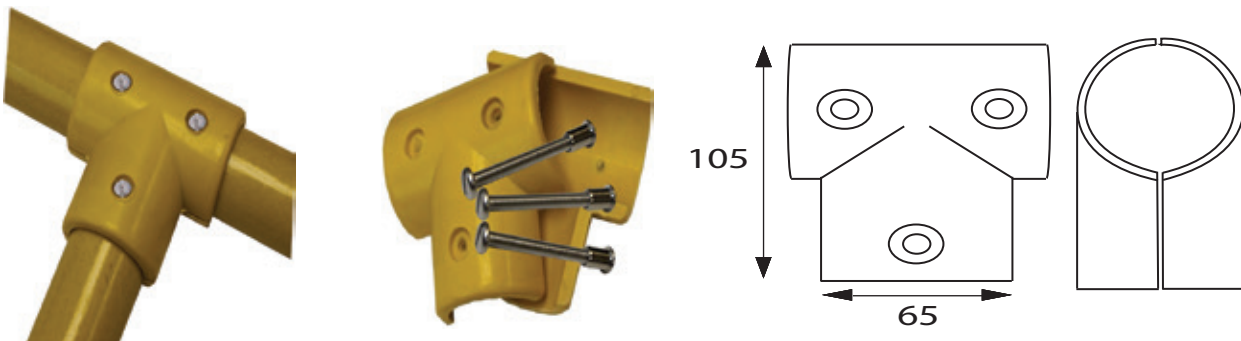
Provides 90 degree 'T' connection between 2 tubes. Used for the joint between end post and lower rail(s) when the handrail is straight and level. Also for a top 'T' joint on a guardrail. Tube cannot be joined in the top part of the 'T'. Includes 2 x connection bolts.

Gripatex - KC03



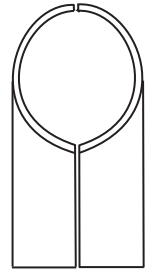
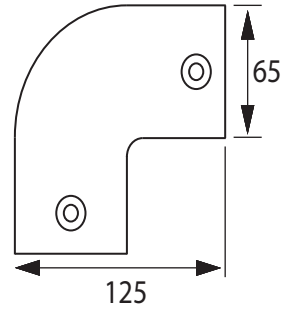
Used for the joint between the end post and the lower rail(s) and creates a 30 degree incline. Also can be used for the top 'T' joint. Tube cannot be joined in the top part of the 'T'. Includes 2 x connection bolts.

Gripatex - KC04



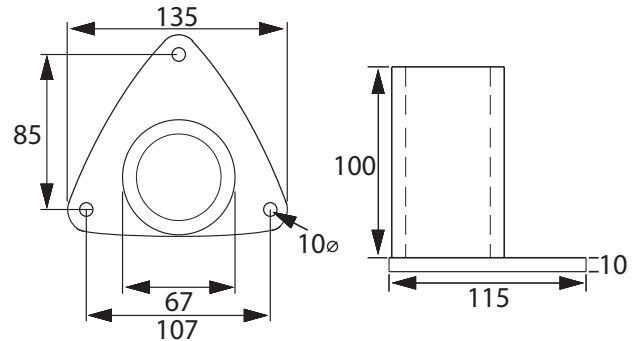
Provides 90 degree 'T' connection between 2 tubes. Used for the joint on a top rail to the vertical post when the handrail is straight and level. This 'T' joint will allow the jointing of the horizontal rail in the top of the "T". Includes 3 connection bolts.

Gripatex - KC06



This is a 90 degree elbow joint. Used frequently for the termination of the top rail to the last post of a handrail. Also used for turning the rails around a 90 degree corner. Includes 2 x connection bolts.

Gripatex - KC10

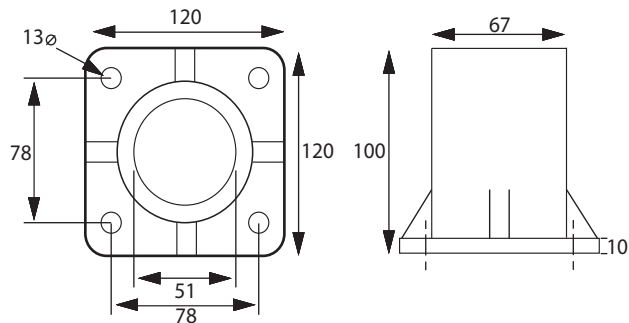


Provides a structural wall fixing used to terminate a run of handrail. Includes 2 x connection bolts.

Fixing down bolts should be ordered separately.

NOTE: This wall plate does not have recessed holes for the connection bolts. The user will need to drill a 10mm Dia hole through the clamp and tube so the bolt can pass through and secure the tube in place.

Gripatex - KC12

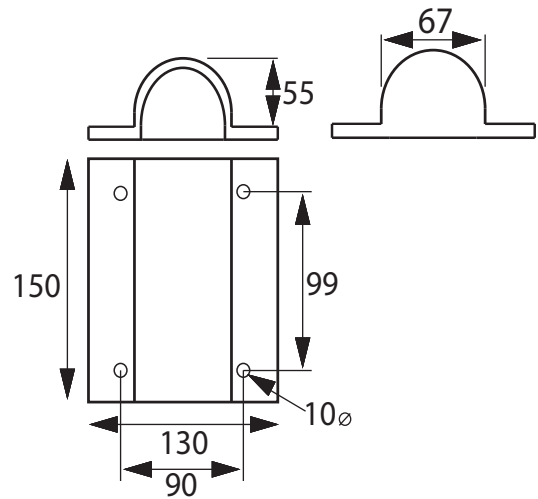


Provides a structural base plate for the support of a vertical post typically for a guardrail. Should be spaced at no more than 1.25metre centre spacings to 0.36kN/m. Includes 2 x connection bolts.

Fixing down bolts should be ordered separately.

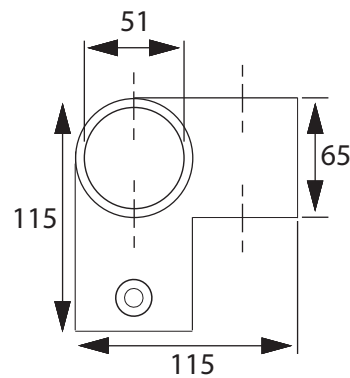
NOTE: This base plate does not have recessed holes for the connection bolts. The user will need to drill a 10mm Dia hole through the clamp and tube so the bolts can pass through and secure the tube in place.

Gripatex - KC14



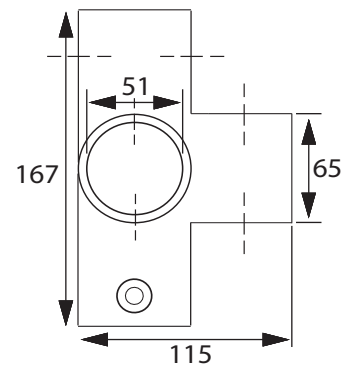
Provides a structural base plate to a vertical post that is required to be side mounted. This clamp is virtually flush to the structure it is being fixed to. The tube does not pass through the clamp. Includes 2 x connection bolts. Fixing down bolts should be ordered separately.
 NOTE: This base plate does not have recessed holes for the connection bolts. The user will need to drill a 10mm Dia hole through the clamp and tube so the bolt can pass through and secure the tube in place.

Gripatex - KC18



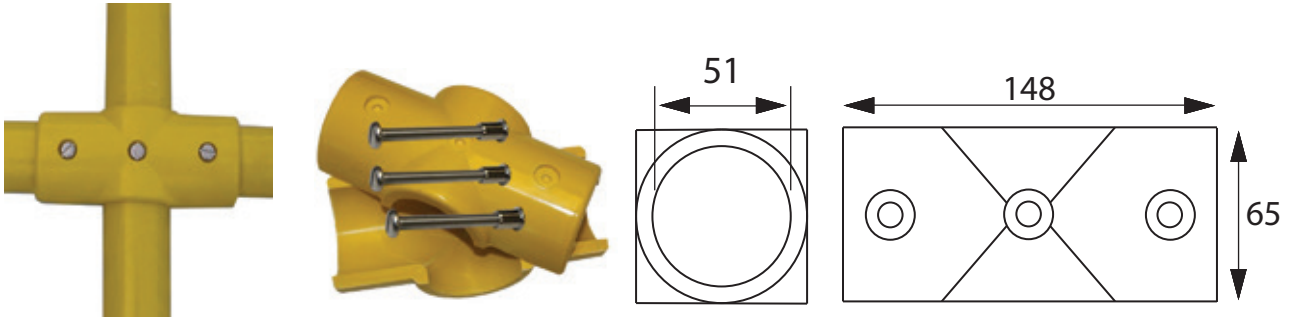
Provides a 3 way 90 degree corner joint. Used frequently for a top rail 90 degree turn where a post is present. Includes 3 x connection bolts.

Gripatex - KC20



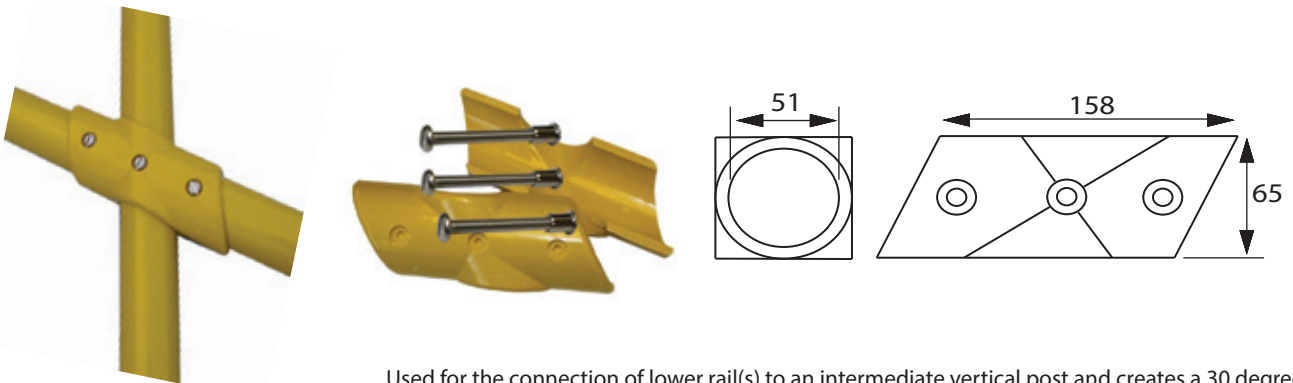
Frequently used to tie uprights with horizontal tubes in three directions all at 90 degrees to the upright. Includes 4 x connection bolts.

Gripatex - KC22



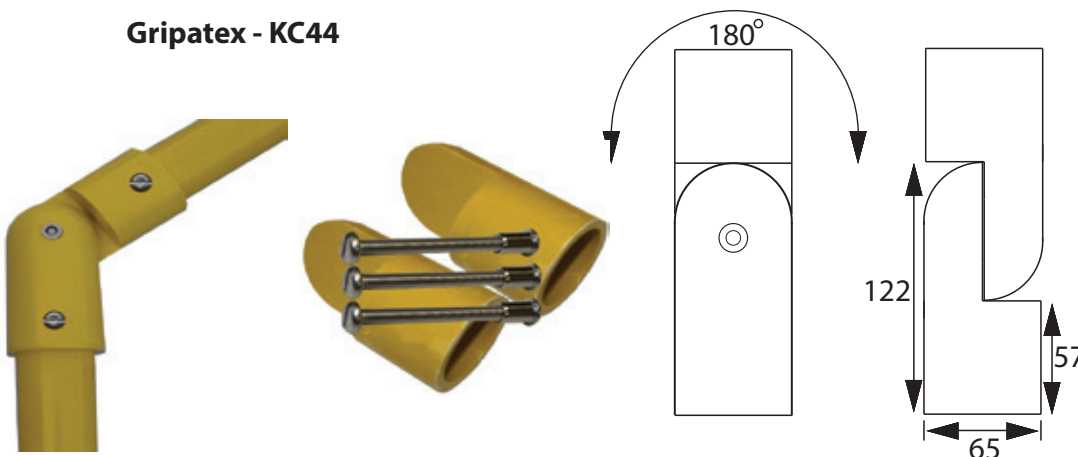
Used for a 90 degree connection of a lower rail(s) to an intermediate vertical post. The vertical post must remain continuous while the rail is joined in each side of the clamp. Includes 3 x connection bolts.

Gripatex - KC23



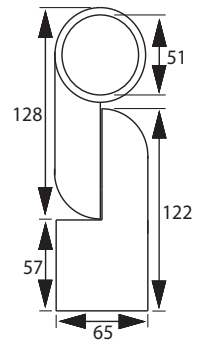
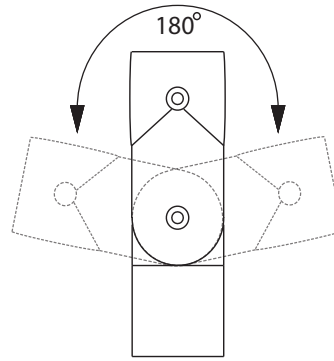
Used for the connection of lower rail(s) to an intermediate vertical post and creates a 30 degree incline. The vertical post must remain continuous while the rails are joined in each side of the clamp. Includes 3 x connection bolts.

Gripatex - KC44



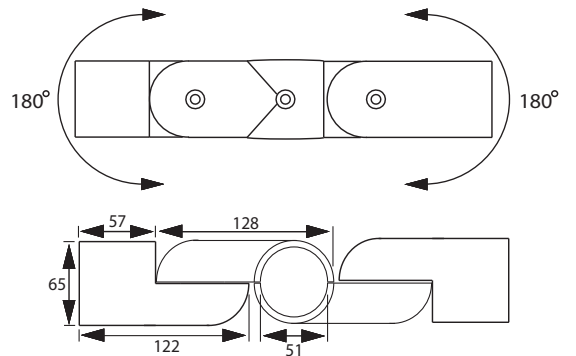
A flexible variable angle connector. Used for an angled top rail connection to a post. Use if the angle required is not known. Includes 3 x connection bolts (2 for connecting tube and 1 for point of swivel).

Gripatex - KC45



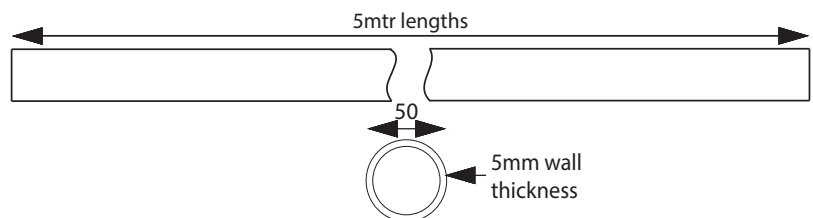
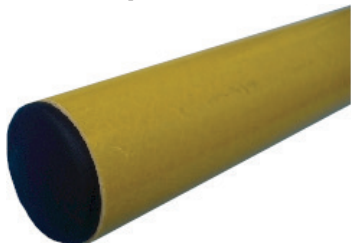
A flexible variable angle connector. Used for an angled top rail connection to a post. Includes 3 x connection bolts.

Gripatex - KC46



A flexible variable connection used for an angled lower rail(s) joint to a post. Changes horizontal rails to angled rails at top of ramp/stairs. Includes 5 x connection bolts.

Gripatex - KC-50-Tube

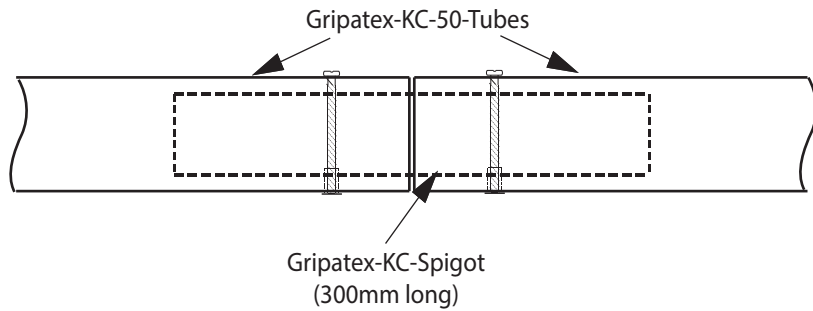


Handrail tube is available in 5 metre lengths. Use either the Gripatex-KC-Spigot (shown below) to make streamline joints or use the Lockinex SL-8D.



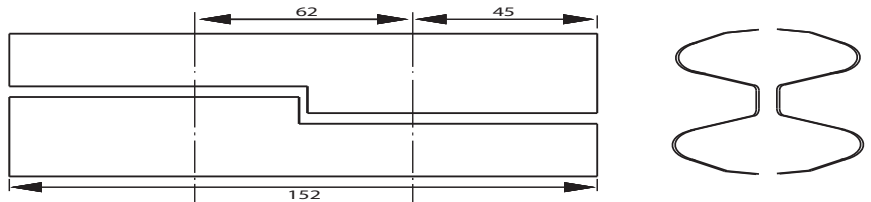
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Gripatex-KC-Spigot



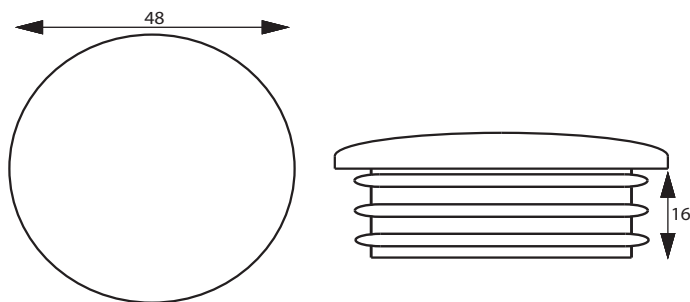
300mm long piece of tube to slot inside the KC-50-Tube and secure in place by using 2 x connection bolts (one in each end of the connecting tubes and through into the smaller inner tube). Connection bolts are not included and should be ordered separately.

SL-8D



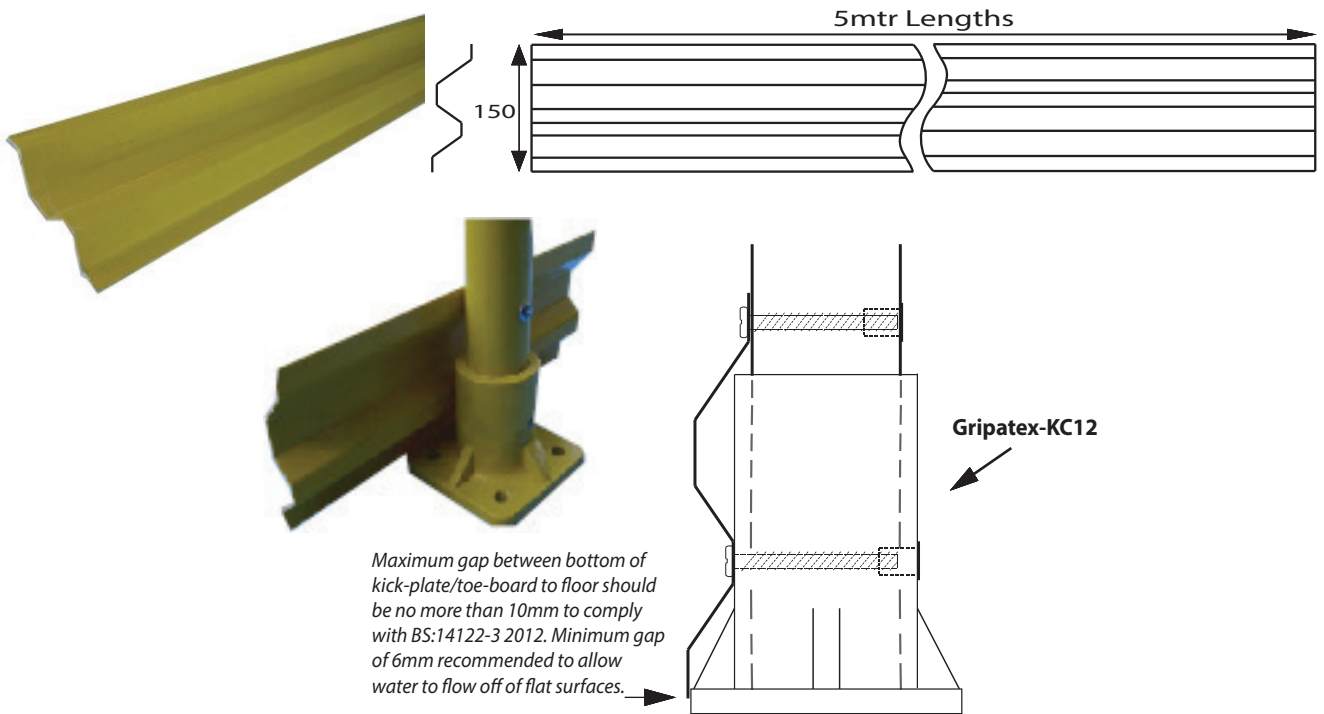
Another method for joining the handrail tube. Creates a perfect, virtually unnoticeable joining of tubes. Note- drill 2 x 10mm holes in the end of each tube to insert screws to create joint. Not for joining tubes that are subject to extreme loads, or where a direct tensile load is applied.

A68-8 Grey or Black



Robust plastic insert to cap the end of the handrail tube. Available in black or grey.

Gripatex-Kick-plate/Toe-board-Yellow



Gripatex GRP Kick-plate/Toe-board. Used with the Gripatex-KC12 to create a Kick-plate/Toe-board system. The gap between the bottom of the kick-plate/toe-board and the floor should be no more than 10mm to comply with BS:14122-3 2012. A minimum gap of 6mm is recommended to allow water to flow off of flat surfaces. Connection bolts (Code Z27) should be ordered separately, two are required per connection to the upright post.



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Handling Details

GFRP (Glass Fibre Reinforced Polymer) contains small fibres within its structure. Care should be taken when handling and cutting the material. To prevent GFRP fibres causing irritation to skin/eyes, personal protective equipment should be worn.

Performance Guide.

Using either the KC12 or KC14 base plates, posts should be spaced at no more than 1.25mtr centres to obtain 0.36kN/m load. This load criteria is the same for upright posts concreted into suitable foundations. This assumes the top rail is 1.1mtr from the pedestrian standing floor level. Should the length of a post be longer (i.e. fixed at a lower level than floor level, typically down the side of a parapet) post spacings will have to be reduced to maintain recommended loading criteria.

General Maintenance.

Colour.

Due to the material make up of the clamps and tube, pigmentation may vary from clamp to clamp, tube to tube & tube to clamp.

This does not affect their application but there may be a visible distinction in depth of colour.

Once installed and using the guidelines above with regard to vertical post spacings, the product will provide many years of service life.

When installed externally, consideration should be given to potential UV damage. Dulling of the yellow pigmentation can occur in exposed installations. To maintain the high visibility yellow finish, surfaces should be cleaned. Consider painting surfaces that have been subject to UV damage.

