



MODULAR HANDRAIL INSTALLATION GUIDE

GRP AUSTRALIA

SAFETY PRECAUTIONS

MODULAR HANDRAIL

Glass reinforced plastics (GRP) is a composite material or fibre-reinforced polymer made of a resin (plastic) reinforced by fibres made of glass. The product is not classified as Hazardous according to the criteria of the NOHSC Australia.

PPE Requirements

Cutting, drilling or machining GRP produces a dust that can cause irritation to the eyes, skin, nose and throat. Workers should take steps to reduce their exposure to the dust by using suitable personal protective gear and working in well ventilated areas. Use dust extraction in poorly ventilated areas. It is recommended that the following PPE be worn:

- **Gloves, long sleeve shirt with closed collar and long pants**
- **Particulate respirator which complies with AS/NZ 1716:2012**
- **Eye protection (safety glasses).**
- **Hearing protection when/if required**
- **Protective footwear (safety toe)**

Use personal protection equipment to minimize skin, respiratory and eye exposure to dust and fumes when cutting or grinding product. Wash all exposed skin areas thoroughly after cutting or grinding. Any clothing worn while working with fiberglass should be laundered separately from other clothing items. You should also rinse the washing machine before washing other types of clothing.



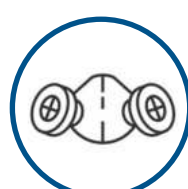
Protective
Gloves



Protective
Eyewear



Long Sleeve
Shirt



Particulate
Respirator



Hearing
Protection



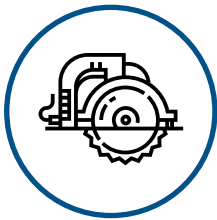
Protective
Footwear

TOOLS REQUIRED

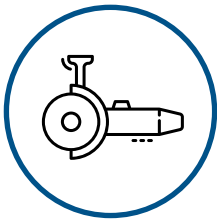
MODULAR HANDRAIL

Cutting Tools Recommended

FRP Round Tubes used in the GRP Modular Handrail System can be cut using common wood working tools. It is recommended that disks, blades and bits are Diamond Coated as GRP is very abrasive and will wear normal tools quickly. Listed below are recommend hand tools for GRP fabrication:



Circular Saw



Grinder



Wet Tile Cutter
Requires Minimum
50mm cutting depth

Installations Tools Required



Impact
Driver

REQUIRED WHEN USING
WS 10Gx22



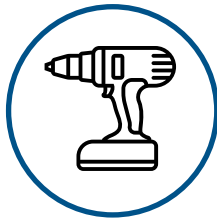
Allen
Key

REQUIRED WHEN USING
MHR-M6-304



Rivet
Gun

REQUIRED WHEN USING
Rivets



Cordless
Drill

REQUIRED WITH A
HSS Drill Bit



Wafer Screw
10Gx22 G550

REQUIRES PHILLIPS HEAD



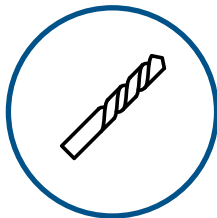
Barrel Nut & Soc Screw
MHR-M6-304

REQUIRES 4MM ALLEN KEY



Rivet Dome
6.0 - 8.5

11-13 GRIP Range



HSS Drill Bit /
Ceramic Spade Drill
8mm

FOR ASSEMBLING COMPONENTS

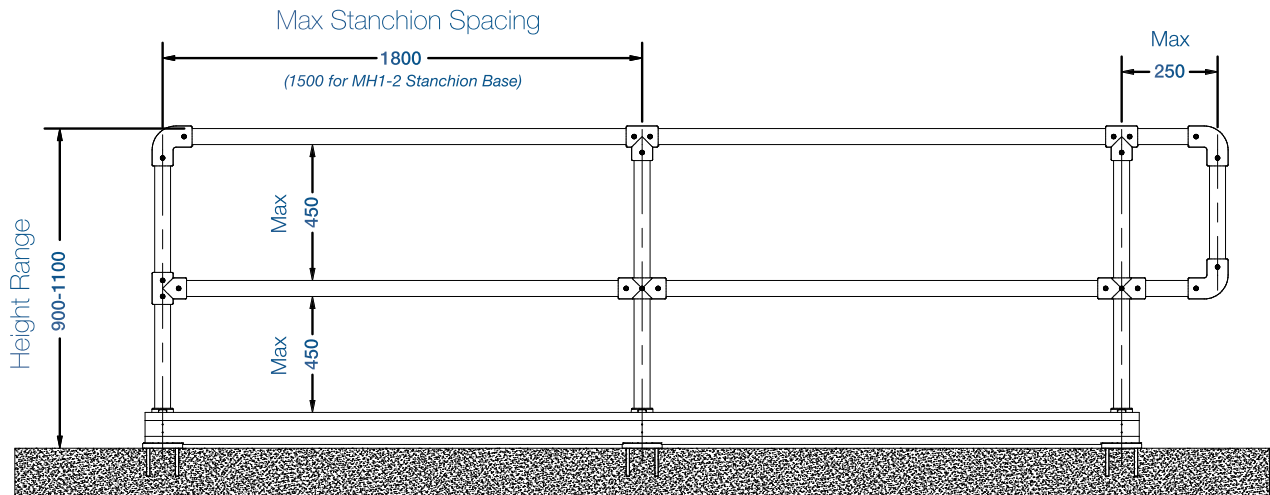
STANDARD HANDRAIL DIMENSIONS

MODULAR HANDRAIL

Minimum requirements for compliance with AS 1657: 2018

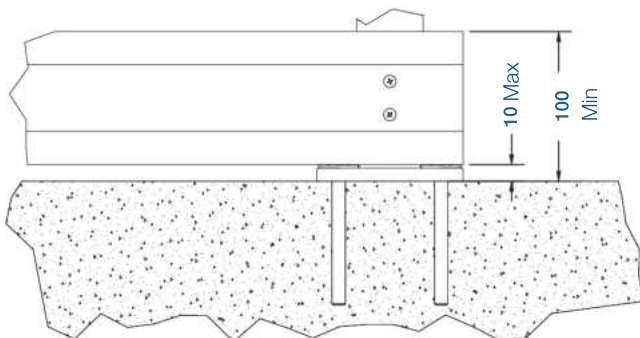
STANCHION & RAIL SPACING

Modular Handrail



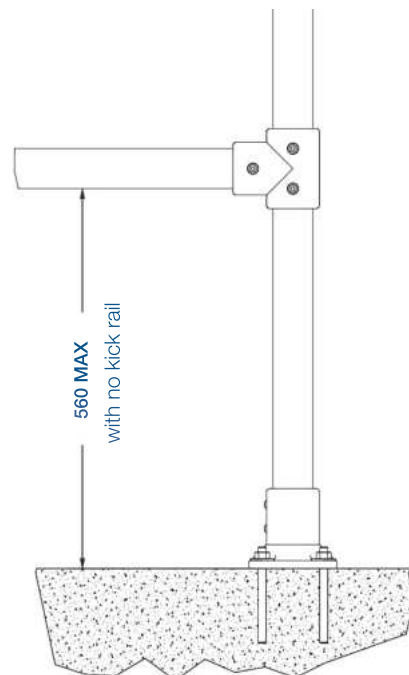
RAIL HEIGHT

Modular Handrail



MIDRAIL WITH NO KICKPLATE

Modular Handrail

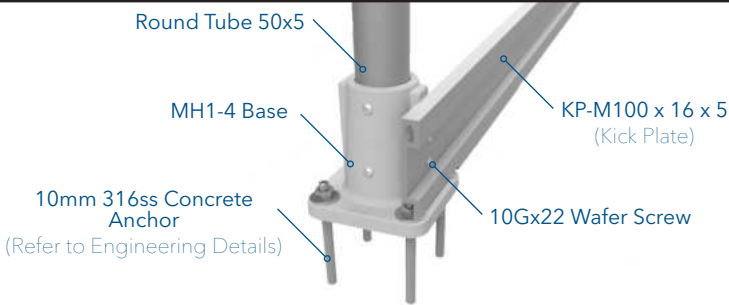


POST INSTALLATION METHODS

MODULAR HANDRAIL

MH1-4 BASE

Installation on to concrete 316ss Anchors

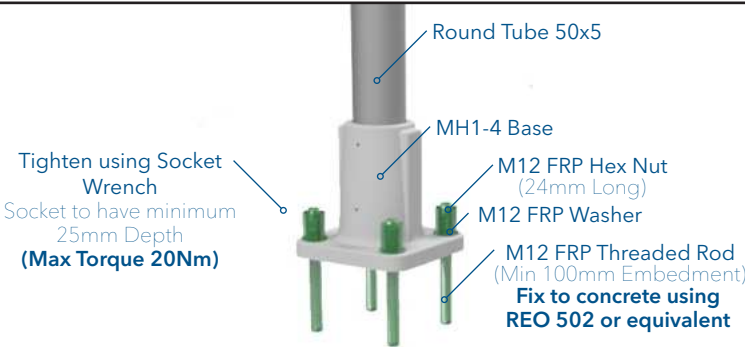


*Note: Max Torque 30Nm

Design Pullout Force On Each Concrete Anchor Bolt	8.0kN
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MH1-4 BASE

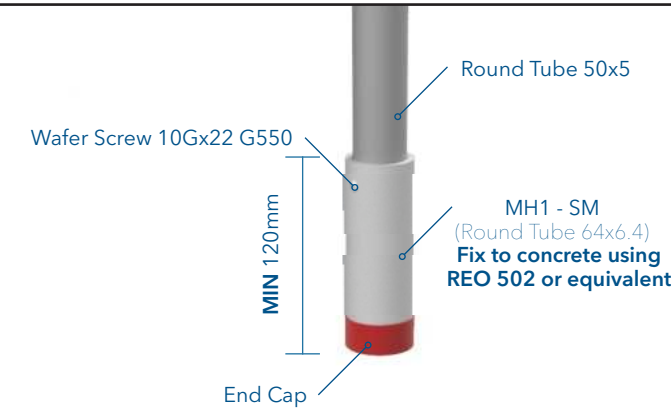
Installation on to concrete using FRP Threaded Rod



Design Pullout Force On Each FRP Threaded Bolt	8.0kN
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MH1-SM CAST IN SLEEVE

Concrete

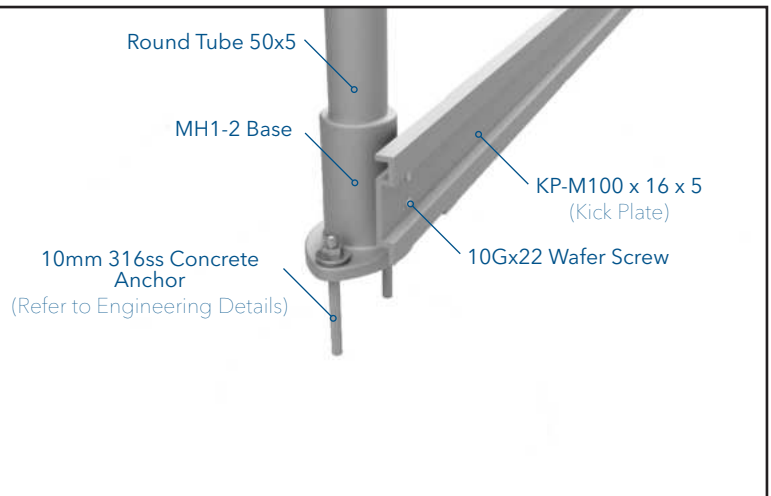


POST INSTALLATION METHODS

MODULAR HANDRAIL

MH1-2 BASE

Installation on to concrete 316ss Anchors

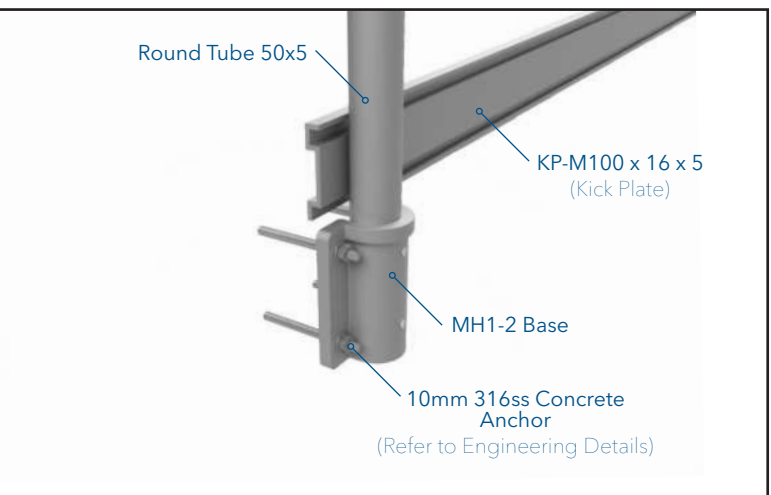


Design Pullout Force On Each Concrete Anchor Bolt

14.0kN

MH1 WALL MOUNT

Installation on to concrete 316ss Anchors



Design Pullout Force On Each Concrete Anchor Bolt

8.0kN

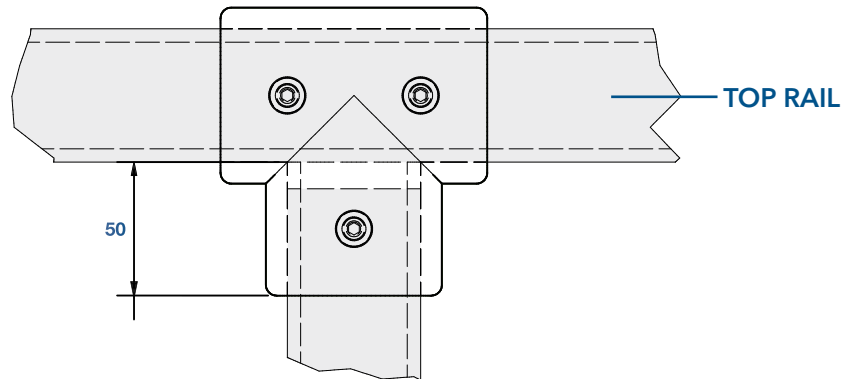
RAIL INSERTION DETAILS

MODULAR HANDRAIL

Typical rail insertion into FPR Handrail fittings is 50mm however minimum allowable is 40mm

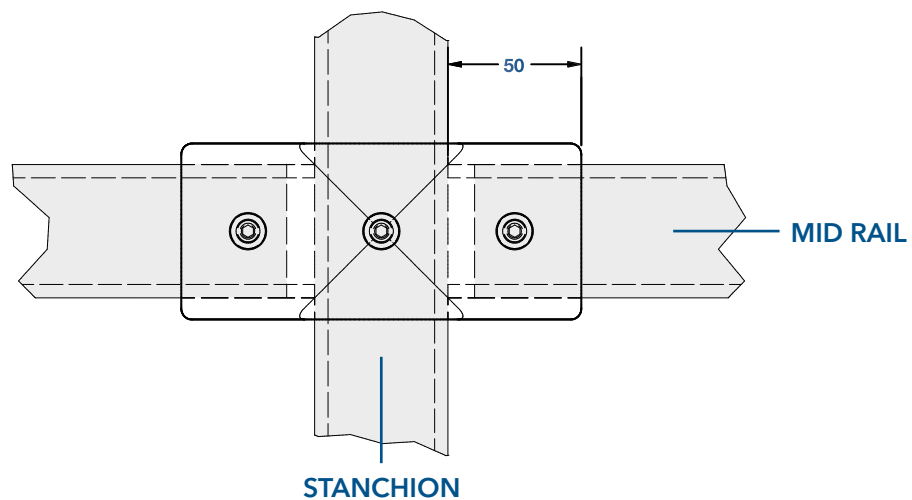
MH3-W CROSS MINIMUM INSERTION

*Note: Ensure Top Rail is continuous or with Joiner



MH4 CONNECT MINIMUM INSERTION

*Note: Ensure Stanchion is continuous from Base to Top Rail Fitting



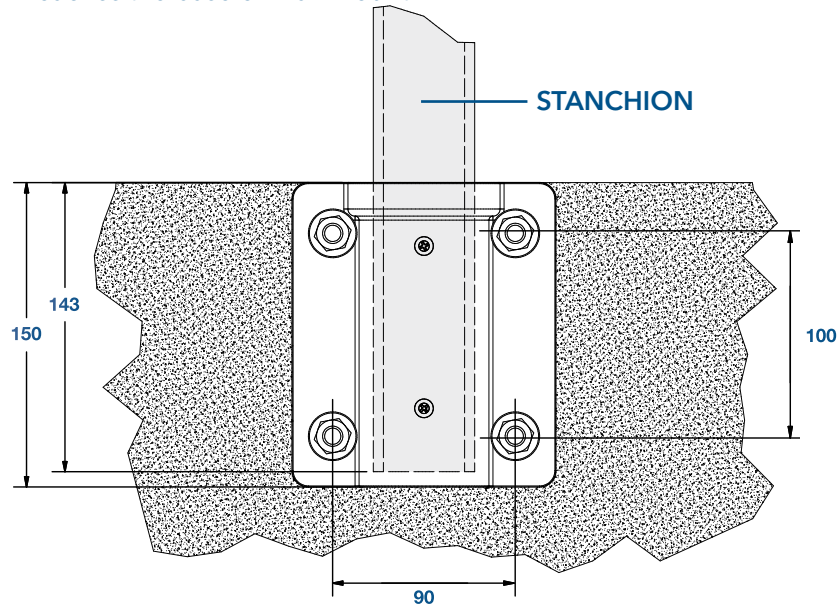
RAIL INSERTION DETAILS

MODULAR HANDRAIL

MH1 WALL

MINIMUM INSERTION

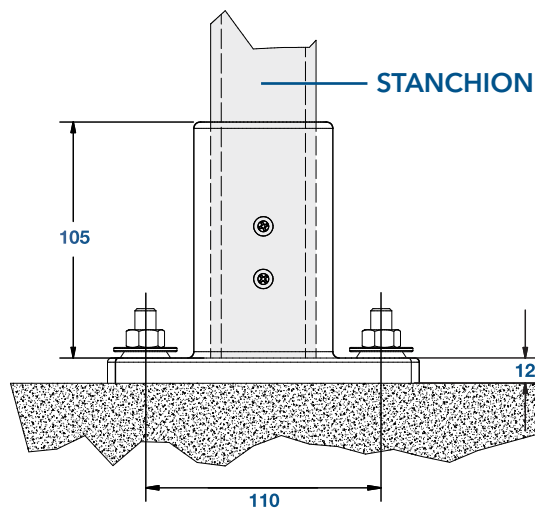
*Note: Ensure Stanchion reaches the base of Wall Mount



MH1-2 BASE

MINIMUM INSERTION

*Note: Ensure Stanchion reaches the base of MH1-2 Base

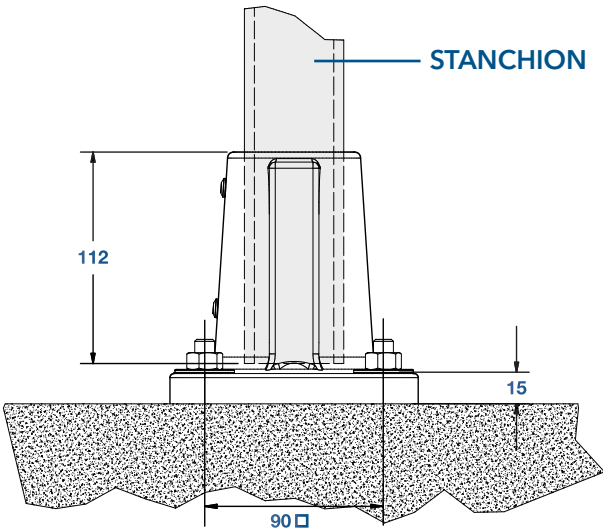


RAIL INSERTION DETAILS

MODULAR HANDRAIL

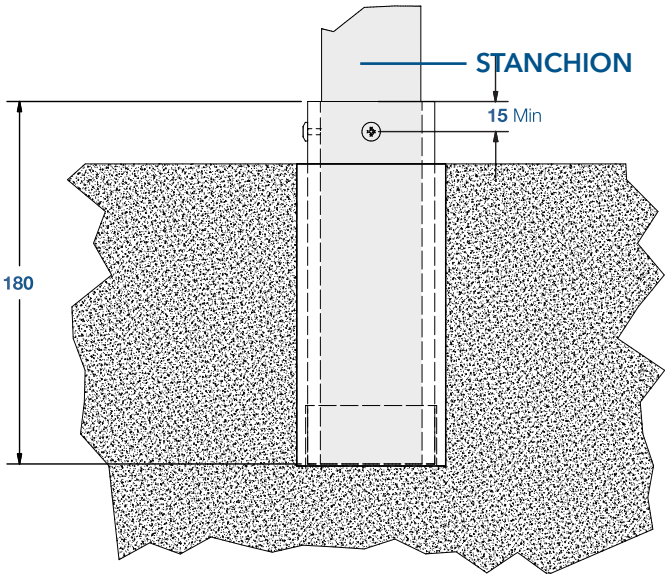
MH1-4 BASE
MINIMUM INSERTION

*Note: Ensure Stanchion reaches the base of MH1-4 Base



MH1-SM
MINIMUM INSERTION

*Note: Ensure Stanchion reaches the base of MH1-SM



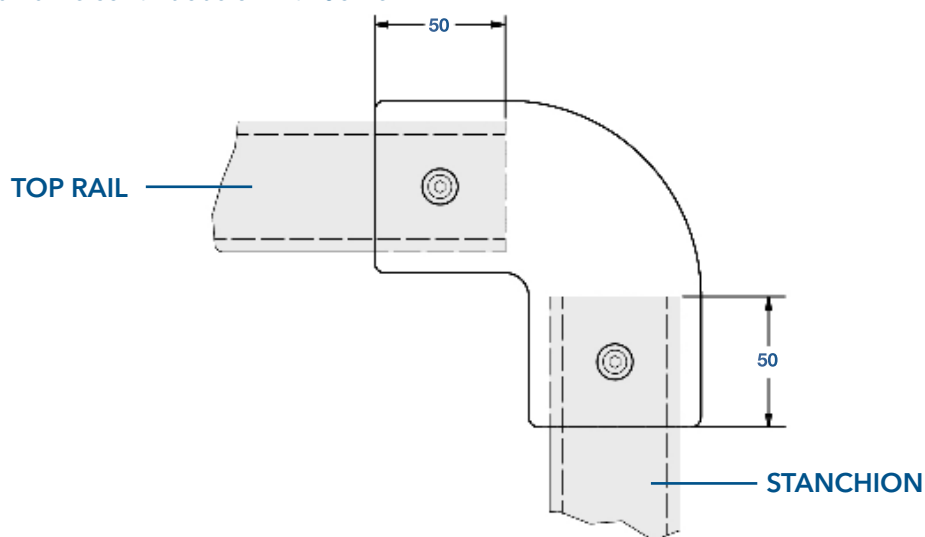
RAIL INSERTION DETAILS

MODULAR HANDRAIL

MH2 90

MINIMUM INSERTION

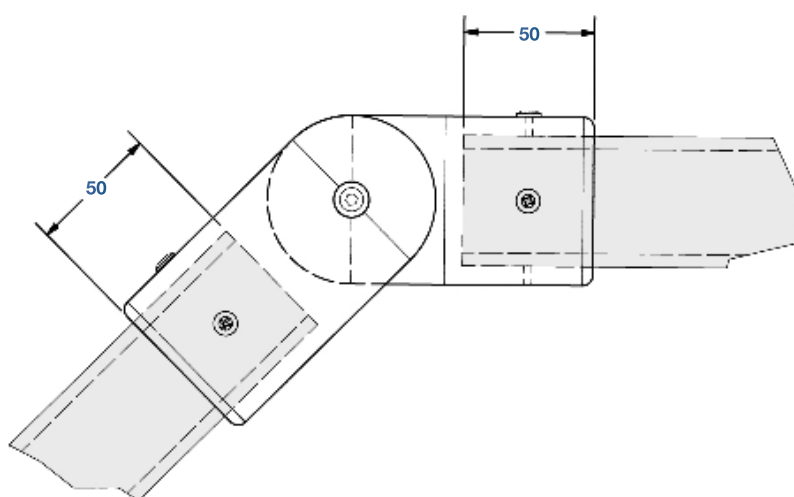
*Note: Ensure Top Rail is continuous or with Joiner



MH2-FLEX

MINIMUM INSERTION

*Note: Ensure Top Rail is continuous or with Joiner



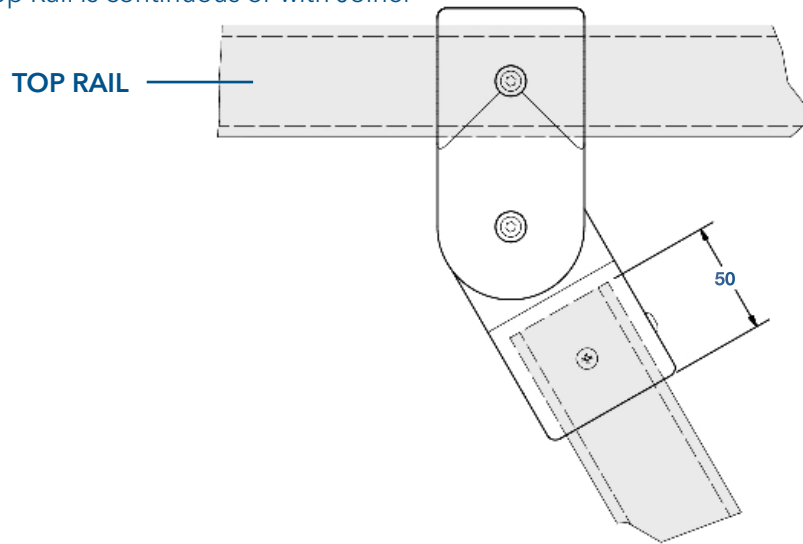
RAIL INSERTION DETAILS

MODULAR HANDRAIL

MH3-FLEX

MINIMUM INSERTION

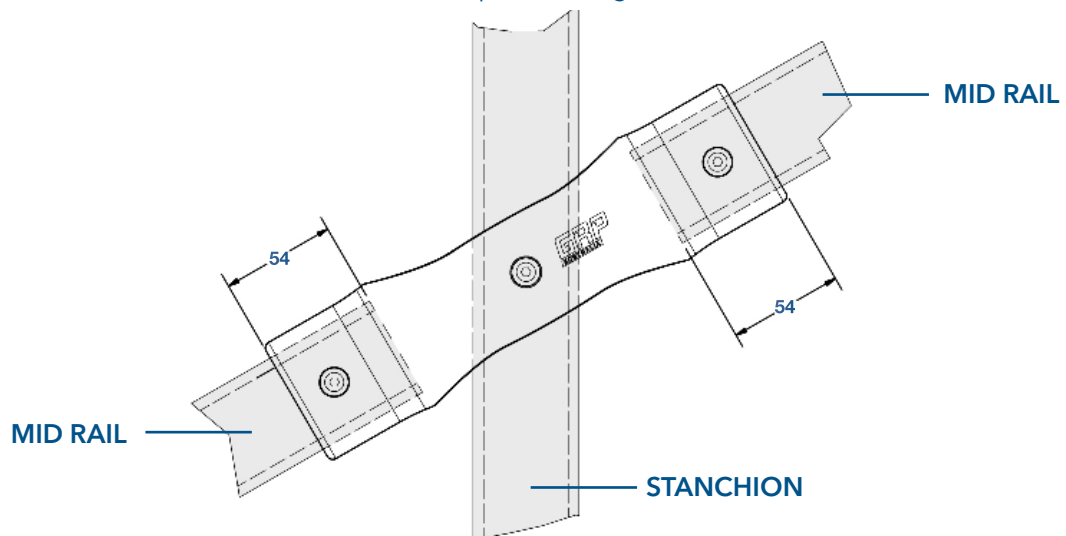
*Note: Ensure Top Rail is continuous or with Joiner



MH4-FLEX

MINIMUM INSERTION

*Note: Ensure Stanchion is continuous from Base to Top Rail Fitting



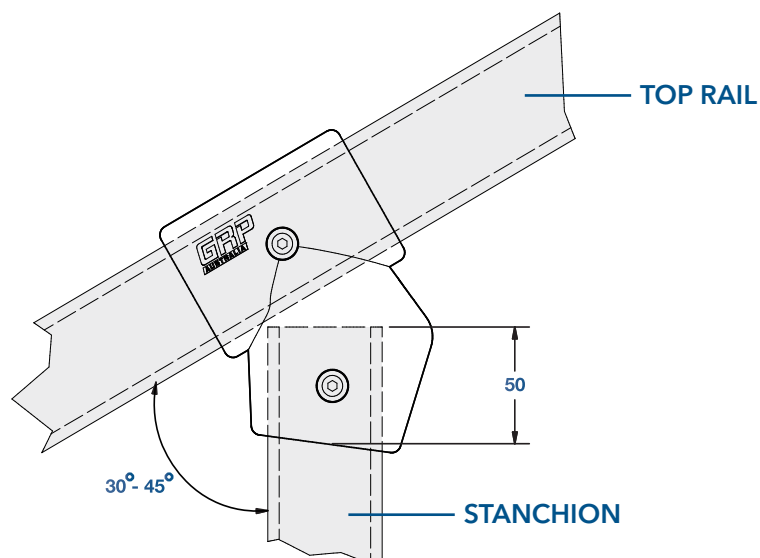
RAIL INSERTION DETAILS

MODULAR HANDRAIL

MH3-30/45

MINIMUM INSERTION

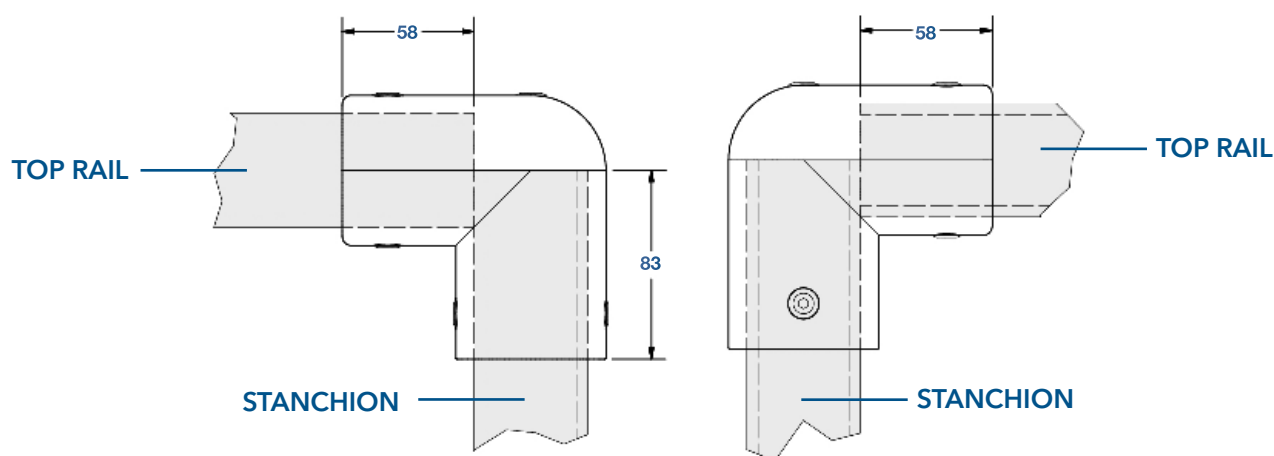
*Note: Ensure Top Rail is continuous or with Joiner



MH3 CORNER

MINIMUM INSERTION

*Note: Ensure Stanchion is continuous from Base to Top Rail Fitting

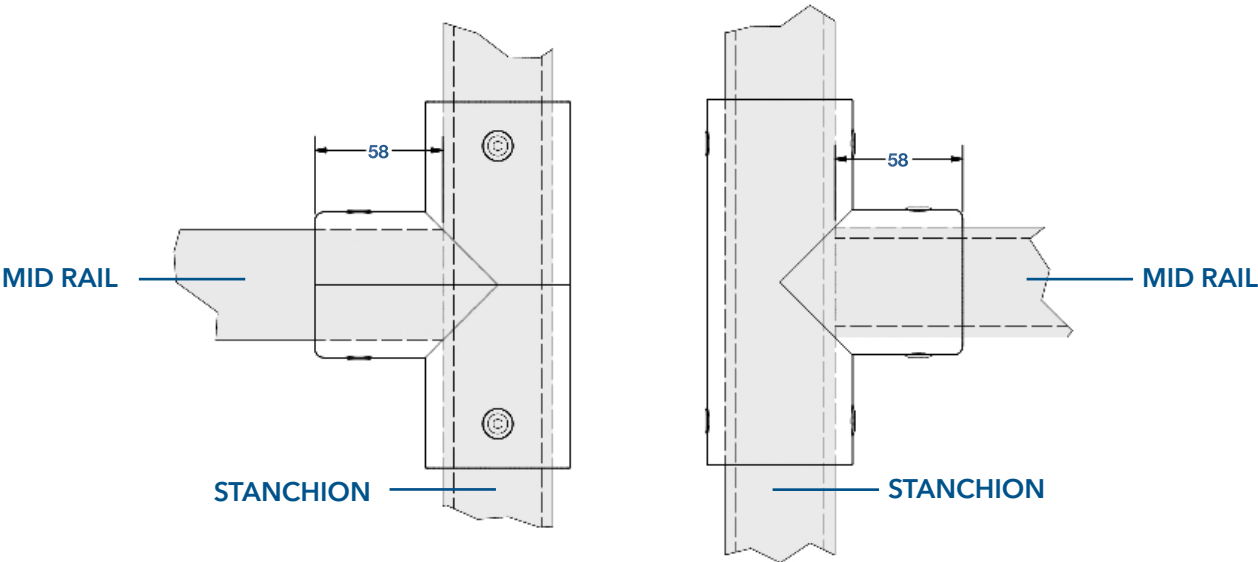


RAIL INSERTION DETAILS

MODULAR HANDRAIL

MH4 CORNER
MINIMUM INSERTION

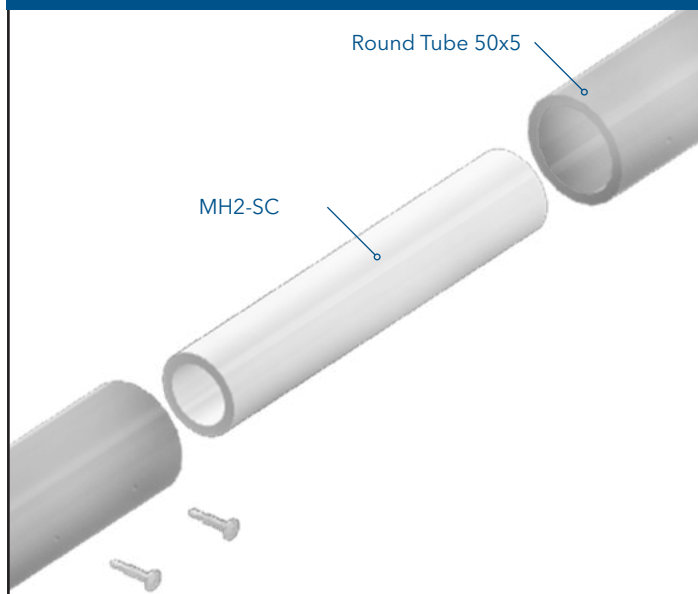
*Note: Ensure Stanchion is continuous from Base to Top Rail Fitting



SPLICES & CONNECTION DETAILS

MODULAR HANDRAIL

HANDRAIL CONNECTOR MH2-SC



INSTALLATION Process

To connect two lengths of FRP top rail, use **MH2-SC** to insert between the two.

Note: The rail splice connector is best at a fitting but can be inserted anywhere in the rail.

10G x 22 wafer screws can be used to secure the bar into place. Alternatively fix **MH2-SC** in place using Epoxy Adhesive.

This process can be repeated as necessary.

HANDRAIL CONNECTOR MH2-FLEX



INSTALLATION Process

1. Drill Through using 8mm Drill
2. Insert **MHR-M6-304 (Barrel Nut & Soc Screw)**
3. Tighten to a 6-8Nm
4. Screw **10Gx22 Wafer Screws** into Round Tube to secure MH2-Flex

Note: Assembly of components using only the M6 fasteners is sufficient however for added rigidity, glue fittings as well as mechanically fasten

Epoxy adhesives such as 'compset 2 & 1' are suitable. Use as per manufacturers instructions

SPLICES & CONNECTION DETAILS

MODULAR HANDRAIL

HANDRAIL CONNECTOR
MH2 90 ELBOW



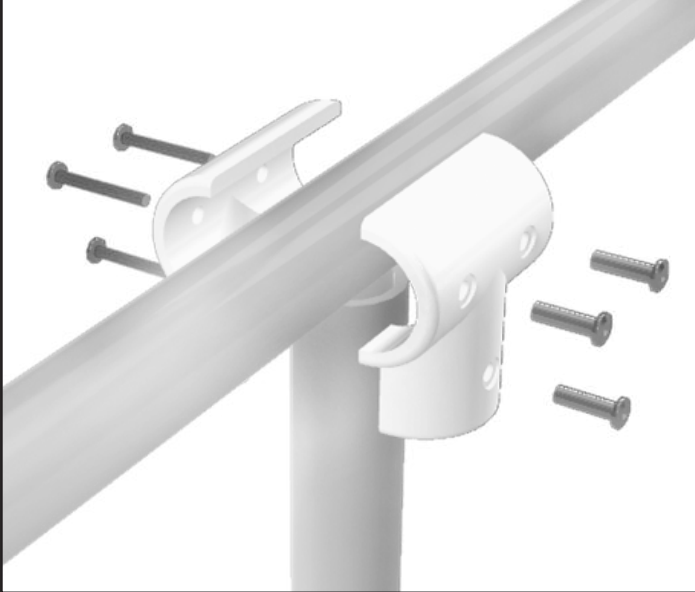
INSTALLATION
Process

- 1. Drill Through using 8mm Drill
- 2. Insert MHR-M6-304 (Barrel Nut & Soc Screw)
- 3. Tighten to a 6-8Nm

Note: Assembly of components using only the M6 fasteners is sufficient however for added regidity, glue fittings as well as mechanically fasten

Epoxy adhesives such as 'compset 2 &1' are suitable. Use as per manufacturers instructions

HANDRAIL CONNECTOR
MH3-W CROSS



INSTALLATION
Process

- 1. Drill Through using 8mm Drill
- 2. Insert MHR-M6-304 (Barrel Nut & Soc Screw)
- 3. Tighten to a 6-8Nm

Note: Assembly of components using only the M6 fasteners is sufficient however for added regidity, glue fittings as well as mechanically fasten

Epoxy adhesives such as 'compset 2 &1' are suitable. Use as per manufacturers instructions

SPLICES & CONNECTION DETAILS

MODULAR HANDRAIL

HANDRAIL CONNECTOR MH3-UNIVERSAL



INSTALLATION Process

1. Drill Through using 8mm Drill
2. Insert MHR-M6-304 (*Barrel Nut & Soc Screw*)
3. Tighten to a 6-8Nm
4. Screw 10Gx22 Wafer Screws into Round Tube to secure MH3-Universal

Note: Assembly of components using only the M6 fasteners is sufficient however for added rigidity, glue fittings as well as mechanically fasten

Epoxy adhesives such as 'compset 2 &1' are suitable. Use as per manufacturers instructions

HANDRAIL CONNECTOR MH3-30/45



INSTALLATION Process

1. Drill Through using 8mm Drill
2. Insert MHR-M6-304 (*Barrel Nut & Soc Screw*)
3. Tighten to a 6-8Nm

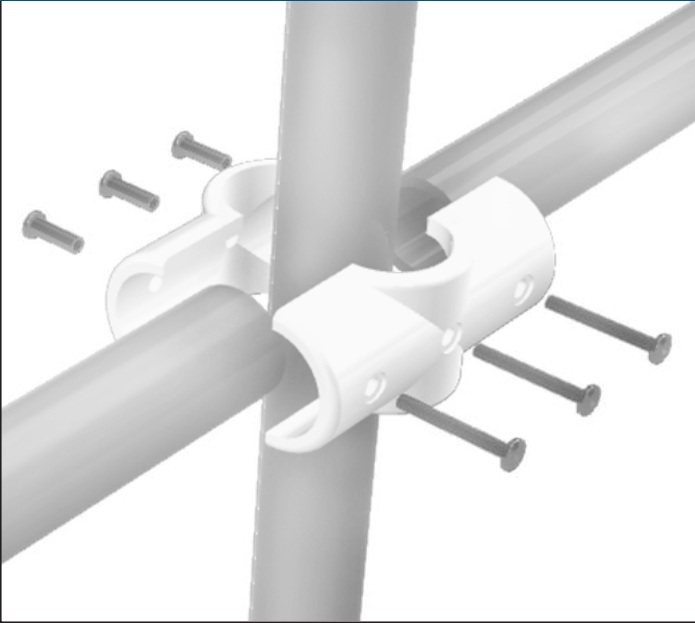
Note: Assembly of components using only the M6 fasteners is sufficient however for added rigidity, glue fittings as well as mechanically fasten

Epoxy adhesives such as 'compset 2 &1' are suitable. Use as per manufacturers instructions

SPLICES & CONNECTION DETAILS

MODULAR HANDRAIL

HANDRAIL CONNECTOR
MH4-CONNECT



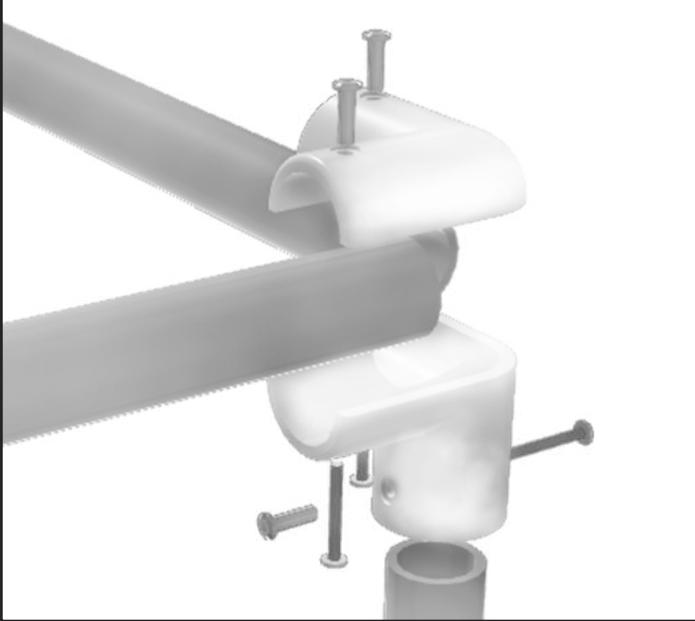
INSTALLATION
Process

- 1. Drill Through using 8mm Drill
- 2. Insert MHR-M6-304 (Barrel Nut & Soc Screw)
- 3. Tighten to a 6-8Nm

Note: Assembly of components using only the M6 fasteners is sufficient however for added rigidity, glue fittings as well as mechanically fasten

Epoxy adhesives such as 'compset 2 &1' are suitable. Use as per manufacturers instructions

HANDRAIL CONNECTOR
MH3-CORNER



INSTALLATION
Process

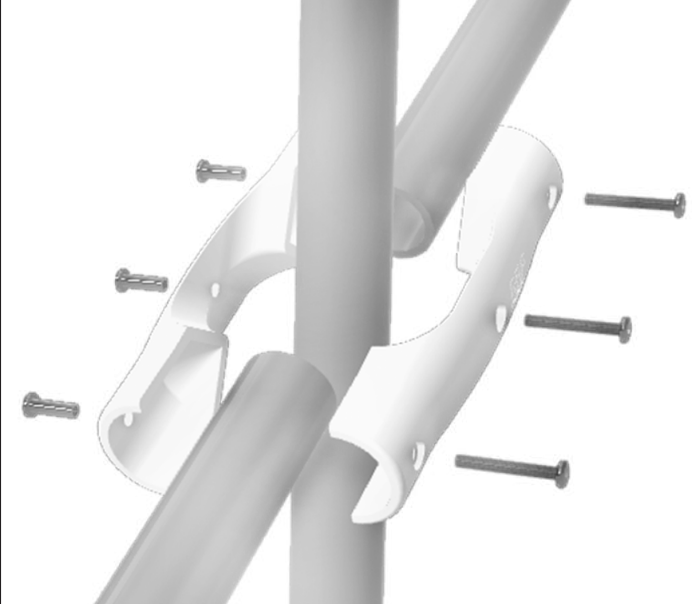
- 1. Drill Through using 8mm Drill
- 2. Insert MHR-M6-304 (Barrel Nut & Soc Screw)
- 3. Tighten to a 6-8Nm

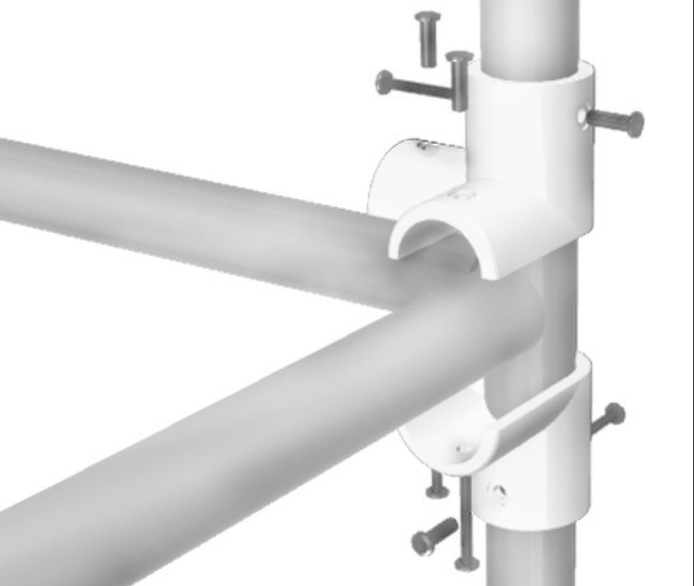
Note: Assembly of components using only the M6 fasteners is sufficient however for added rigidity, glue fittings as well as mechanically fasten

Epoxy adhesives such as 'compset 2 &1' are suitable. Use as per manufacturers instructions

SPLICES & CONNECTION DETAILS

MODULAR HANDRAIL

HANDRAIL CONNECTOR MH4-FLEX	INSTALLATION Process
	<ol style="list-style-type: none"> 1. Drill Through using 8mm Drill 2. Insert MHR-M6-304 (<i>Barrel Nut & Soc Screw</i>) 3. Tighten to a 6-8Nm <p>Note: <i>Assembly of components using only the M6 fasteners is sufficient however for added regidity, glue fittings as well as mechanically fasten</i></p> <p>Epoxy adhesives such as 'compset 2 &1' are suitable. Use as per manufacturers instructions</p>

HANDRAIL CONNECTOR MH4-CORNER	INSTALLATION Process
	<ol style="list-style-type: none"> 1. Drill Through using 8mm Drill 2. Insert MHR-M6-304 (<i>Barrel Nut & Soc Screw</i>) 3. Tighten to a 6-8Nm <p>Note: <i>Assembly of components using only the M6 fasteners is sufficient however for added regidity, glue fittings as well as mechanically fasten</i></p> <p>Epoxy adhesives such as 'compset 2 &1' are suitable. Use as per manufacturers instructions</p>



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