



**EX-Series®**  
**RailEX® R S**

## Handrail Product Guide

World leaders in the design and supply  
of Fibreglass Reinforced Plastic (FRP)  
Access Systems for industry.

We are pleased to be able to bring to you the most extensive range of FRP Handrail Products released yet - welcome to the RailEX® System.

Treadwell's RailEX® Ergonomic Tubular Handrail System is an industrial rated composite handrail product which combines strength, durability and versatility, meaning the system is ideal for use in numerous applications in many industries.

With the flexibility to supply handrail as either components modulised panels to suit your exact requirements, Treadwell and the brand names EX-Series® and RailEX® are the names you can rely on.

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### A BRIEF HISTORY

Treadwell Group is one of the most established names in the supply of Access Systems throughout Australia.

Our centrally located Adelaide fabrication facility, coupled with our second to none distribution network across Australia and our commitment to quality and testing, allows our technical staff to provide engineering and design assistance for any project.

With a broad history of installation in a wide range of challenging applications, including industrial process plants, mining applications, marine and costal environments as well as public infrastructure, Treadwell has the experience to help you specify the right resin systems and products every time.

If you have any unique design problems, chances are we've encountered something similar before. Get in contact today - Freecall 1800 246 800.



#### Treadwell Group Pty Ltd

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**TREADWELL™**  
ACCESS SYSTEMS





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### Quality Policy

Quality is at the forefront of Treadwell Access Systems working practices. With over 15 years of manufacturing to the highest quality standards, Treadwell Access Systems prides itself on its reputation for implementing strict quality control measures, and strives to supply products that surpass customers expectations. The company works on a policy of 'continuous improvement'.



### Environment Policy

Treadwell Access Systems is conscious of the impact it has on the environment and its associated responsibilities. The company is committed to ensuring its operations satisfy both legal obligations and more duties. Treadwell has been committed to sustainability for many years and is not just responding to current trends.

# FRP Handrail Selection Guide

## Our Commitment to Testing

Structural integrity is paramount with access safety products. With this in mind, Treadwell has subjected all EX-Series systems to a stringent series of tests by approved international testing agencies. This stringent testing and test data allows engineers to review how the performance of this system exceeds the high standards demanded.



At the time of testing Treadwell's RailEX systems were the first completely FRP handrail system to have been tested by a NATA accredited laboratory to Australian Standards AS 1657 - 1992 and conform.



**Corrosion, Rust & Rot Proof**  
Treadwell's Superior Resin Systems offer exceptional resistance to acids, salts and alkalis; and are totally rot and termite proof.



**Long Term Cost Benefits over Time**  
Long service life, minimal maintenance costs and low installation cost all combine to provide a very competitive solution over time.



**Lightweight, High Strength & Easy to Install**  
This system is very lightweight, and hence very manageable — FRP has specific gravity one quarter that of steel and two thirds that of aluminium.



**Non-Conductive & Transparent to RF Transmission**  
Transparency to radiofrequency transmission and FRP's non-conductivity make this system ideal for applications exposed to strong currents and frequencies.



**No Protective Coating Required**  
Treadwell's unique surface finishing system which ensures UV stability in exposed applications means there is no need for costly surface treatment.



**Virtually Maintenance Free**  
The need for very little maintenance doubtless makes RailEx the most favourable handrail choice for industrial handrail in today's world, where continual maintenance is both difficult to manage and very costly.



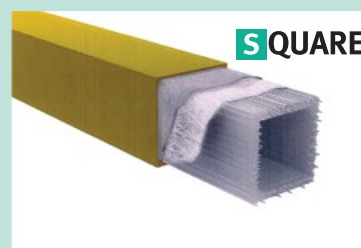
**No Protective Coating Required**  
Treadwell's unique surface finishing system which ensures UV stability in exposed applications means there is no need for costly surface treatment.



**Competitive vs. Traditional Alternatives**  
FRP is both constructed from a more economically sound raw material base that metallic alternatives and it is far more structurally sound when compared to timber or other plastic alternatives.

## Materials of Construction

RailEX FRP handrail is constructed from fibreglass rovings combined with a blend of thermosetting resin systems. All of the resins used in the production of EX-Series products contain UV inhibitors and fire retardant additives.



## What is RailEX® Round Ergonomic Tubular Handrail?

Treadwell's RailEX® Ergonomic Round Tubular Handrail is an industrial rated composite handrail system which combines strength, durability and versatility meaning the system is ideal for use in numerous applications in a vast range of industries. Treadwell can supply RailEX® as either components or as fabricated handrail panels ready for installation.

We are pleased to be able to bring to you the most extensive range of FRP guardrail products released yet – Welcome to the RailEX® System.

Developed by Treadwell with the input of designers, and of course plan operators, at last this system offers you all benefits of traditional guardrail systems without the inherent problems - corrosion, welding and hot works permits for onsite modifications. Furthermore, this unique system is a first to be tested and conform with Australian Standards. AS 1657-1992 - RailEX® is the 'fit and forget' handrail system.



This product conforms to AS1657



### RailEX® Features and Benefits vs. Traditional Alternatives

	RailEX®	Stainless Steel	Galvanised Steel	Aluminium	Timber
Chemical Resistance	•••••	•••••	•	•••	•••••
Strength	•••••	•••••	•••••	•••••	••
Lightweight	•••••	•	•	•••••	••
Electrical Resistance	•••••	•	•	•••••	•••••

### EX-Series® Standard Colours

Treadwell's Standard Colours are Safety Yellow and Light Grey.

Contact Customer Service on 1800 246 800 or email us at sales@treadwellgroup.com.au for custom requirements – custom colours are available on request.



### Did You Know?

Treadwell has the resource and expertise to fabricate handrail to your exact requirements and furthermore, we specialize in drafting to save you the bother. See page 22 for more details.



# RailEX® Round System Overview

## FAQ's

### Dubious about the actual strength of FRP handrail?

**Q:** Are RailEX® handrails the strongest type of non-metallic handrail available?

**A:** They are, based on equal product weights comparisons.  
 - For higher strength and stiffness, RailEX® handrail panels incorporate glass reinforcing which no other plastic handrail features; for example, polypropylene handrails, which can be simply welded and are light-weight, will be affected by a much smaller temperature range than FRP and will not retain their structural integrity, especially on hot days outdoors.  
 - Likewise, for additional strength, RailEX® panels typically contain 15-20% more reinforcing content (glass) in comparison to alternative FRP handrail systems on the market.

### You're perhaps au fait with metal, but not FRP?

**Q:** How simply can I modify RailEX® handrail on site or even once it is installed?

**A:** Very simply. All that will be required is the correct tools to undertake the job, which consist mainly of simple carpenters' tools. All fittings are mechanically fastened and can be simply released by undoing fixings.

### FRP handrail - why, when the frame must be metal?

**Q:** Is there a lot of point utilising RailEX® handrails, even though we are working in a corrosive environment, if frame work will be being built out of mild steel due to stainless steel not being viable?

**A:** Certainly there is. For industrial applications, Treadwell offers a family of FRP building products including structural shapes, grating, cladding and roofing, louvres, ridge vents & many other non-corrosive solutions, and our expertise includes in-house design and fabrication services.

### How can you guarantee RailEX® will last outdoors?

**Q:** Does RailEX® offer better UV protection than alternative FRP materials?

**A:** Yes, RailEX® has additional means of UV protection.  
 - RailEX®, which is only ever produced with premium EX-Series® Resin Systems, incorporates an optimum amount of UV inhibitors and stabilisers within the material.  
 - For longevity of surface serviceability, RailEX® surface veils i pre-finished with a factory applied two pack surface coating.

### One of the most common questions asked is about the cost of Treadwell products.

**Q:** How does RailEX® compare to stainless steel in price?

**A:** Treadwell's FRP materials are normally less than the cost of stainless steel.

**Q:** How does RailEX® compare to carbon steel in price?

**A:** Treadwell's FRP materials are generally more expensive than carbon steel when comparing material costs. However, when factoring in installation, handling, transportation and other associated expenses, the total installed cost of FRP is therefore more competitive.

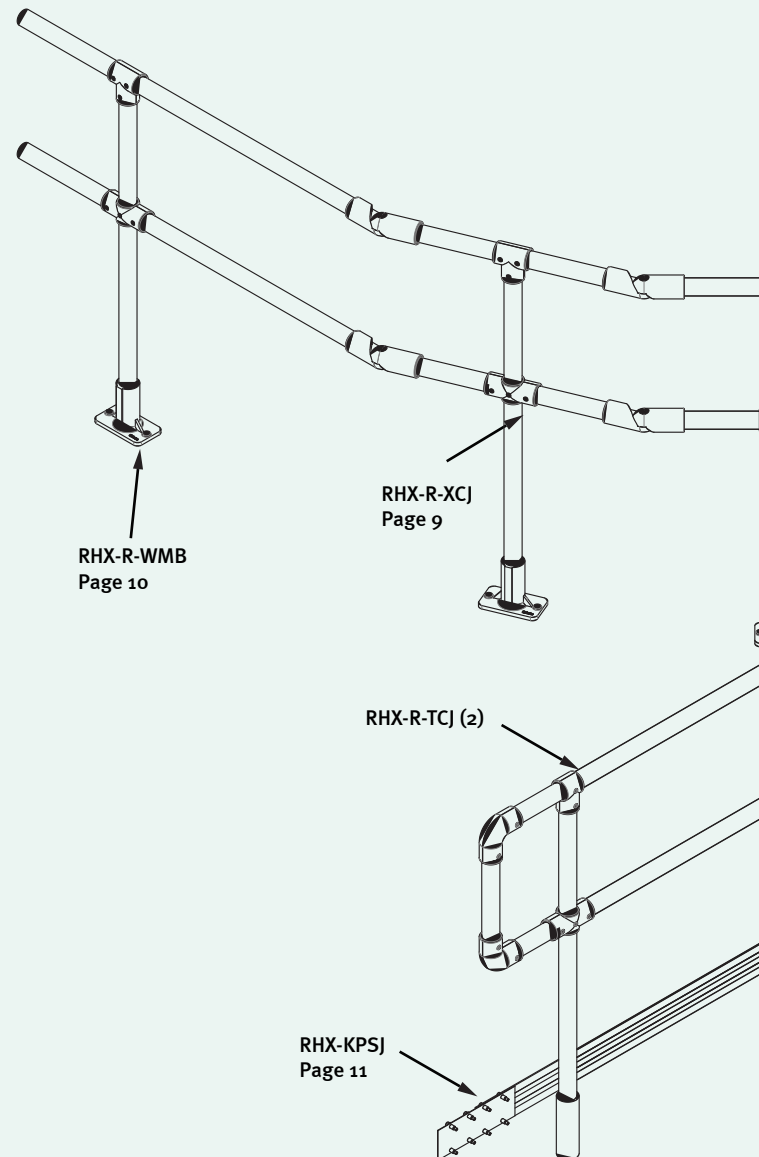
**Q:** How does RailEX® compare to aluminium in price?

**A:** Treadwell's FRP materials are usually priced competitively with aluminium and the total installed cost generally makes FRP a more price competitive choice than aluminium.

**Q:** How does RailEX® compare to wood in price?

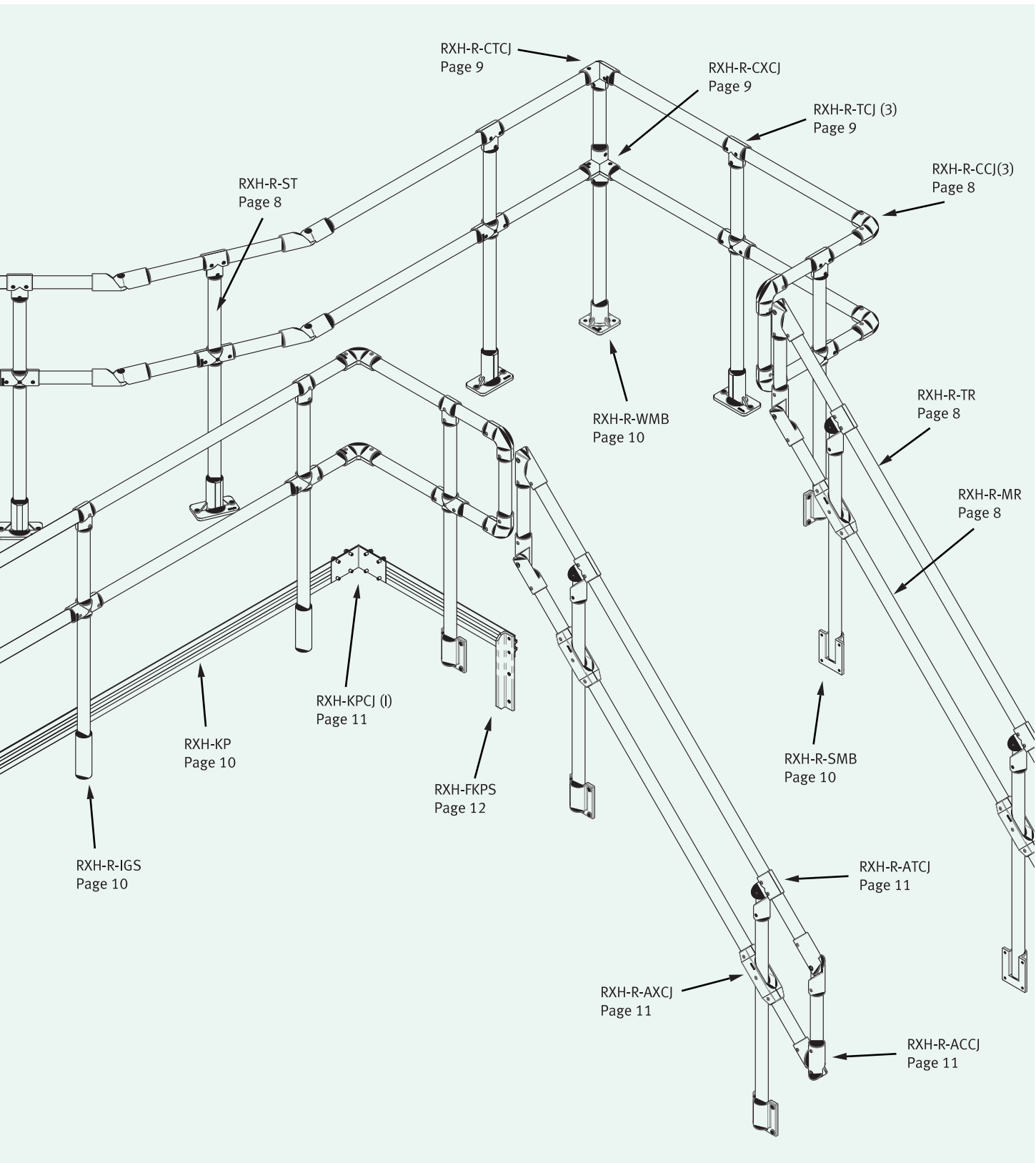
**A:** Treadwell's FRP materials cannot compete with wood on price alone. Customers considering using FRP in place of wood should evaluate the strength, not the resistance and over all performance requirements for the application and choose the best material accordingly.

# RailEX® **RO**



This illustration is for parts visualization only and does not represent an actual layout.

# UND Overview



# RailEX® Round Componentry



## RailEX® Round Componentry

Developed to compliment Treadwell’s range of corrosion resistant structural solutions, RailEX® offers you the ideal solution for the harshest of destructive, chemical, laden environments, both inside and out.

All of the RailEX® components are completely fibreglass reinforced plastic (FRP) and are coated with a two pack UV resistant coating to provide the peace of mind that premature breakdown of the product will not result from exposure to elements.

Standard Rail & Post Componentry

### F-RXH-R-TR



Fixing Code:	N/A	Maximum Length:	3 metres
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Description:  
Standard Round Fibreglass Top Rail

### F-RXH-R-MR



Fixing Code:	N/A	Maximum Length:	1.45 metres
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Description:  
Standard Round Fibreglass Mid Rail

### RXH-R-ST



Fixing Code:	N/A	Maximum Length:	1.25 metres
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Description:  
Standard Round Fibreglass Stanchion

### RXH-R-ST(S)



Fixing Code:	N/A	Max. Height:	1.25 metres
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Description:  
Solid Round Fibreglass Stanchion



**RXH-R-CCJ**



Fixing Code:	RXG-SFKo6	Parts/Unit:	Two
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Description:  
Standard Round Fibreglass 90° Corner Connection Joint

**RXH-R-XCJ**



Fixing Code:	RXG-SFKo6	Parts/Unit:	Two
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Description:  
Standard Round Fibreglass Cross connection Joint

**RXH-R-TCJH2**



Fixing Code:	RXG-SFKo6	Parts/Unit:	Two
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Description:  
Standard Round Fibreglass Tee Connection Joint (only to be used where there is no join in the rail that the joint is supporting)

**RXH-R-TCJH3**



Fixing Code:	SFK06	Parts/Unit:	Two
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Description:  
Standard Round Fibreglass Tee Connection Joint, with three holes

**RXH-R-TRJ**



Fixing Code:	N/A	Parts/Unit:	One
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Description:  
Standard Round Fibreglass Top Rail Joiner (to be used in conjunction with the RXH-R-TCJH3 and RXH-R-TRC)

**RXH-R-TRC**



Fixing Code:	RXG-SFKo6	Parts/Unit:	Two
--------------	-----------	-------------	-----

Description:  
Standard Round Fibreglass Straight Connector

**RXH-R-CTCJ**



Fixing Code:	RXG-SFKo6	Parts/Unit:	Two
--------------	-----------	-------------	-----

Description:  
Standard Round Fibreglass Corner Tee Connection Joint

**RXH-R-CXCJ**



Fixing Code:	RXG-SFKo6	Parts/Unit:	Two
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Description:  
Standard Round Fibreglass Corner Cross Connection Joint

Adjustable Componentry

**RXH-R-ACCJ**



Fixing Code:	RXG-SFKo6	Parts/Unit:	Four
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Description:  
Adjustable Round Fibreglass Corner Joint

**RXH-R-AXCJ**



Fixing Code:	RXG-SFKo6	Parts/Unit:	Two
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Description:  
Adjustable Round Fibreglass Cross Connection Joint

**RXH-R-ATCJ**



Fixing Code:	RXG-SFKo6	Parts/Unit:	Four
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Description:  
Adjustable Round Fibreglass Tee Connection Joint

Mounting Componentry

**RXH-R-SMB**



Fixing Code:	Various	Parts/Unit:	One
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Description:  
Standard Round Fibreglass Side Mounting Bracket

Mounting Componentry

**RXH-NMB**



Fixing Code:	Various	Parts/Unit:	One
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Description:  
Standard Round Fibreglass Narrow Mounting Bracket

**RXH-R-WMB**



Fixing Code:	N/A	Parts/Unit:	One
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Description:  
Standard Fibreglass Wide Base Mounting Bracket

**RXH-R-IGS**



Fixing Code:	N/A	Parts/Unit:	One
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Description:  
Standard Round In-Ground Sleeve Mounting Bracket

**RXH-R-ATMB**



Fixing Code:	N/A	Parts/Unit:	Two
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Description:  
Standard Round Fibreglass Corner Cross Connection Joint

**RXH-R-KP (R)**



Fixing Code:	RXG-KSF	Parts/Unit:	One
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Description:  
Standard Fibreglass Kick Plate Regular

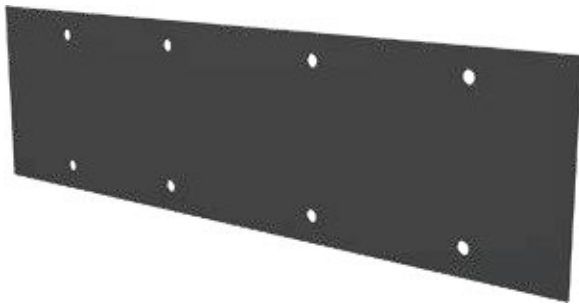
**RXH-R-FKPCJ (R)**



Fixing Code:	RXG-KSF	Parts/Unit:	One
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Description:  
Standard Fibreglass Kick Corner Joiner

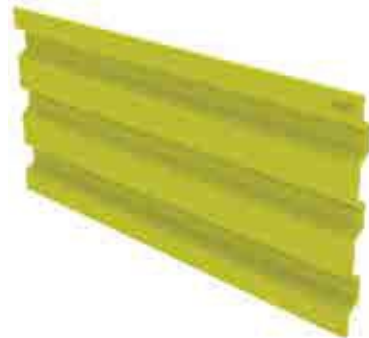
**RXH-R-FKPSJ (R)**



Fixing Code:	RXG-KSF	Parts/Unit:	One
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Description:  
Standard Fibreglass Kick Plate Straight Joiner

**RXH-R-KP (H)**



Fixing Code:	RXG-KSF	Parts/Unit:	One
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Description:  
Standard Fibreglass Kick Plate High

**RXH-R-FKPCJ (H)**



Fixing Code:	RXG-KSF	Parts/Unit:	One
--------------	---------	-------------	-----

Description:  
Standard Fibreglass Kick Plate Corner Joiner

**RXH-R-FKPSJ (H)**



Fixing Code:	RXG-KSF	Parts/Unit:	One
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Description:  
Standard Fibreglass Kick Plate Straight Joiner

Kick Plate Componentry

**RXH-FKPS**



Fixing Code:	Included	Parts/Unit:	One
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Description:  
Standard Fibreglass Kick Plate Corner Joiner

Fixing Componentry

**RXH-SFKo6**



Fixing Code:	N/A	Parts/Unit:	Three
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Description:  
Standard Kick Plate Straight Joiner

Fixing Componentry

**RXH-RF**



Fixing Code:	N/A	Parts/Unit:	One
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Description:  
Standard Stainless Steel Rivet Fastener

**RXH-KSF**



Fixing Code:	N/A	Parts/Unit:	Four
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Description:  
Standard Stainless Kick Plate to Stanchion Fastener Kit

**RXH-SFKo6 (D)**



Fixing Code:	N/A	Parts/Unit:	Three
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Description:  
Standard Stainless Steel Fastener Kit M6 type

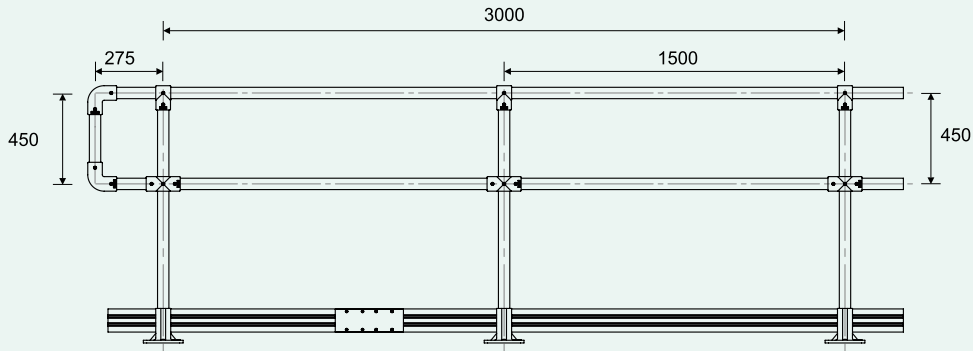
**RXH-SFKo6 (ID)**



Fixing Code:	N/A	Parts/Unit:	Three
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Description:  
Standard Stainless Steel Fastener Kit M6 type

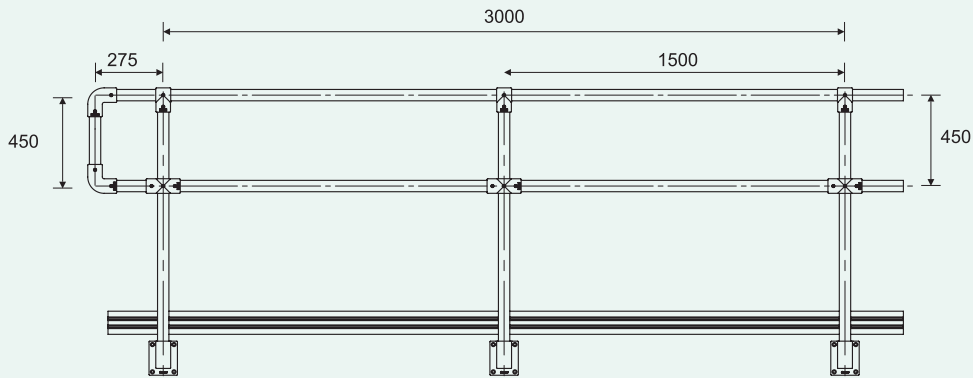
Top Mounted Section



SIDE VIEW

END VIEW

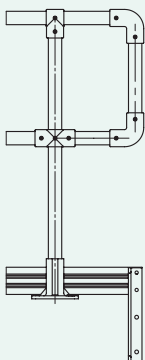
Side Mounted Section



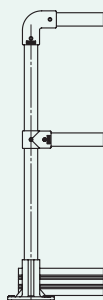
SIDE VIEW

END VIEW

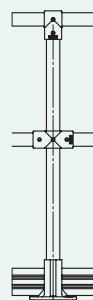
End Stanchion Section



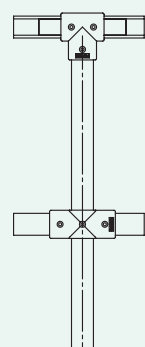
Closure Bend Section



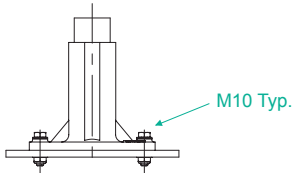
Continual Top Rail Section



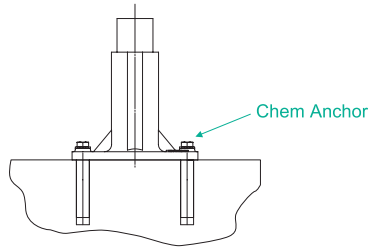
Top Rail Join Section



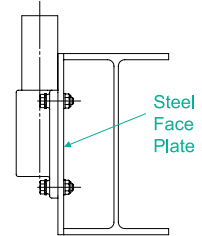
Surface Mounted to Steel Section



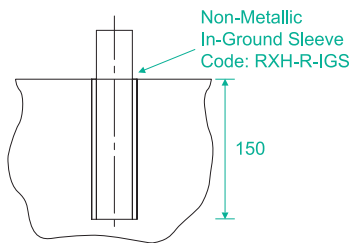
Surface Mounted to Concrete



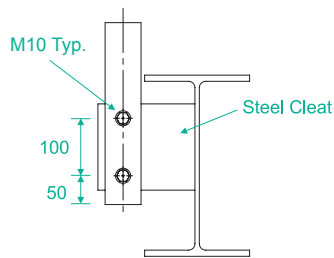
Side Mounted to Steel



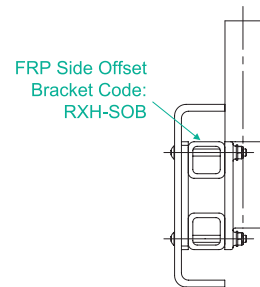
Removable Mounting to Concrete



Off-Set Mounting to Steel Section



Side Off-Set Mounting to FRP/Steel



## RailEX® Round Gate System

### RailEX® Self-Closing Gate



Having a gate that is organic with the rest of the Handrail system in use ensures ease of installation and optimal operating functionality. The RailEX® Self Closing Gate is robust and aesthetic, complimenting the durable qualities of the RailEX® system.

#### How to order RailEX® Self-Closing Gates

1. Nominate width of the the gate.
2. Nominate dimensions; height, top and mid rail spacing.
3. Nominate quantity.



**CAD File Availability**  
RailEX® gate work sheets and CAD files are available upon request.



### Engineering Design & Assistance

Treadwell specialises in supplying handrail in panels manufactured to suit your exact requirements.

From initial design through to site delivery, Treadwell can organise the lot for you.

All Treadwell requires in order to undertake this service are the parameters from you to which the handrail needs to be manufactured, and our experienced design team can produce a detailed set of design drawings. These will then be submitted for client review and approval prior to being released to the Treadwell manufacturing department for actual fabrication.

Consider the benefits seriously! This saves you excessive site labour costs, makes for fast and efficient onsite installation and ensures you will end up with a satisfactory and professional finished product.



Because Treadwell is ever conscious that designers are a key stakeholder in our business, we have made the entire RailEX® componentry range available in several electronic file configurations. Contact us on 1800 246 800 to request your copy immediately.

### Fabrication & Panelisation

Treadwell has the expertise and capacity to provide a turnkey handrail solution. From drafting or design, through to fabrication of handrail panels or modules and delivery as well — consider us to help solve your project management headaches.

All we need from you is a rail replacement or platform outline in order for us to be able to set about designing. We use the most up-to-date CAD technology to create construction drawings and making plans. Further, we can have these drawings sent via email, fax, post or courier to any location for a speedy approval or mark up; a service many of our client agree saves a lot of time and hassle.

So remember, our forte is designing solutions with our products — we're here to help you save money.



## General

### 1.0 Scope

- 1.1** The handrail/guard rail shall conform to the material and fabrications requirements as per this specification.

### 2.0 Standards/Related Documents

- 2.1** The handrail/guard rail system shall conform to the applicable sections of:
- 2.1.1** ASTM E 84 Surface Burning Characteristics of Building Materials.
  - 2.1.2** ASTM D 635 Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.

### 3.0 Design Criteria

- 3.1** The design criteria of the fibreglass products (FRP) shall be in accordance with governing building codes and generally accepted standards in the FRP industry.
- 3.2** Design live loads shall not exceed those set out in AS 1657-1992, to which Treadwell's RailEX® systems has been tested by a NATA approved testing laboratory & conforms.

### 4.0 Submittals

- 4.1** Shop drawings of all fabricated guard rail/ handrail modules shall be submitted by Treadwell (unless provided by the client) displaying clearly material sizes, types, styles, product codes and including types and sizes of fasteners as well as a layout if required.
- 4.2** Technical data and sample pieces can also be submitted if required.

### 5.0 Quality Assurance

### 6.0 Product Delivery Storage

- 6.1** All handrail/guard rail and components or ancillary items shall be fabricated as per the design and piece marked to design drawings.
- 6.2** All manufactured materials shall be delivered in unbroken packages.

## Product System

### 7.0 Manufacturing Process

- 7.1** All fibreglass (FRP) items listed under this section shall be constructed from fibreglass reinforcement and resin of the quality necessary to meet the design requirements and dimensions as specified.
- 7.2** Fibreglass reinforcement shall be continuous roving and shall be in sufficient quantities as required for the application.
- 7.3** Resins shall be (refer to page 23) with chemical formulations as necessary to provide the corrosion resistance, strength and any other physical properties as required.
- 7.4** All finished surfaces are to be smooth, resin-rich free of voids and without dry spots, cracks reinforced areas and all fibreglass reinforced shall be well covered with resin to protect against exposure due to weather or wear.
- 7.5** All fibreglass (FRP) items shall be EITHER non-fire retardant OR have a tested flame spread rating of 25 or less when tested in accordance with the ASTM E-84 Tunnel Test.
- 7.6** All metallic accessories shall be manufactured from 316 Stainless Steel OR galvanized steel OR Monel. (OR refers to specific uncommon customer requests.)
- 7.7** All fittings will be fastened together utilizing Treadwell's unique and registered range of approved 316 Stainless Steel Fixing Systems which must be tightened using the full force with a standard Allen Key.
- 7.8** Handrail/guard rail parts shall then be coated with a two pack paint system to further enhance longevity of this product.
- 7.9** The fibreglass reinforcement content shall be maintained at acceptable levels for a) pultruded items and b) SMC moulded items so as to ensure excellent resilience and performance over time.
- 7.10** All fibreglass material shall have an ultraviolet light inhibiting chemical additive to resist UV degradation.
- 7.11** Colour shall be any Treadwell standard colours (Safety Yellow, Light Grey or a custom color)

### 8.0 Acceptable Manufacture

The fibreglass (FRP) Ergonomic Round Tubular Handrail System shall be manufactured by Treadwell Group PTY Ltd of Australia.



Are you specifying Treadwell products? To make the process simpler for you, we have standard specifications available in Microsoft Word format. For a copy, simply call us at 1800 246 800 or email us at [sales@treadwellgroup.com](mailto:sales@treadwellgroup.com)



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Strength	•••••	•••••	•••••	•••••	••
Lightweight	•••••	•	•	•••••	••
Electrical Resistance	•••••	•	•	•••••	•••••

### EX-Series® Standard Colours

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 - Likewise, for additional strength, RailEX® panels typically contain 15-20% more reinforcing content (glass) in comparison to alternative FRP handrail systems on the market.

**You're perhaps au fait with metal, but not FRP?**

**Q:** How simply can I modify RailEX® handrail on site or even once it is installed?

**A:** Very simply. All that will be required is the correct tools to undertake the job, which consist mainly of simple carpenters' tools. All fittings are mechanically fastened and can be simply released by undoing fixings.

**FRP handrail - why, when the frame must be metal?**

**Q:** Is there a lot of point utilising RailEX® handrails, even though we are working in a corrosive environment, if frame work will be being built out of mild steel due to stainless steel not being viable?

**A:** Certainly there is. For industrial applications, Treadwell offers a family of FRP building products including structural shapes, grating, cladding and roofing, louvres, ridge vents & many other non-corrosive solutions, and our expertise includes in-house design and fabrication services.

**How can you guarantee RailEX® will last outdoors?**

**Q:** Does RailEX® offer better UV protection than alternative FRP materials?

**A:** Yes, RailEX® has additional means of UV protection.  
 - RailEX®, which is only ever produced with premium EX-Series® Resin Systems, incorporates an optimum amount of UV inhibitors and stabilisers within the material.  
 - For longevity of surface serviceability, RailEX® surface veils i pre-finished with a factory applied two pack surface coating.

**One of the most common questions asked is about the cost of Treadwell products.**

**Q:** How does RailEX® compare to stainless steel in price?

**A:** Treadwell's FRP materials are normally less than the cost of stainless steel.

**Q:** How does RailEX® compare to carbon steel in price?

**A:** Treadwell's FRP materials are generally more expensive than carbon steel when comparing material costs. However, when factoring in installation, handling, transportation and other associated expenses, the total installed cost of FRP is therefore more competitive.

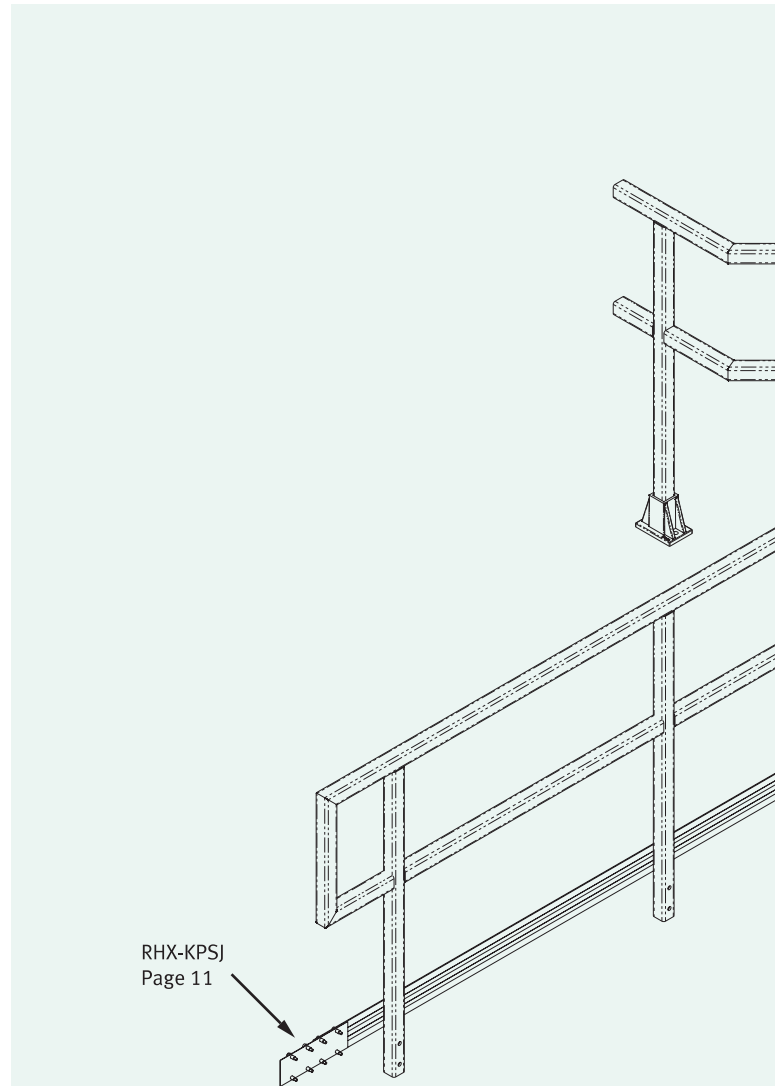
**Q:** How does RailEX® compare to aluminium in price?

**A:** Treadwell's FRP materials are usually priced competitively with aluminium and the total installed cost generally makes FRP a more price competitive choice than aluminium.

**Q:** How does RailEX® compare to wood in price?

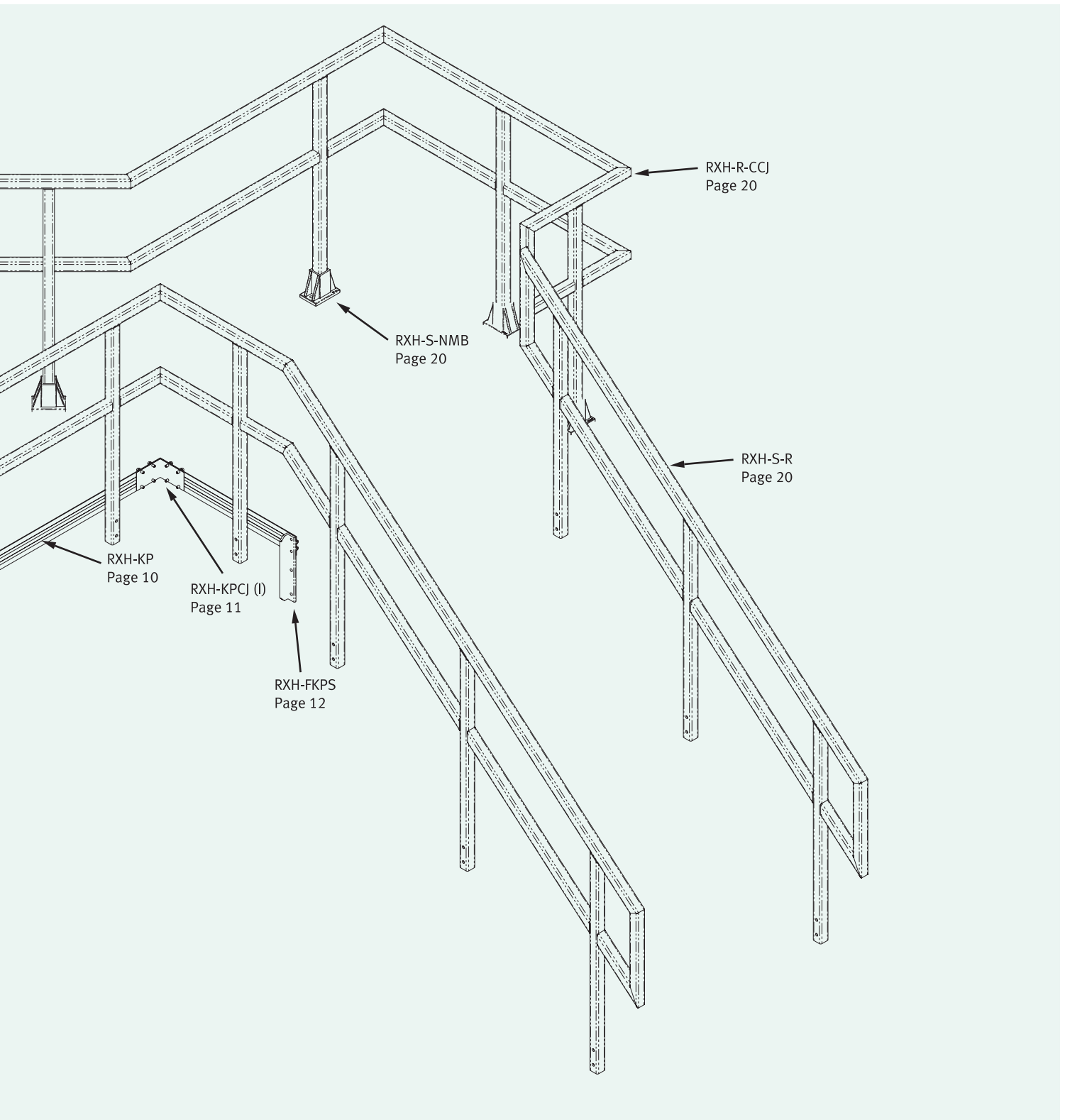
**A:** Treadwell's FRP materials cannot compete with wood on price alone. Customers considering using FRP in place of wood should evaluate the strength, not the resistance and over all performance requirements for the application and choose the best material accordingly.

**RailEX®**



**This illustration is for parts visualization only and does not represent an actual layout.**

# QUARE Overview



# RailEX® Square Componentry



## RailEX® Square Componentry

Developed to compliment Treadwell’s range of corrosion resistant structural solutions, RailEX® offers you the ideal solution for the harshest of destructive, chemical, laden environments, both inside and out.

All of the RailEX® components are completely fibreglass reinforced plastic (FRP) and are coated with a two pack UV resistant coating to provide the peace of mind that premature breakdown of the product will not result from exposure to elements.

Standard Componentry

### RXH-R-TR



Fixing Code:	N/A	Maximum Length:	3 metres
Description: Standard Fibreglass Rail			

### RXH-R-MR



Fixing Code:	N/A	Parts/Unit:	Two
Description: Standard Round Fibreglass Mid Rail			

### RXH-R-ST



Fixing Code:	N/A	Parts/Unit:	One
Description: Standard Round Fibreglass Top Rail			

Standard Componentry

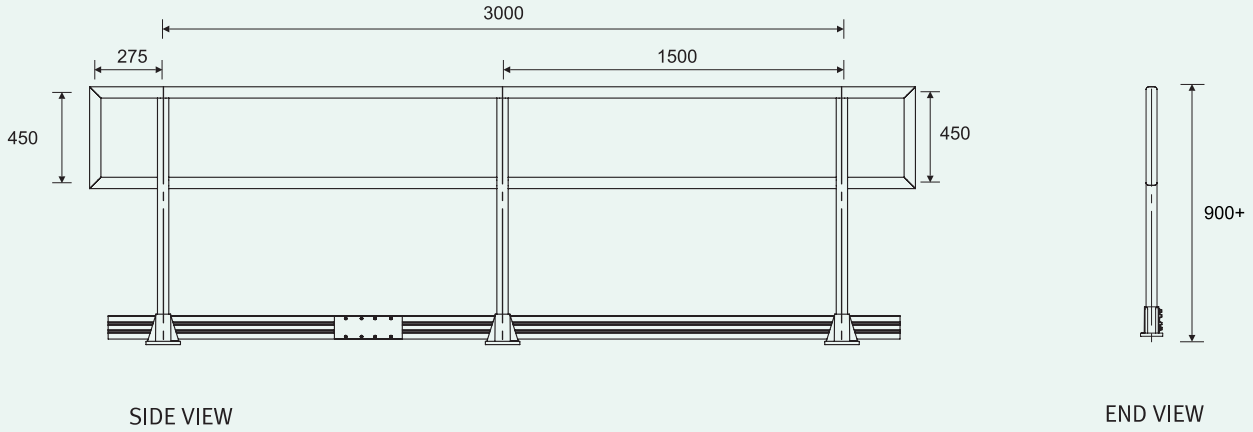
### RXH-R-ST



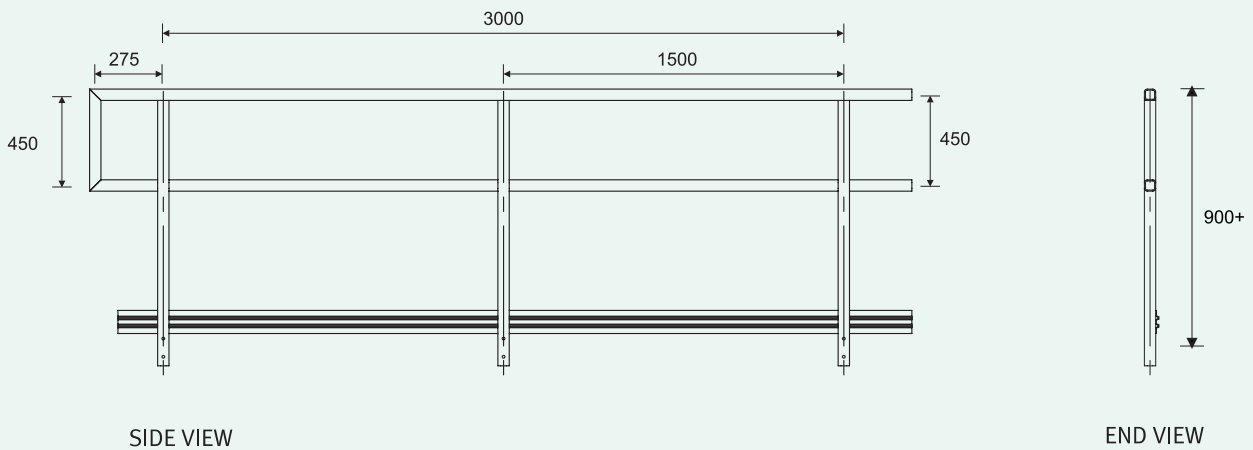
Fixing Code:	EXH-SFK	Parts/Unit:	One
Description: Standard Fibreglass Narrow Manting Bracket			

RailEX® Square Typical Sections

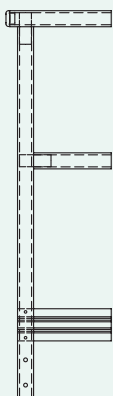
Top Mounted Section



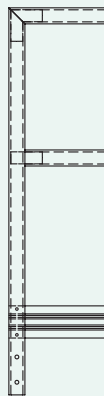
Side Mounted Section



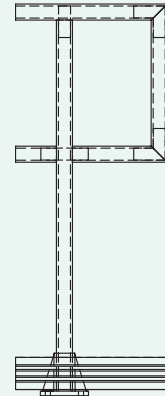
End Stanchion Section



Closure Bend Section



Continual Top Rail Section



# RailEX® Square Specification Guide

## General

### 1.0 Scope

- 1.1** The handrail/guard rail shall conform to the material and fabrications requirements as per this specification.

### 2.0 Standards/Related Documents

- 2.1** The handrail/guard rail system shall conform to the applicable sections of:
- 2.1.1** ASTM E 84 Surface Burning Characteristics of Building Materials.
  - 2.1.2** ASTM D 635 Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.

### 3.0 Design Criteria

- 3.1** The design criteria of the fibreglass products (FRP) shall be in accordance with governing building codes and generally accepted standards in the FRP industry.
- 3.2** Design live loads shall not exceed those set out in AS 1657-1992, to which Treadwell's RailEX® systems has been tested by a NATA approved testing laboratory & conforms.

### 4.0 Submittals

- 4.1** Shop drawings of all fabricated guard rail/ handrail modules shall be submitted by Treadwell (unless provided by the client) displaying clearly material sizes, types, styles, product codes and including types and sizes of fasteners as well as a layout if required.
- 4.2** Technical data and sample pieces can also be submitted if required.

### 5.0 Quality Assurance

### 6.0 Product Delivery Storage

- 6.1** All handrail/guard rail and components or ancillary items shall be fabricated as per the design and piece marked to design drawings.
- 6.2** All manufactured materials shall be delivered in unbroken packages.

## Product System

### 7.0 Manufacturing Process

- 7.1** All fiberglass (FRP) items listed under this section shall be constructed from fiberglass reinforcement and resin of the quality necessary to meet the design requirements and dimensions as specified.
- 7.2** Fibreglass reinforcement shall be continuous roving and shall be in sufficient quantities as required for the application.
- 7.3** Resins shall be (refer to page 23) with chemical formulations as necessary to provide the corrosion resistance, strength and any other physical properties as required.
- 7.4** All finished surfaces are to be smooth, resin-rich free of voids and without dry spots, cracks reinforced areas and all fiberglass reinforced shall be well covered with resin to protect against exposure due to weather or wear.
- 7.5** All fiberglass (FRP) items shall be EITHER non-fire retardant OR have a tested flame spread rating of 25 or less when tested in accordance with the ASTM E-84 Tunnel Test.
- 7.6** All metallic accessories shall be manufactured from 316 Stainless Steel OR galvanized steel OR Monel. (OR refers to specific uncommon customer requests.)
- 7.7** All fittings will be fastened together utilizing Treadwell's unique and registered range of approved 316 Stainless Steel Fixing Systems which must be tightened using the full force with a standard Allen Key.
- 7.8** Handrail/guard rail parts shall then be coated with a two pack paint system to further enhance longevity of this product.
- 7.9** The fiberglass reinforcement content shall be maintained at acceptable levels for a) pultruded items and b) SMC moulded items so as to ensure excellent resilience and performance over time.
- 7.10** All fiberglass material shall have an ultraviolet light inhibiting chemical additive to resist UV degradation.
- 7.11** Colour shall be any Treadwell standard colours (Safety Yellow, Light Grey or a custom color)

### 8.0 Acceptable Manufacture

The fiberglass (FRP) Ergonomic Round Tubular Handrail System shall be manufactured by Treadwell Group PTY Ltd of Australia.



Are you specifying Treadwell products? To make the process simpler for you, we have standard specifications available in Microsoft Word format. For a copy, simply call us at 1800 246 800 or email us at [sales@treadwellgroup.com](mailto:sales@treadwellgroup.com)

**Options Overview**

**O-Series™** is an architectural grade Polyester Resin System with a moderate chemical resistance. O-Series is a good choice for commercial or light industrial applications, especially in areas where moisture is prevalent. O-Series is often utilized for public infrastructure applications where it has been proven to outperform traditional timber decking products.

**I-Series™** is a premium Isophthalic Resin System. This system provides an intermediate level of chemical resistance and is the correct choice for areas subjected to splash and spill contact with harsh chemicals. This system is an excellent general-purpose resin and is a more favourably priced alternative to the vinyl ester system. This system has a flame spread of 25 or less.

**V-Series™** Vinyl Ester Resin System is a high quality and is the most chemical resistant system offered in the industry and has been developed for use in environments where fibreglass/FRP products are subject to frequent and direct contact with the harshest of chemicals: including a broad range of acids and caustics. This system has a flame spread of 25 or less.

**P-Series™** Phenolic Resin System is a system designed specifically for use where fire resistance, low smoke and low toxic fumes are critical. P-Series is typically used in offshore applications and confined spaces where such criteria are an absolute necessity. This system is tested in accordance with ASTM E-84. Various products also conforming to US Coast Guard Approvals, Level 2 and 3, are also offered by Treadwell. This particular Resin System has a flame spread rating of 5 and a smoke density rating of 5.

**Chemical Resistance Guide**

Information contained in this guide is based on data collected from several years of actual industrial applications. Recommendations are based on conservative evaluations of the changes which occur in certain properties of replicate laminates after exposures of one year or longer, both in the laboratory and the field.

Temperatures are neither the minimum nor the maximum but represent standard test conditions (Room Temperature & 70°C). The products may be suitable at higher temperatures but individual test data should be required to

establish such suitability. Contact Treadwell for any special applications that you may have.

The recommendations (• : resistant; – : not resistant) contained in this specification sheet are made without guarantee or representation as to results. We suggest that you evaluate these recommendations and suggestions in your own laboratory or actual field trial prior to use. Our responsibility for claims arising from breach of warranty, negligence, or otherwise is limited to the purchase price of the material.

Chemical	I-Series		V-Series	
	Room Temp	70°C	Room Temp	70°C
Acetaldehyde	–	–	–	–
Acetic Acid 0-25%	•	•	•	•
Acetic Acid 25-50%	•	–	•	•
Acetic Anhydride	–	–	–	–
Acetone	–	–	–	–
Acrylonitrile	–	–	–	–
Alcohol, Butyl	–	–	•	–
Alcohol, Ethyl 10%	–	–	•	66
Alcohol, Ethyl 100%	–	–	•	–
Alcohol, Isopropyl 10%	–	–	•	66
Alcohol, Isopropyl 10%	–	–	•	–
Alcohol, Methyl 10%	–	–	•	66
Alcohol, Methyl 10%	–	–	–	–
Alcohol, Methyl Isobutyl	–	–	•	66
Alcohol, Secondary Isobutyl	–	–	•	66
Alum	•	•	•	•
Aluminium Chloride	•	•	•	•
Aluminium Hydroxide	•	–	•	49
Aluminium Nitrate	•	•	•	•

Chemical	I-Series		V-Series	
	Room Temp	70°C	Room Temp	70°C
Acetaldehyde	•	•	•	•
Acetic Acid 0-25%	–	–	•	38
Acetic Acid 25-50%	–	–	•	38
Acetic Anhydride	•	–	•	49
Acetone	–	–	•	49
Acrylonitrile	–	–	•	49
Alcohol, Butyl	•	–	•	49
Alcohol, Ethyl 10%	–	–	•	49
Alcohol, Ethyl 100%	•	–	•	49
Alcohol, Isopropyl 10%	•	–	•	49
Alcohol, Isopropyl 10%	–	–	•	49
Alcohol, Methyl 10%	•	•	•	49
Alcohol, Methyl 10%	–	–	•	49
Alcohol, Methyl Isobutyl	–	–	•	49
Alcohol, Secondary Isobutyl	•	•	•	•
Alum	•	–	•	•
Aluminium Chloride	–	–	•	•
Aluminium Hydroxide	•	–	•	•
Aluminium Nitrate	•	–	•	•

## Chemical Resistance Guide (cont)

Chemical	I-Series		V-Series	
	Room Temp	70°C	Room Temp	70°C
Barium Hydroxide	-	-	•	49
Barium Sulfate	•	•	•	•
Barium Sulfide	-	-	•	•
Beer	•	-	•	49
Benzene	-	-	-	-
5% Benzene in Kerosene	•	-	•	•
Benzene Sulfonic Acid	•	•	•	•
Benzoic Acid	•	-	•	•
Benzyl Alcohol	-	-	•	-
Benzyl Chloride	-	-	-	-
Brass Plating Solution:				
-3% Copper Cyanide	-	-	•	•
-6% Sodium Cyanide	-	-	•	•
-1% Zinc Cyanide	-	-	•	•
-3% Sodium Carbonate	-	-	•	•
Butyl Acetate	-	-	-	-
Butyric Acid 0-50%	•	-	•	•
Butylene Glycol	•	•	•	•
Cadmium Chloride	•	-	•	•
Cadmium Cyanide Plating Soln:				
-3% Cadmium Oxide	-	-	•	49
-6% Sodium Cyanide	-	-	•	49
-1% Caustic Soda	-	-	•	49
Calcium Bisulfate	•	•	•	•
Calcium Carbonate	•	-	•	•
Calcium Chlorate	•	•	•	•
Calcium Chloride	•	•	•	•
Calcium Hydroxide	•	-	•	49
Calcium Hypochlorate	•	-	•	49
Calcium Nitrate	•	•	•	•
Calcium Sulfate	•	•	•	•
Calcium Sulfite	•	•	•	•
Caprylic Acid	•	-	•	•
Carbon Dioxide	•	•	•	•
Carbon Disulfide	-	-	-	-
Carbon Monoxide	•	•	•	•
Carbon Tetrachloride	-	-	•	38
Carbon Acid	•	-	•	•
Castor Oil	•	•	•	•
Carbon Methyl Cellulose	-	-	•	49
Chlorinated Wax	-	-	•	•
Chlorine Dioxide/Air	•	-	•	•
Chlorine Dioxide, Wet Gas	-	-	•	•
Chlorine, Dry Gas	-	-	•	•
Chlorine, Wet Gas	-	-	•	•
Chlorine, Liquid	-	-	-	-

Chemical	I-Series		V-Series	
	Room Temp	70°C	Room Temp	70°C
Chlorine, Water	-	-	•	•
Chloroacetic Acid 0-50%	-	-	•	38
Chlorobenzene	-	-	-	-
Chloroform	-	-	-	-
Chlorosulfonic Acid	-	-	-	-
Chromic Acid 20%	-	-	•	49
Chromic Acid 30%	-	-	-	-
Chromium Sulfate	•	•	•	•
Citric Acid	•	•	•	•
Coconut Oil	•	-	•	•
Copper Chloride	•	•	•	•
Copper Cyanide	-	-	•	•
Copper Fluoride	-	-	•	•
Copper Nitrate	•	•	•	•
Copper Plating Solution				
-Copper Cyanide	-	-	•	•
-10.5% Copper	-	-	•	•
-4% Copper Cyanide	-	-	•	•
-6% Rochelle Salts	-	-	•	•
Copper Brite Plating:				
-Caustic Cyanide	-	-	•	38
Copper Plating Solution				
-45% Copper Fluorobrate	-	-	•	•
-19% Copper Sulfate	-	-	•	•
-8% Sulfuric acid	-	-	•	•
Copper Matte Dipping Bath:				
-30% Ferric Chloride	-	-	•	•
-19% Hydrochloric	-	-	•	•
Copper Picking Bath:				
-10% Ferric Sulfate	-	-	•	•
-10% Sulfuric Acid	-	-	•	•
Copper Sulfate	•	•	•	•
Corn Oil	•	-	•	•
Corn Starch-Slurry	•	-	•	•
Corn Sugar	•	-	•	•
Cottonseed Oil	•	-	•	•
Crude Oil, Sour	•	-	•	•
Crude Oil, Sweet	•	-	•	•
Cyclohexane	•	-	•	49
Detergents, Sulfonated	•	-	•	•
Di-Ammonium Phosphate	-	-	•	•
Dibromophenol	-	-	-	-
Dibutyl Ether	-	-	•	49
Dichloro Benzene	-	-	-	-
Dichloroethylene	-	-	-	-
Diesel Fuel	•	-	•	•



## Chemical Resistance Guide (cont)

Chemical	I-Series		V-Series	
	Room Temp	70°C	Room Temp	70°C
Diethylene Glycol	•	–	•	•
Dimethyl Phthalate	–	–	•	•
Diethyl Phthalate	–	–	•	•
Dipropylene Glycol	•	–	•	•
Dodecyl Alcohol	–	–	•	•
Esters, Fatty Acids	•	•	•	•
Ethyl Acetate	–	–	–	–
Ethyl Benzene	–	–	–	–
Ethyl Ether	–	–	–	–
Ethylene Glycol	•	•	•	•
Ethylene Dichloride	–	–	–	–
Fatty Acids	•	•	•	•
Ferric Chloride	•	•	•	•
Ferric Nitrate	•	•	•	•
Ferric Sulfate	•	•	•	•
Ferrous Chloride	•	•	•	•
Ferrous Nitrate	•	•	•	•
Ferrous Sulfate	•	•	•	•
8-8-8 Fertiliser	•	–	•	49
Fertiliser:				
– Urea Ammonium Nitrate	–	–	•	49
Fuel Gas	–	–	•	•
Fluoboric Acid	–	–	•	49
Fluosilicic Acid 0-20%	–	–	•	•
Formaldehyde	•	–	•	•
Formic Acid	•	–	•	•
Fuel Oil	•	–	•	•
Gas Natural	•	–	•	•
Gasoline, Auto	•	–	•	•
Gasoline, Aviation	•	–	•	•
Gasoline, Ethyl	•	–	•	•
Gluconic Acid	•	–	•	•
Gasoline, Sour	•	–	•	•
Glucose	•	•	•	•
Glycerine	•	•	•	•
Glycol, Ethylene	•	•	•	•
Glycol, Propylene	•	•	•	•
Glycolic Acid	•	–	•	•
Gold Plating Solution:				
– 63% Potassium Ferrocyanide	–	–	•	•
– 2% Potassium Gold Cyanide	–	–	•	•
– 8% Sodium Cyanide	–	–	•	•
Heptane	•	–	•	•
Hexane	•	–	•	•
Hexylene Glycol	•	•	•	•
Hydraulic Fluid	•	–	•	•

Chemical	I-Series		V-Series	
	Room Temp	70°C	Room Temp	70°C
Hydrobromic Acid 0-25%	•	–	•	•
Hydrochloric Acid 0-37%	•	–	•	•
Hydrocyanic Acid	•	–	•	•
Hydrofluoric Acid 10%	–	–	•	–
Hydrofluosilicic Acid, 10%	–	–	•	•
Hydrogen Bromide, Wet Gas	–	–	•	•
Hydrogen Chloride, Dry Gas	–	–	•	•
Hydrogen Chloride, wet Gas	–	–	•	•
Hydrogen Peroxide	–	–	•	49
Hydrogen Sulfide, Dry	•	–	•	•
Hydrogen Sulfide, Aqueous	•	–	•	•
Hydrogen Fluoride, Vapour	–	–	•	•
Hydrosulfite Bleach	–	–	•	49
Hydrochloric Acid 1-10%				
Iron Plating Solution				
–45% Fecl: 15%Cacl	–	–	•	•
–20% Fecl: 11%(NH <sub>4</sub> ) <sub>2</sub> So <sub>4</sub>	–	–	•	•
Iron and Steel Cleaning Bath:				
–9% Hydrochloric: 23% Sulfuric	–	–	•	•
Isopropyl Amine	–	–	•	38
Isopropyl Palmitate	•	•	•	•
Jet Fuel	•	–	•	•
Kerosene	•	–	•	•
Lactic Acid	•	–	•	•
Lauroyl Chloride	–	–	•	•
Lauric Acid	•	–	•	•
Lead Acetate	•	–	•	•
Lead Chloride	•	–	•	•
Lead Nitrate	•	–	•	•
Lead Plating Solution:				
–.8% Fluoboric, 0.4% Boric Acid	–	–	•	•
Levulinic Acid	•	–	•	•
Linseed Oil	•	•	•	•
Lithium Bromide	•	•	•	•
Lithium Sulfate	•	•	•	•
Magnesium Bisulfate	•	–	•	•
Magnesium Carbonate	•	–	•	•
Magnesium Chloride	•	•	•	•
Magnesium Hydroxide	–	–	•	60
Magnesium Nitrate	•	–	•	•
Magnesium Sulfate	•	•	•	•
Maleic Acid	•	•	•	•
Mercuric Chloride	•	–	•	•
Mercurous Chloride	•	–	•	•
Methylene Chloride	–	–	–	–
Methyl Ethyl Ketone	–	–	–	–

## Chemical Resistance Guide (cont)

Chemical	I-Series		V-Series	
	Room Temp	70°C	Room Temp	70°C
Methyl Isobutyl Carbitol	-	-	-	-
Methanol (See Alcohol)	•	-	•	•
Methyl Isobutil Ketone	-	-	-	-
Methyl Styrene	-	-	-	-
Mineral Oils	•	•	•	•
Molybdenum Disulfide	•	-	•	•
Monochloro Acetic Acid	-	-	-	-
Monoethanolamine	-	-	-	-
Motor Oil	•	•	•	•
Myristic Acide	-	-	•	•
Naptha	•	•	•	•
Napthaline	•	-	•	•
Nickel Chloride	•	•	•	•
Nickel Nitrate	•	•	•	•
Nickel Plating				
-8% Lead, 0.8 Fluoboric Acid	-	-	•	•
-0.4% Boric Acid	-	-	•	•
Nickel Plating:				
-11% Nickel Sulfate	•	-	•	•
-2% Nickel Chloride	•	-	•	•
-1% Boric Acid	•	-	•	•
Nickel Plating:				
-44% Nickel Sulfate	•	-	•	•
-4% Ammonium Chloride	•	-	•	•
-4% Boric Acid	•	-	•	•
Nickel Sulfate	•	•	•	•
Nitric Acid 0.5%	•	•	•	•
Nitric Acid 20%	-	-	•	49
Nitric Acid Fumes	-	-	-	-
Nibrobenzene	-	-	-	-
Octanoci Acid	•	-	•	•
Oil, Sour Crude	•	•	•	•
Oil, Sweet Crude	•	•	•	•
Oleic Acid	•	•	•	•
Oleum (Fuming Sulfuric)	-	-	-	-
Olice Oil	•	•	•	•
Oxalic Acid	•	•	•	•
Peroxide Bleach				
-25 Sodium Peroxide 95%	•	•	•	•
-0.025% Epsom Salts	•	•	•	•
-5% Sodium Silicate 42.Be	•	•	•	•
-1.4% Sulfuric Acid 66.Be	•	•	•	•
Phenol	-	-	-	-
Phenol Sulfonic Acid	-	-	-	-
Phosphoric Acid	•	•	•	•
Phosphoric Acid Fumes	•	•	•	•

Chemical	I-Series		V-Series	
	Room Temp	70°C	Room Temp	70°C
Phosphorus Pentoxide	•	•	•	•
Phosphorus Trichloride	-	-	-	-
Phthalic Acid	•	•	•	•
Pickling Acids (Sulfuric & Hydrochloric)	•	•	•	•
Picric Acid, Alcoholic				
Polyvinyl Acetate Latex	•	-	•	•
Polyvinyl Alcohol	•	-	•	38
Polyvinyl Chloride Latex W/35 (Parts Dop)	-	-	•	49
Potassium Aluminum Sulfate	•	•	•	•
Potassium Bicarbonate	•	-	•	60
Potassium Bromide	•	-	•	38
Potassium Carbonate	•	-	•	60
Potassium Chloride	•	•	•	•
Potassium Dichromate	•	-	•	60
Potassium Ferricyanide	•	•	•	•
Potassium Ferrocyanide	•	•	•	•
Potassium Hydroxide	-	-	•	66
Potassium Nitrate	•	•	•	•
Potassium Permanganate	•	-	•	60
Potassium Persulfate	•	-	•	•
Potassium Sulfate	•	•	•	•
Propionic Acid 1-50%	-	-	•	49
Propionic Acid 50-100%	-	-	-	-
Propylene Glycol	•	•	•	•
Pulp Paper Mill Effluent	•	-	•	•
Pyridine	-	-	-	-
Salicylic Acid	-	-	•	60
Sebacic Acid	-	-	•	•
Selenious Acid	-	-	•	•
Silver Nitrate	•	•	•	•
Silver Plating Solution:				
-4% Silver Cyanide	-	-	•	•
-7% Potassium Cyanide	-	-	•	•
-5% Sodium Cyanide	-	-	•	•
-2% Potassium Carbonate	-	-	•	•
Soaps	•	-	•	•
Sodium Acetate	•	-	•	•
Sodium Benzonate	•	-	•	•
Sodium Bicarbonate	•	•	•	•
Sodium Bifluoride	•	-	•	49
Sodium Bisulfate	•	•	•	•
Sodium Bisulfite	•	•	•	•
Sodium Bromate	•	•	•	60
Sodium Bromide	•	•	•	•
Sodium Carbonate 0-25%	•	-	•	•

## Chemical Resistance Guide (cont)

Chemical	I-Series		V-Series	
	Room Temp	70°C	Room Temp	70°C
Sodium Chlorate	•	–	•	•
Sodium Chloride	•	•	•	•
Sodium Chlorite	•	–	•	•
Sodium Chromite	•	•	•	•
Sodium Cyanide	•	–	•	•
Sodium Dichromate	•	•	•	•
Sodium Di-Phosphate	•	•	•	•
Sodium Ferricyanide	•	•	•	•
Sodium Fluoride	•	–	•	49
Sodium Fluoro Silicate	–	–	•	49
Sodium Hexametaphosphates	–	–	•	38
Sodium Hydroxide 0-5%	–	–	•	66
Sodium Hydroxide 5-25%	–	–	•	66
Sodium Hydroxide 50%	–	–	•	66
Sodium Hydrosulfide	•	–	•	•
Sodium Hypochlorite	•	–	•	66
Sodium Lauryl Sulfate	•	•	•	•
Sodium Mono-Phosphate	•	•	•	•
Sodium Nitrate	•	•	•	•
Sodium Silicate	•	–	•	•
Sodium Sulfate	•	•	•	•
Sodium Sulfide	•	–	•	•
Sodium Sulfite	•	–	•	•
Sodium Tetra Borate	•	•	•	•
Sodium Thiocyanate	–	–	•	•
Sodium Thiosulfate	•	–	•	•
Sodium Tripolyphosphate	•	–	•	•
Sodium Xylene Sulfonate	•	–	•	•
Sodium Solutions	•	–	•	•
Sodium Crude Oil	•	•	•	•
Soya Oil	•	•	•	•
Stannic Chloride	•	•	•	•
Stannous Chloride	•	•	•	•
Stearic Acid	•	•	•	•
Styrene	–	–	–	–
Sugar, Beet And Cane Liquor	•	–	•	•
Sugar, Sucrose	•	•	•	•
Sulfamic Acid	•	–	•	•
Sulfanilic Acid	•	–	•	•
Sulfated Detergents	•	–	•	•
Sulfur Dioxide, Dry Or Wet	–	–	•	•
Sulfur Trioxide/Air	–	–	•	•
Sulfuric Acid 0-30%	•	•	•	•
Sulfuric Acid 30-50%	–	–	•	•
Sulfuric Acid 50-70%	–	–	•	49
Sulfurous Acid	–	–	•	38

Chemical	I-Series		V-Series	
	Room Temp	70°C	Room Temp	70°C
Superphosphoric Acid (76% P2 O5)	•	–	•	•
Tall Oil	•	–	•	60
Tannic Acid	•	–	•	66
Tartaric Acid	•	•	•	•
Thionyl Chloride	–	–	–	–
<b>Tin Plating:</b>				
– 18% Stannous Fluoroborate	–	–	•	•
– 7% Tin	–	–	•	•
– 9% Fluoroboric Acid	–	–	•	•
– 2% Boric Acid	–	–	•	•
Toluene	–	–	–	–
Toluene Sulfonic Acid	–	–	•	•
<b>Transformer Oils:</b>				
– Mineral Oil Types	•	•	•	•
– Chloro-Phenyl Types)	•	•	•	•
Trichlor Acetic Acid	•	–	•	•
Trichlorethylene	–	–	–	–
Trichloropenol	–	–	–	–
Tricresyl Phosphate	–	–	•	49
Tridecylbenzene Sulfonate	•	–	•	•
Trisodium Phosphate	•	–	•	•
Turpentine	–	–	•	38
Urea	–	–	•	38
Vegetable Oils	•	•	•	•
Vinegar	•	•	•	•
Vinyl Acetate	–	–	–	–
<b>Water:</b>				
– Deionised				
– Demineralised	•	•	•	•
– Distilled	•	•	•	•
– Fresh	•	•	•	•
– Salt	•	•	•	•
– Sea	•	•	•	•
White Liquor (Pulp Mill)	•	–	•	•
Xylene	–	–	–	–
Zinc Chlorate	•	•	•	•
Zinc Nitrate	•	•	•	•
<b>Zinc Plating Solution:</b>				
– 9% Zinc Cyanide	–	–	•	49
– 4% Sodium Cyanide	–	–	•	49
–9% Sodium Hydroxide	–	–	•	49
<b>Zinc Plating Solution:</b>				
– (49% Zinc Fluoroborate	•	–	•	•
– 5% Ammonium Chloride	•	–	•	•
– 6% Ammonium Fluoroborate	•	–	•	•
Zinc Sulfate	•	•	•	•



17 March 2016

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Doc. No 030017/1

## PRODUCT EVALUATION REPORT

**Client:** TREADWELL GROUP  
**Address:** 58 DEEDS RD, NORTH PLYMPTON, SA  
**Subject:** LOAD TESTING OF FIBERGLASS HANDRAIL SYSTEMS F-RXH-R WITH FACIA MOUNTED FOOTINGS  
**Client Reference:** MR MATTHEW SUTHERLAND  
**Client's Order No.:** TBC  
**Correlation/Report No.:** 030017/1

### 1.0 INTRODUCTION.

It was requested that a series of load tests be performed on a fiberglass handrail in accordance with AS 1657 "Fixed Platforms, Walkways, Stairways and Ladders – Design, Construction and Installation" - 2013.

### 2.0 LOAD TESTING

The samples was installed in its standard configuration and the various loads as required by AS 1657 section 6 and appendix B were applied with the following results obtained;

#### 2.1 DEFLECTION LOADING

Test Unit	F-RXH-R (1m high x 3m long)
Footing	F-RXH-R-SMB (facia mount)
Horizontal point load test on post	End post
Preload	30.1 kg
Test load	61.2 kg
Test hold time:	2 minutes
Deflection under load:	51mm
Deflection after load removed:	1mm
Test date:	25/02/2016
Result:	Sample complies with AS 1657



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17 March 2016

Page No. 1 of 5  
Doc. No 030017/2

**PRODUCT EVALUATION REPORT**

**Client:** TREADWELL GROUP  
**Address:** 58 DEEDS RD, NORTH PLYMPTON, SA  
**Subject:** LOAD TESTING OF FIBERGLASS HANDRAIL SYSTEMS F-RXH-R WITH FLAT MOUNTED FOOTINGS  
**Client Reference:** MR MATTHEW SUTHERLAND  
**Client's Order No:** TBC  
**Correlation/Report No.:** 030017/2

**1.0 INTRODUCTION.**

It was requested that a series of load tests be performed on a fiberglass handrail in accordance with AS 1657 "Fixed Platforms, Walkways, Stairways and Ladders – Design, Construction and Installation" - 2013.

**2.0 LOAD TESTING**

The samples was installed in its standard configuration and the various loads as required by AS 1657 section 6 and appendix B were applied with the following results obtained;

**2.1 DEFLECTION LOADING**

Test Unit	F-RXH-R (1m high x 3m long)
Footing	F-RXH-R-NMB (flat mount)
Horizontal point load test on post	End post
Preload	30.1 kg
Test load	61.2 kg
Test hold time:	2 minutes
Deflection under load:	87mm
Deflection after load removed:	3mm
Test date:	01/03/2016
Result:	Sample complies with AS 1657



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[http://www.alsglobal.com/-/media/Files/Divisions/Industrial/Asset\\_Care/Asset\\_Care\\_Resources/Terms\\_and\\_Conditions/ALS-Terms-and-Conditions-Industrial-Australia.pdf](http://www.alsglobal.com/-/media/Files/Divisions/Industrial/Asset_Care/Asset_Care_Resources/Terms_and_Conditions/ALS-Terms-and-Conditions-Industrial-Australia.pdf)

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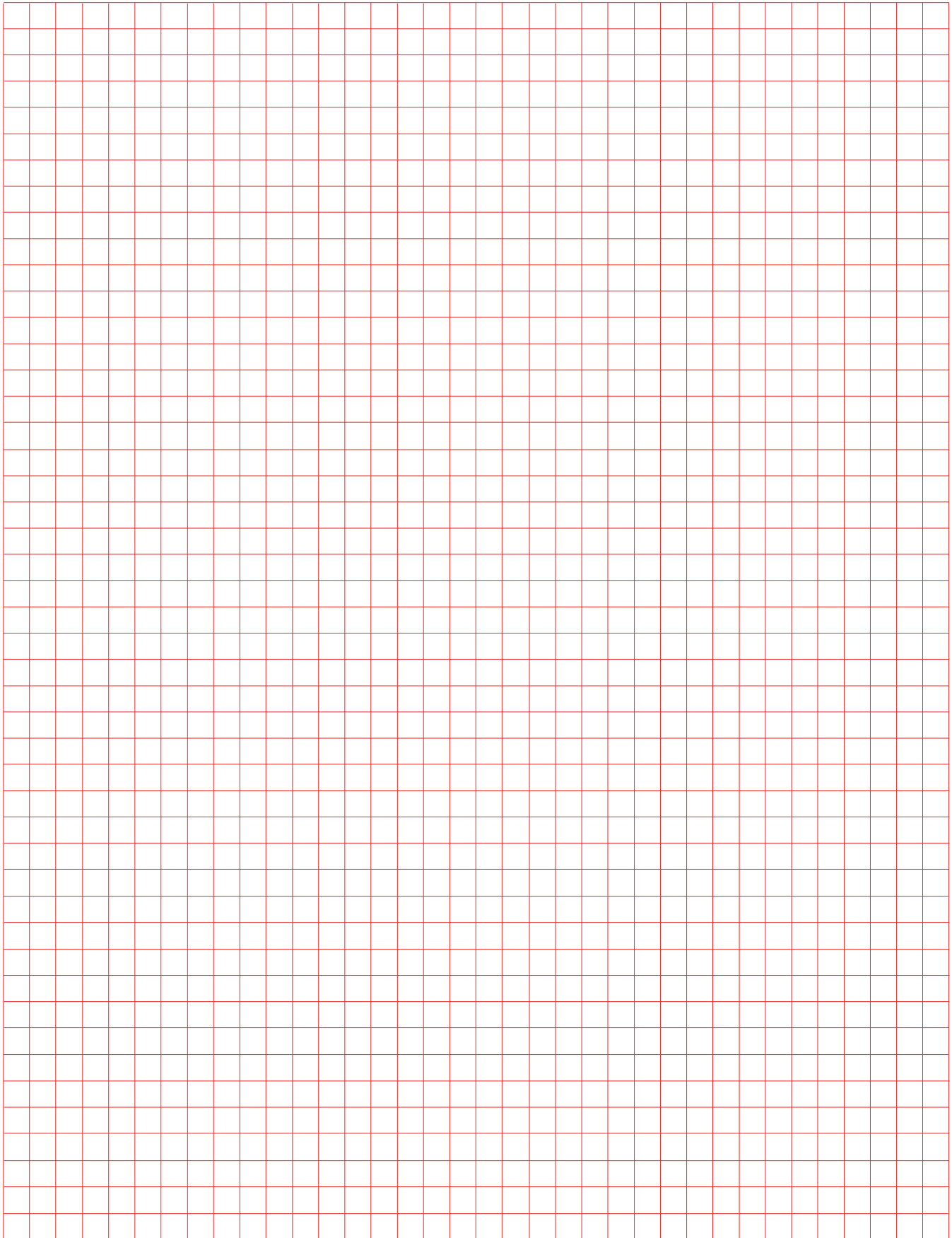
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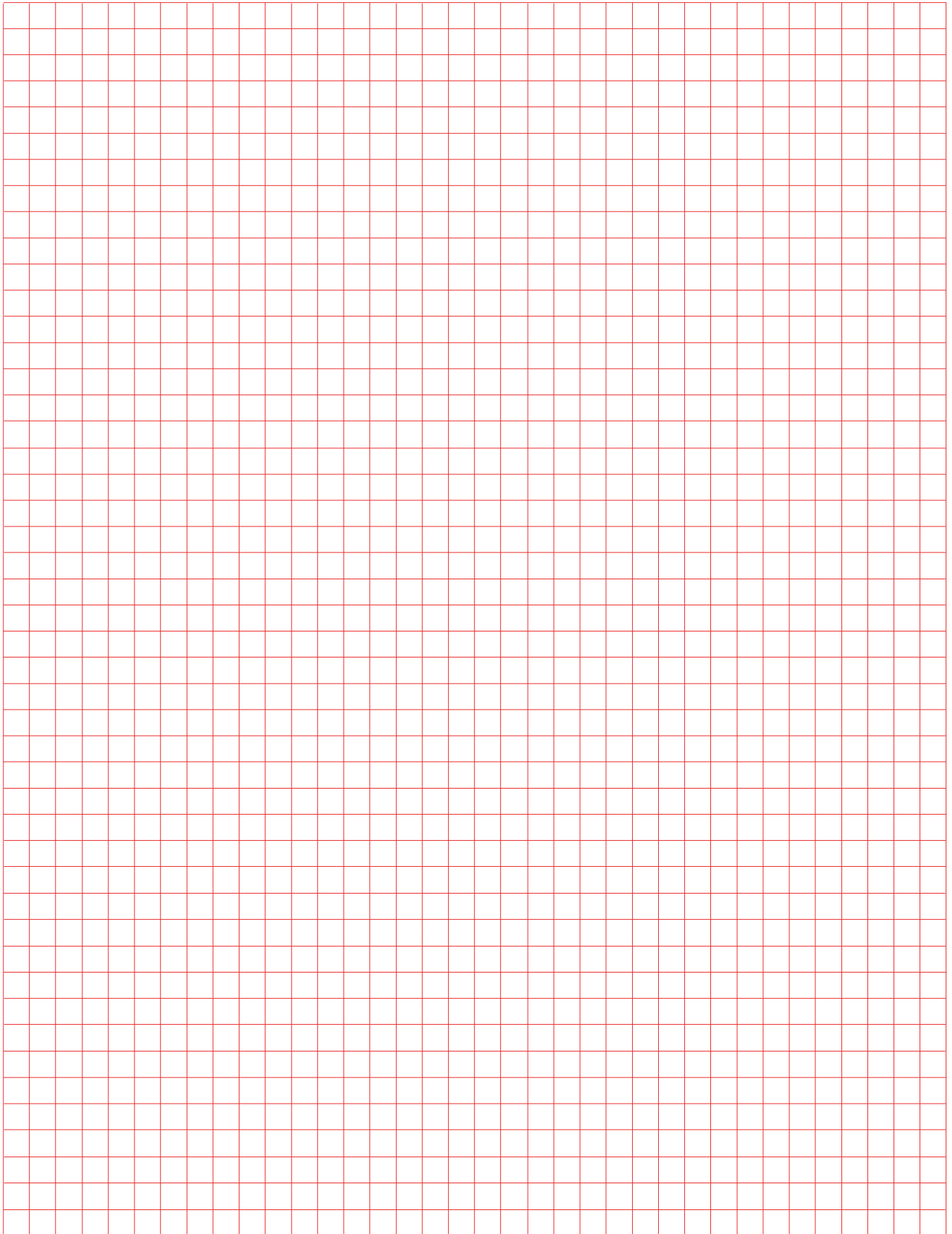
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## Notes

A large grid of red lines on a white background, intended for taking notes. The grid consists of 20 columns and 30 rows of small squares.

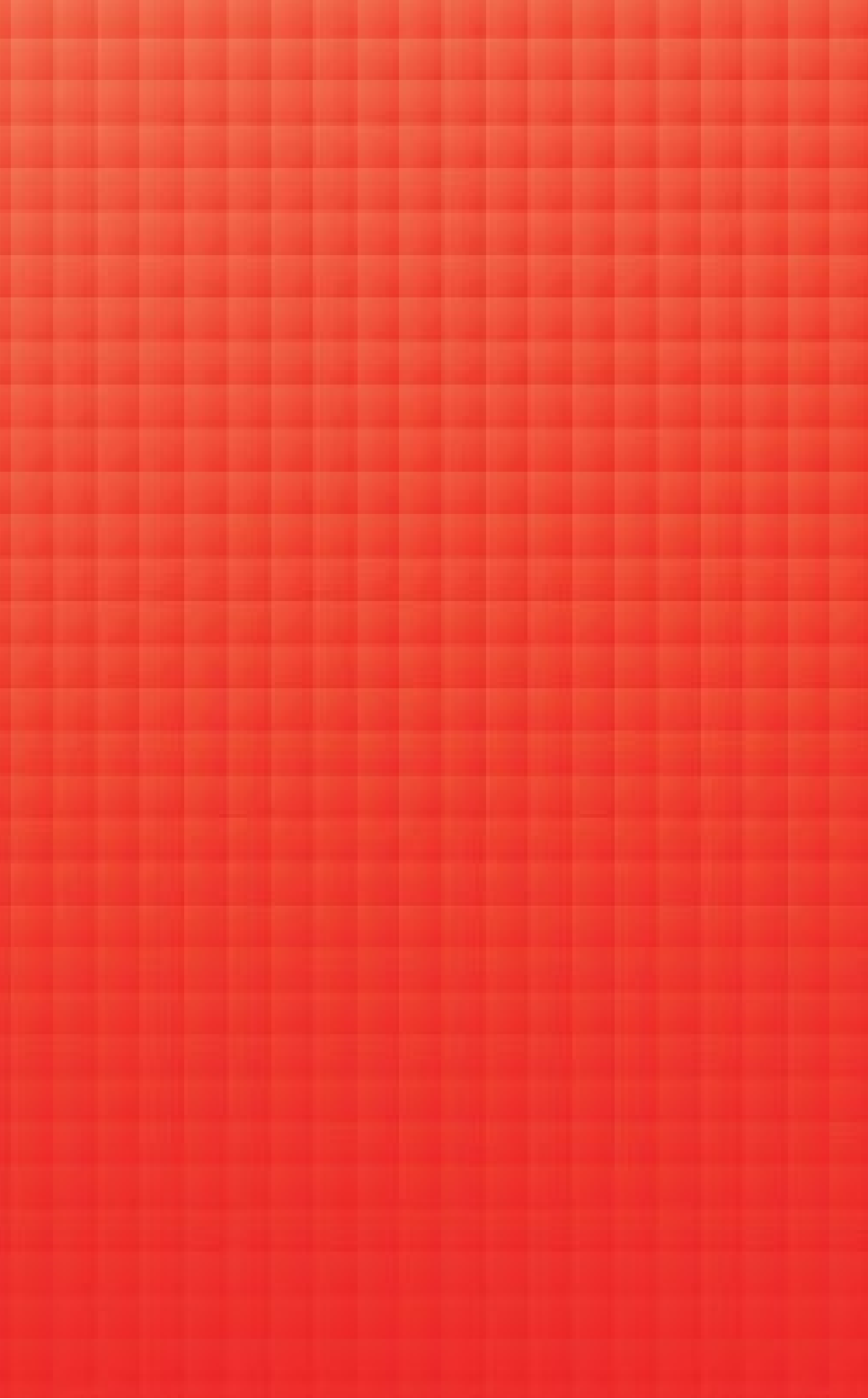
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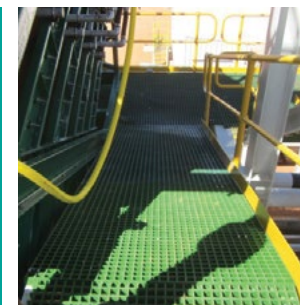




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