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INTRODUCTION

Lockinex FSR-Freestand Roof Guardrail system utilises Lockinex Key Clamps, Tubing & rubber counterweights. This system does not require physical fixing through the roof surface. The system can be installed on flat roofs or roofs where an incline of up to 10 degrees is present.

APPLICATION

Lockinex FSR-Freestand Roof Guardrail provides a safe working environment for personnel who may frequent roof areas. A safe working area is constructed, enabling maintenance of equipment such as air conditioning units, telecoms, water tanks, communication services or general maintenance to the roof itself. (This system incorporates an adjustable/retractable vertical leg to assist in the repair and/or levelling of the system)

The system can be installed to the complete roof perimeter or installed to provide direct access to a particular area on a roof.

Once installed, the system will provide many years of virtually maintenance free service life.

COMPOSITION, MANUFACTURE.

Primarily Designed & tested to comply with BS 13700:2021. May also comply with BS EN 13374 Class A and/or BS EN 14122:3.

Lockinex Key Clamps

Manufactured to BS EN 1563:2011 BS EN 1562:2012 Galvanised to BS EN 1461:2009

Upright Posts

Manufactured from mild steel & Hot Dip Galvanised to BS FN 1461:2009

Horizontal Tubing

Manufactured & Galvanised to BS EN 10346.

Rubber Counterweights

Rubber under-sole on front foot & loose rubber mats. Elastomer type - CR - SBR





Standard FSR Freestand.Galvanised Steel.

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Roof Guardrail Rubber Counterweights



FSR Freestand.



FSR Freestand.



Counter weighted built-in Handles



FSR Freestand Utilising Toeboard.



Grub screwQuick tightening/fastenings.

View our tutorial video on how to install a typical roof guardrail system here on our website: https://www.lockinex-store.com/rubber-counter-weighted-system.html

Components list

FSR-Roof Guardrail



FSR-405-XExtended back leg for single, double or triple counterweight attachment



FSR-401-X No counterweight



CF2Galvanised Kickplate.
3mtr length.



FSR-407-X 20kg Rubber counterweight



FSR-409 2.5 mtr length of tube to construct guardrails



FSR-420Triple counterweight connection A22-8 Clamp & 2 Tubes 300mm long



FSR-415Double counterweight connection A2-8 Clamp & 50mm Tube



FSR-GATE-KIT 1200mm wide self-closing gate kit.



A02-8Short T.
Used for step ups in rails.
(See diagram 5).



A06-890 degree elbow joint.
Used for forming 'D' ends to terminate a run of handrail & turning rails at corners.



A05-8Multi angle swivel joint.
Alters directions of rails
85-180 degree.



A10-8
Rail end Termination.
Ends of rails can be fixed to a structure.

Layout Details for compliance with BS 13700:2021

FSR-Roof Guardrail

Diagram 1 6 mtr run or less.(Requires Triple counterweights to increase stability).

Lockinex Counter weighted system-Requires Triple weights OR Fixed rails on each end & Single Counter weight centrally.

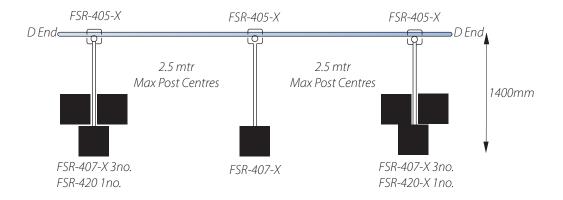


Diagram 2 More than a 6 mtr. run. Lockinex Counter weighted system-Requires Triple weights OR Fixed rails on each end & single weight.

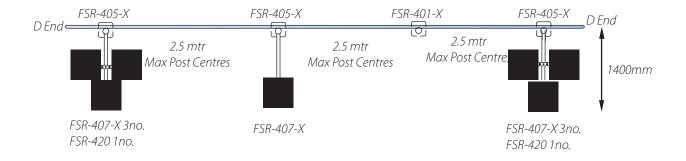
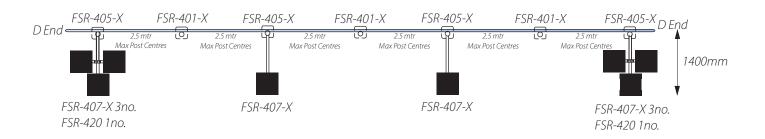


Diagram 3 Longer runs.

Lockinex Counter weighted system-Requires Triple weights Or Fixed rails on each end & single weights on each alternate post.



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Layout Details

FSR-Roof Guardrail

Diagram 4 Corners & End fixings.

Corners

It is recommended that a maximum projection of tube beyond a post should be no more than 500mm. The rail can then continue on 2.5 mtr to the next post.

End fixing

If rails can be fixed at their ends to part of the existing structure, the nearest post should be no more than 2.5mtr from that fixing point.

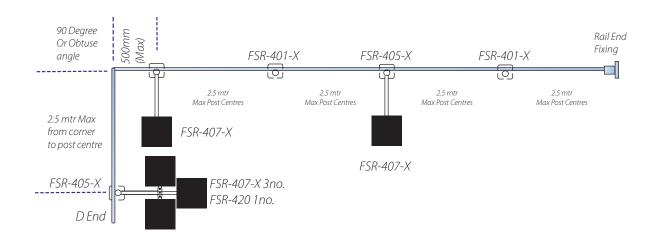
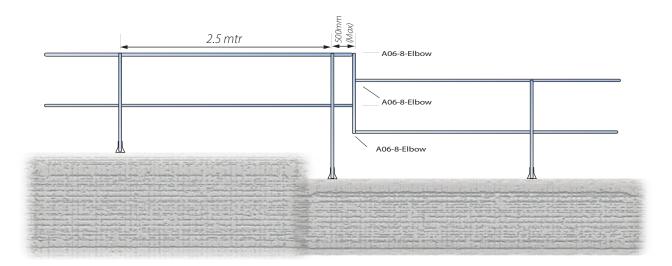


Diagram 5 Step up/down.

Where the levels of the roof change, the diagram below shows how to utilise some of the Lockinex key clamp range to make the transition across the two levels. The vertical connection has to be obtained from a standard piece of guardrail tube. Measure and cut accordingly.



Additional O&M Information

Fixing of end assemblies

Lockinex roof guardrail system offers D ends used to terminate a run of guardrail. However, a run may also be terminated by using A10-8 end wall plates (or similar) and fixing to a suitable structure. The method of fixing and the fixings used should be deemed suitable before install and is the responsibility of the installer as site conditions may change from application to application.

Statement of limitations

Lockinex rubber weighted roof guardrail has been tested in accordance with BS 13700:2021 requirements (wet & dry conditions) and test reports are available upon request. Where conditions are outside of the requirements stated in BS 13700:2021, such as ice, snow and other slippery conditions, the roof guardrail system may not comply and may require alteration of the system layout in order to comply. The suitability of the system in ice, snow or other slippery conditions shall be determined by the customer and/or the contractor/installer.

Misuse

Lockinex rubber weighted roof guardrail has been tested in accordance with BS 13700:2021. Failure of the system caused by misuse of the system by attaching banners, infill panels, netting etc. and/or alterations and modifications of the system shall not be the fault of Lockinex UK Ltd and is advised against.

Minimum clearance from edge of building

Where a structural parapet wall or similar is present on the roof top, no minimum distance from the edge is necessary. Where no parapet wall or similar is present, a recommended minimum distance of 1.0mtr from the edge of roof to front foot of upright posts is recommended. This is to ensure that the system has enough distance to take up any residual slack/slip within the system should an accidental dynamic load be applied (someone or something falling against the system).

Loads imposed by roof guardrail system

Lockinex rubber weighted roof guardrail uses 20kg rubber weights, 400x400mm square which are the primary contributor to the main load onto the supporting structure (roof top). Long counterweighted upright posts have a weight of approx. 13kg. Short posts have a weight of approx. 11kg. 2.5mtr long horizontal rails have weight of approx. 4kg per tube. Therefore, on a common roof guardrail run as illustrated in Diagram 3 within this document, a total weight of approx. 60kg is applied to the supporting structure over a 5mtr long section of guardrail. This total weight is applied through a total area of approx. 0.205m² (upright post feet and rubber counterweights). Where a run is terminated by using 3no. rubber weights, weight applied to the roof structure shall be 60kg over approx. a 0.48m² area.

Re-certification requirements

It is recommended that inspection of the system be carried out at 12 month intervals. It is recommended that the system is checked against this O&M Manual and that it is still installed as per the layout diagrams within this document. Finish height of the top rail should be 1100mm tall and all fixings/fastening should be checked and tightened if needed.

If the system is subject to a fall or impact event (including a person or object impacting the system) or is dismantled and moved, refer to layout diagrams within this document to ensure the system is correctly re-installed. In all cases, the system shall only be returned to service after having been inspected and deemed suitable for use by a compotent person/s. Replacement components may be order from Lockinex UK Ltd if required.

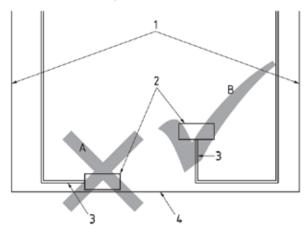
For detailed Inspection, maintenance, testing and thorough examinations requirements, which should be carried out by the Duty Holder, refer to section 9 of BS 13700:2021.

Counterweight/Return sections warning

Guardrail return sections acting as counterweights are not considered part of the guardrail system and are not used to prevent falls. They are used only to counterweight/anchor the system.

As such, counterweight return sections should not be placed along a hazardous edge.

See below illustration for examples.



Key

- A Not permitted: end assembly along hazardous edge
- B Permitted: end assembly is perpendicular to hazardous edge
- Hazardous edge
- 2 Counterweight
- 3 End assembly
- 4 Hazardous edge

DO NOT CONNECT PERSONAL FALL PROTECTION SYSTEMS OR ANY OTHER ACTIVE FALL PROTECTION SYSTEM TO ANY PORTION OF THE LOCKINEX GUARDRAIL SYSTEM.

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