

Vertical Rail (VR)

INSTALLATION AND MAINTENANCE MANUAL



 **CHECKMATE**
LIFTING & SAFETY

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VERTICAL RAIL INFORMATION

Description & Function of the Vertical Rail System

The Checkmate Vertical Rail system is designed to be fitted to a vertical ladder, and provide protection from falls from height when ascending or descending the ladder.

The system comes in 4 m lengths of rail, which can be cut to various sizes and is fitted together using joint kits to create an uninterrupted system as long as required. Mounting brackets are used to fit each section to the ladder, and are adjustable to fit any rung spacing, and a wide range of rung sizes.

The VR trolley uses a shock absorbing pouch to connect the user to the system to the front D of a full body fall arrest harness, conforming to EN361.

The Checkmate Vertical Rail system is known as VR or Vertical Rail.

The Trolley assembly, including the pouch, is designated VR-69.

The design of the system is in the form of a simple extruded track with an internal trolley that locks in the event of a fall.

The trolley has a spring loaded cam to give a mechanical lock or park facility when the user is not ascending or descending, which releases with upwards movement.

The trolley is fitted with a friction pad, which in a fall event provides braking between the trolley and the rail. This friction pad prevents the rail being damaged in a fall event. The fall arrest lock mechanism is activated by gravity.

The device incorporates a non-removable shock absorbing pouch sewn directly to the trolley, which reduces the peak loads during a fall event.

The device will trail a person as they climb and descend. In the event of a fall the gravity brake will be activated thus locking the device and arresting the user.

The Vertical Rail system is tested and certified to

- **EN353-1:2002.**
- **AS / NZS 1891.3:1997**

SYSTEM COMPONENTS

Vertical Rail Trolley – PPEVR-69

Includes PPEVR-01 (trolley) and SAL5 (pouch) permanently assembled.



Rung Mounting Bracket Kit – PPEVR-66



This Rung Mounting kit is to be used when securing the Vertical Rail to a steel ladder which has horizontal rungs; it can be fitted to the middle or the side, as shown. These are to be fitted between 0.5 m & 1 m from the end of each individual section.

Side Mounting Bracket – PPEVR-71



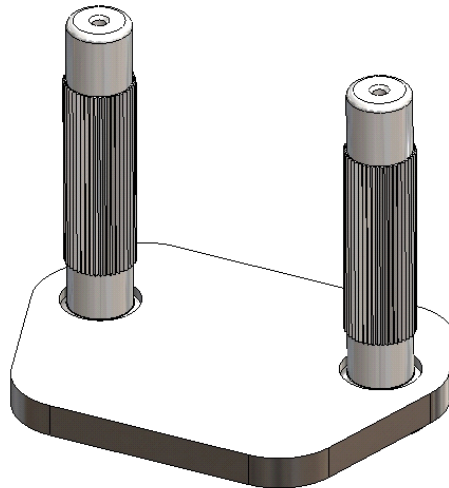
The side mounting brackets are used to attach the VR to the upright rail instead of the rungs to maximize the tread area on narrow ladders which could create a climbing hazard if the vertical rail was secured to the centre of the rungs, or to the side. These are to be fitted between 0.5 m & 1 m from the end of each individual section.

Vertical Rail Joint Kit – PPEVR-67



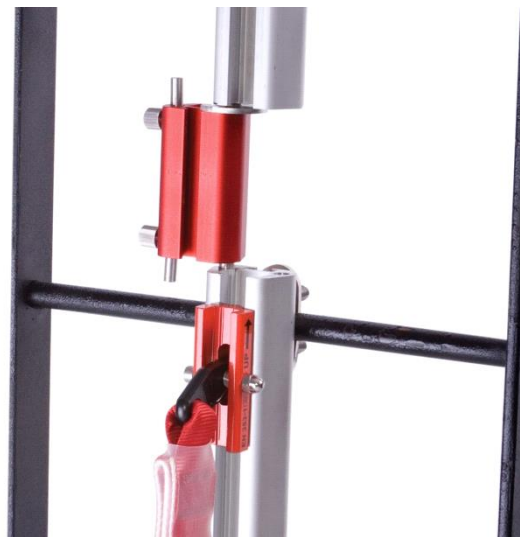
This Vertical Rail Joint kit is used to join the various lengths of vertical rail together.

Vertical Rail End Stop – PPEVR-68



This Vertical Rail End Stop is used on both ends of the final length of vertical rail.

Easy Access Gate – PPEVR-70

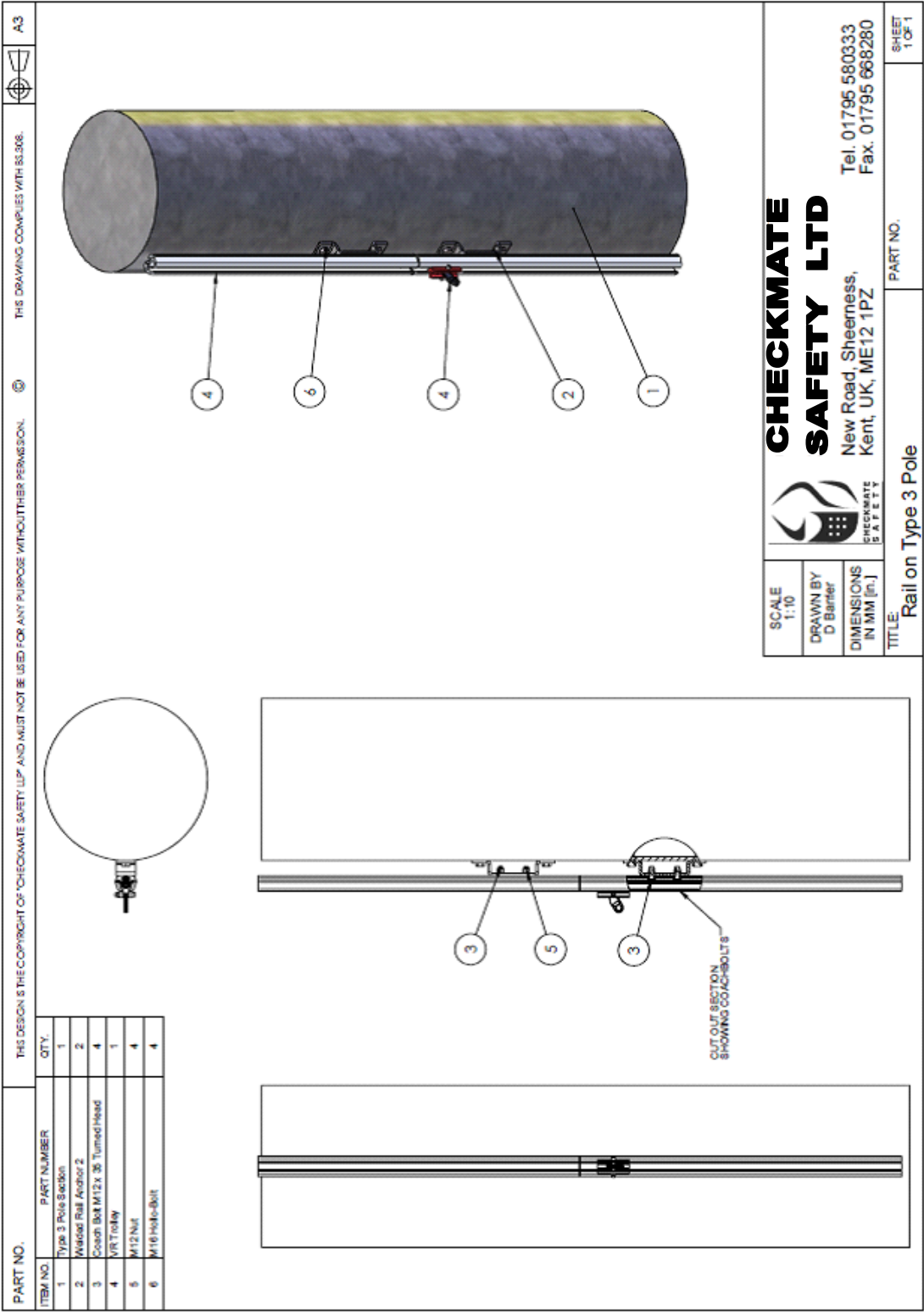


The Easy Access Gate can be fitted in suitable safe areas to allow the user to enter and exit the system.

To enter the system the gate is opened, the Trolley is located into the lower half of the Vertical Rail, the Gate is closed and the user can continue with climbing or descending the system.

Mounting brackets, PPEVR-66 or 71 are to be fitted near to the end of each individual section depending on the position and distance between rungs.

Fitting of Vertical Rail to Monopoles (Type 3 shown for example)



INSTALLATION GUIDE

Pre-Requisites

- Check there is access to the correct amount of equipment before starting the installation. This can be checked against orders and packing list within packaging.
- Check the correct tools for the installation are available. See tool guide for details.
- Ensure a risk assessment and method statement have been completed for the install, and that the correct PPE Equipment necessary to install systems if on site and at height is available and used. (If in doubt consult CHECKMATE for recommendations).
- For fitment to an aluminium ladder please see specific installation instructions below.

Tooling Guide

- 19 mm spanner or socket with wrench,
- torque wrench with a range of (0-50 Nm),
- hammer,
- level ,
- tape (for location of T bolts) and a
- pencil or marker.

Installation Procedure

- Position the rail on the ladder approximately 1.00 meter from the bottom (or an alternative location and mark where the fixing locations are to be.

For future reference - Checking to make sure that the rail has not slipped (Downwards, Sideways etc) is a pre-requisite for an inspection program.. by installing the system at a known height from the bottom (0.5 or 1.0 mtrs) makes it easier to check slippage)

OR in cases where this is not possible, a "marking" procedure should be utilized to give guidance for slippage.

- (Min number of fixings per length of extrusion is 2 sets, irrespective of the length).

Fixings should be positioned between 0.5 m and 1 m from each end of the individual section.

- When fitting a gate the fixings should be close to the rail end depending on the ladder rung distance.
- Next slide the 'T' bolt sets down the 'T' slot and use a small amount of tape to stop them sliding.
- As one fitter holds the extrusion in position a second should place the back plates over the rungs and fit washers and nuts. Use a small amount of copper slip on the threads to prevent binding of the nuts.
- Hand tighten the nuts and check the level and position of the rail and finally tighten the nuts to 35 Nm (-0+5) using a torque wrench.
- To fit a second length of rail above the first, locate two dowels in the holes of the lower rail and tap them down until they reach the stop that is positioned half way along the dowel then place the expansion plate over the dowels.

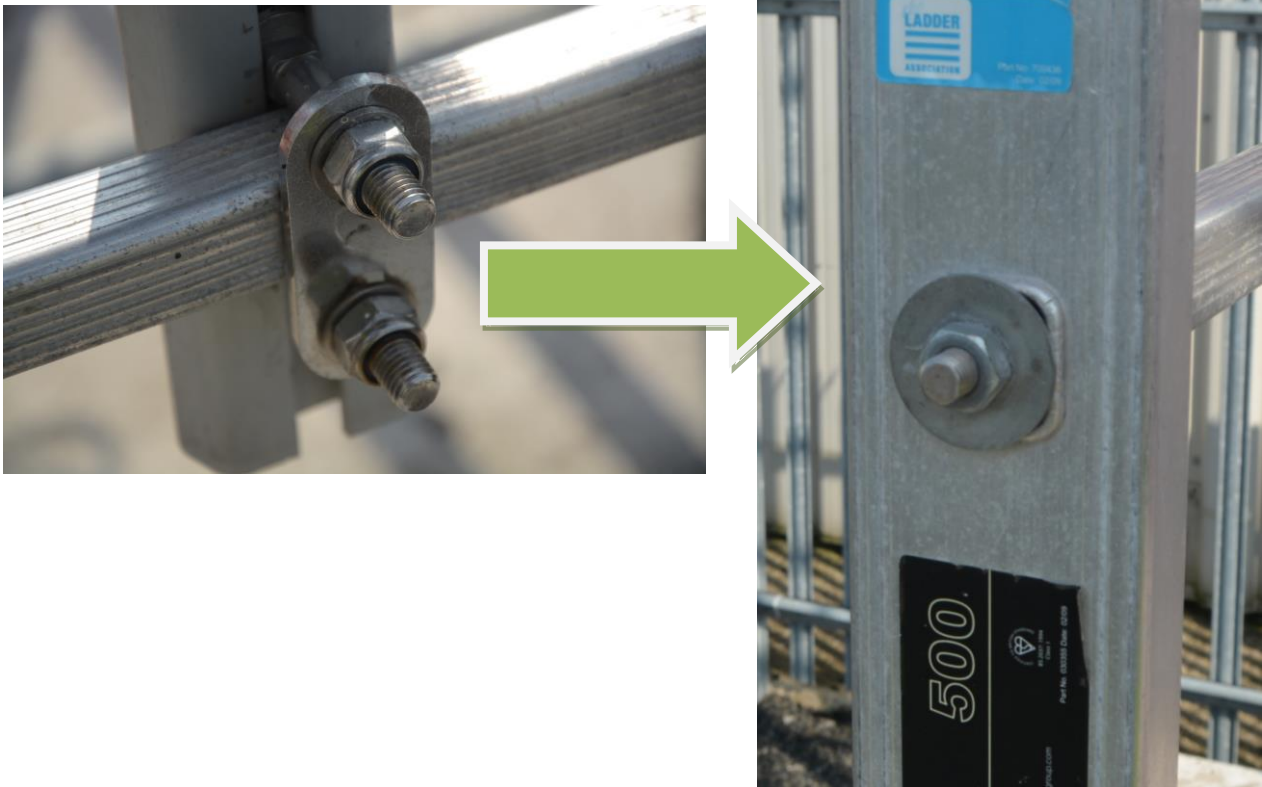
The first rail is now ready to receive the second rail.

- Drop the second section of rail onto the dowels of the first and follow procedure (a) for fitting brackets and T bolts. Repeat the procedure for additional lengths of rail. The final rail must finish 1.1 meters above the level of the top platform.
- If end plates are to be fitted follow procedure b) but use end dowels and end plate.
- Install the certification plate next to the ladder and mark with the date and number of system.

Fitting to Aluminium ladders

Additional precautions must be taken when installing on aluminium constructed ladders.

- Strengthen all rungs with PPEVR-66 fixing brackets with minimum sized M8 length of studding. Secure each end of the studding with a suitably sized washer and nut (prevailing torque or thread locked). See pictures below.
- Tighten sufficiently so as not to damage rungs or stiles (stringers).
- When attaching PPEVR-66 to rung ensure that nuts are tightened sufficiently so as not to crush the rung.



VERTICAL RAIL TROLLEY (PPEVR-69) Inspection

The inspection regime for the VRS Trolley and rail system requires inspection at a maximum 12 monthly interval. In extreme environmental conditions (e.g offshore) the competent person should consider reducing this period to six months. The trolley must also be checked visually prior to each use.

VRS System Trolley

Check any VRS Trolleys for Damage, Wear or corrosion.

- Check the **brake pads** on the trolley to make sure that they are firmly fixed in place.
Check for wear and damage.
 - Chips**
 - Excessively worn**
 - Missing material**
 - Chemical contamination (Grease, Oil, Paint)**

(Return to the manufacturer for replacement brake pads if required).

- Inspect the shock absorber pouch for evidence of damage or wear. The pouch should be in good condition with no signs of :
 - deployment
 - Splits
 - Contamination
 - Burns
 - Loose stitching

NB - If any of these conditions are evident the device should not be used.

- Inspect the **label** on the shock absorber pouch, note the date and serial number (all details on the label should be legible)
The shock absorber pouch should be replaced after five years of use.
- **karabiner / connector - This should be free from damage such as -**
 - Corrosion**
 - Nicks / gauges**
 - Distortion / bends**

Ensure that the sprung gates work correctly / Ensure hook closes automatically.

- Fill in the inspection details on the back page of the user manual.

Vertical Rail

The inspector should have the following PPE

Harness

Twin tail

Work Positioning Lanyard

CHECK - INSPECT AND EXAMINE

- **LABEL / I.D Plate - Present and Legible**
Evidence that it has inspected within last 12 months
If not, then inspect using the PPE
If yes, use the rail and trolley
- Starting at the bottom attach the VRS trolley to the rail and the other connector to the front "D" of the harness. **(NB - when fitting the Trolley, ensure that the arrow on the unit is pointing "upwards")**
- Check that the Trolley locks securely when pulled sharply in a downwards motion, and then releases again when pulled upwards.

- Check to make sure that the rail has not slipped (Downwards, Sideways etc) - and is firmly attached to the ladder rungs or special fixing brackets.
The system should, have been installed 0.5 or 1.0 mtrs from the bottom (this makes it easier to check slippage)
OR in cases where this is not possible, a "marking" procedure should be utilized to give guidance for slippage.
- Climb the ladder, carefully inspect the rail for signs of damage as you go for the following:
 - Chips**
 - Dents**
 - Bends**
 - Corrosion.**
 - Any other damage that would affect the safe use of the system (competency & experience)**
- Check that each separate section of rail is attached with two fixing brackets.
between 0.5 mtr & 1 mtr from section ends
- At each fixing point check that the "T" bolts and nuts are not damaged and are in good condition.
- Check the tightness of the nuts with a torque wrench set to 35 Nm **(minus 0 / + 5 Nm).**
- The Trolley should slide easily in the rail slot
- If stop ends are fitted check that the pins are firmly fixed in place with the plates held against the rail end.
- inspect for General cleanliness of the rail for the following
 - Oil / Grease**
 - Mud**
 - Grit**

Anything substance that would affect the correct and safe operation of the trolley

NB - if necessary, clean the rail (using a NON Oil based cleaning agent) BUT NO lubrication should be used
- If intermediate gates are fitted check the condition of the gate assembly's.
 - Operation**
 - Springs**
 - Pins**
 - & As per rail check**

Check that the gates operate smoothly and that the pins spring back into place

as required.

- Issue an inspection certificate to verify that the system has been inspected and is suitable for use and should be re inspected in one year.

NB -

If, for any reason, the inspection of this device shows signs for concern or doubt, then the device must be quarantined and removed from service immediately.

Clarification should be sought from the supervisor and if still concerned the device must be sent to the supplier, an approved service agent or the manufacturer for service and re-calibration

Rescue Planning

When using the Vertical Rail System, users should always make suitable provisions for rescue.

A full risk assessment should be carried out to determine the most effective, safe and quickest form of rescue.

For more information on specialist rescue systems or training please contact our dedicated training division.



VERTICAL RAIL TROLLEY (PPEVR-69) Suitability

The VR Trolley is suitable for fall arrest when used with a Full Body Harness certified to EN361.

This unit is not suitable for use in explosive environments.



Warnings!





- Read and understand manufacturer's instructions before inspection, installation or use of this product.
- Never use this product if you weigh more than 150 kg
- Only use approved equipment with this product.
- Follow the instructions under **Inspection** before each use of this product.
- If there are any points in this manual that you are unsure of seek a competent, trained person to advise you before use.
- Seek medical advice from a doctor before using this product if you have sustained a spinal injury, suffer from a neck or back complaint, or you are taking prescription medication.
- Never use if you are under the influence of alcohol or recreational drugs.
- Extra care should be taken if welding whilst using this product to protect the device from weld splatter and heat at all times.
- Never use this system unless you are supervised by a trained and competent person.

Inspection Checklist

VRS SYSTEM TROLLEY

ITEM	CHECK		
1	BRAKE PADS		
2	SHOCK ABSORBER		
3	LABEL		
4	CONNECTOR		
5	TROLLEY BODY		
6	WEBBING & STITCHING		
7	INSPECTION FORM COMPLETED		

VRS VERTICAL RAIL

ITEM	CHECK		
1	LABEL / I.D. PLATE		
2	MOVEMENT / SLIPPAGE		
3	RAIL DAMAGE		
4	FIXING BRACKET SPACING		
5	NUTS / BOLTS (CORRECT TORQUE)		
6	GENERAL CLEANLINESS		
7	GATE OPERATION & CONDITION		
8	ISSUE NEW CERTIFICATE		
9			



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