

INSTALLATION MANUAL

VERTICAL FALL ARRESTER

SL228



Arrester for personnel accessing heights using a harness and fall arrest ladder protection system.



Product brochure
Rung ladders



Installation manual
Vertical fall arrester



Operation manual
Vertical fall arrester

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kattsafe.com.au

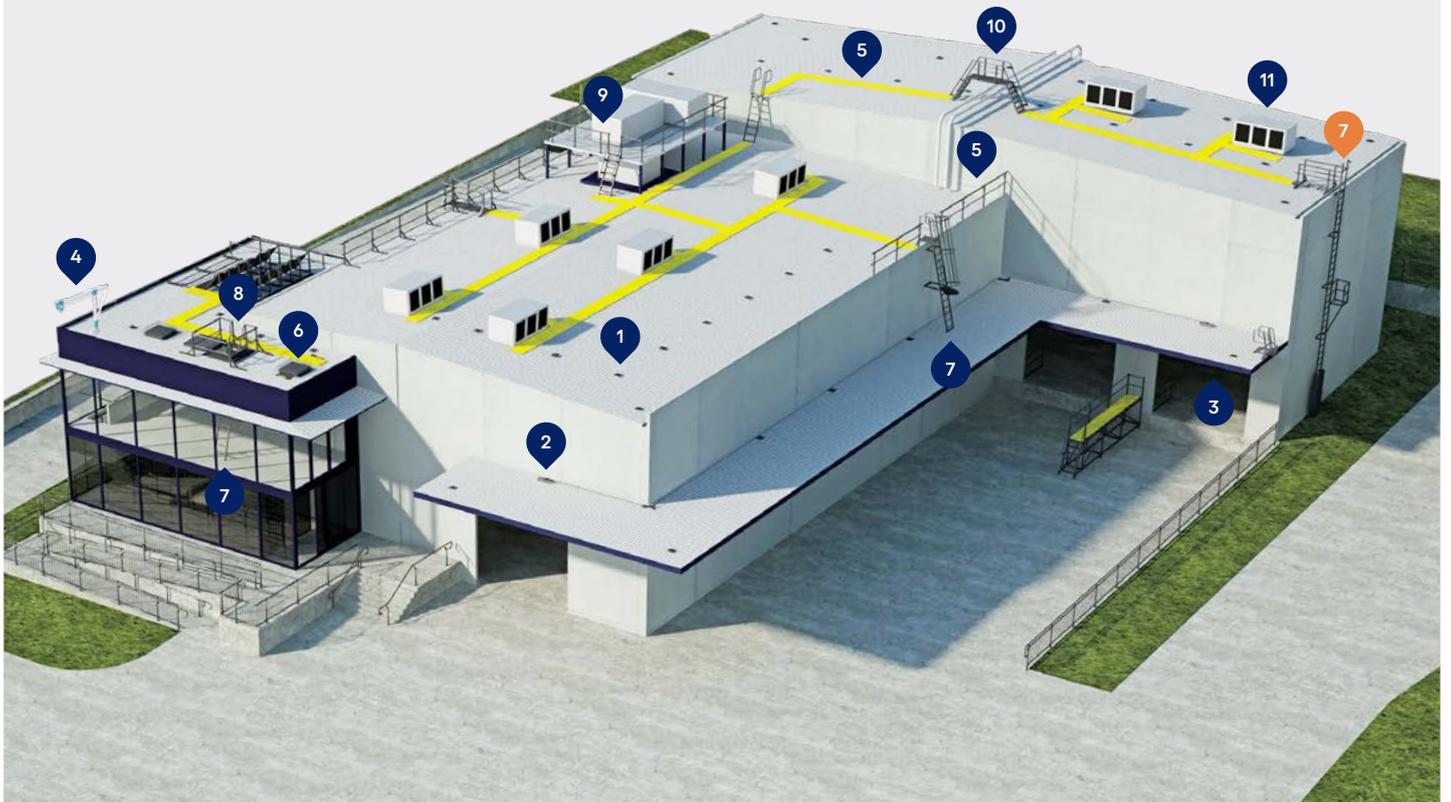
Commercial building height access and fall protection requirements

Kattsafe leads the industry in the design, installation and management of access and fall protection safety systems.

The in-action model demonstrates access and fall protection requirements for a commercial building design. Kattsafe recommendations fulfill current workplace requirements for the safety of building maintenance subcontractors, employees and the general public.

For more information please contact Kattsafe.
kattsafe.com.au

- 1 Anchor points
- 2 Static lines
- 3 Rigid rail
- 4 Davits and needles
- 5 Guardrail and walkway
- 6 Skylight protectors
- 7 Rung ladders
- 8 Access hatches
- 9 Platforms and stairs
- 10 Step ladders
- 11 HVAC platforms



TOOLS AND EQUIPMENT

Cordless drill



8mm 3/8th metal drill bit



13mm socket or spanner



Wire cable cutter



Marking pen



Tape measure



INSTALLATION REQUIREMENTS

Must be read prior to installation

1. This system must only be installed by competent persons trained in the selection, use and maintenance of fall arrest systems who hold a current Kattsafe approved installer certificate.
2. Persons installing this system are required to have a comprehensive knowledge of the Australian Standards, codes of practice and industry guidelines that relate to the selection, use and maintenance of access and fall protection systems and equipment.
3. Integrity and suitability of the structure to which this system is attached must be approved by a structural engineer unless it is clear to a competent person as to the suitability of connection to structure.
4. Read installation and operating instructions carefully before commencing any work. Consent to deviate from the installation guide must be obtained in writing from the manufacturer.
5. Conduct an initial work/risk assessment, and take all reasonable precautions to eliminate or control potential hazards and risks during the installation of this product.
6. Complete all necessary WHS documentation, including a Job Safety Analysis and Work Method Statement and obtain consent from responsible person in workplace prior to commencement of work.
7. Installers must be authorised and accredited by Kattsafe and possess valid industry licenses, be appropriately trained, and comply with all relevant WHS legislation prior to installation of this product.
8. Do not modify or remove any element of the support structure without prior authorisation by a qualified engineer.
9. Decorative coatings and coverings must be removed to ensure correct evaluation of structure prior to attachment of system
10. Any re-routing of electrical and/or other services must be carried out by qualified or authorised personnel.
11. Appropriate temporary access and safety equipment must be used during installation, such as platform ladders or scaffolding and fall protection anchorage points.
12. In case of emergency access and fall protection systems must be installed by a minimum of two persons.
13. Do not tamper with, modify or remove any part this system unless authorised by the manufacturer.
14. Appropriate labels or markings must be attached to each system and include the following:
 - System for personnel use only
 - Service entry date
 - Next examination/service due date
 - Harness gear requirements and system compatibility
 - Maximum designed load ratings
 - Installer/Certifier contact details
15. Documentation confirming correct use and maintenance of the system and equipment must be provided to the workplace manager on completion of installation. (See operation manual.)



Kattsafe instructions and recommendations, drawings and diagrams, and all other documentation are copyright, errors and omissions excepted, and must be carefully read and implemented. Any assistance or guidance given is without prejudice, and Kattsafe cannot be held responsible for any inaccuracy or misinterpretation whatever. Failure to follow site installation requirements and warnings, may result in serious injury or death.

Kattsafe accepts no direct or indirect responsibility and/or consequential liability whatever, for any products and systems incorrectly installed or certified. Kattsafe cannot warrant the integrity or suitability of the structure to which the products may be attached. Prior assessment must be made by a qualified structural engineer, unless the structure is authorised or approved by a competent person.

SYSTEM LIMITATIONS

Must be read prior to installation

1. Vertical fall arrest systems and vertical ladders require persons who are competent and trained in the safe use of the system. It is the responsibility person in control of the business or undertaking to ensure that they comply with state work, health and safety regulations and that they have assessed the hierarchy of risk control measures and alternative systems cannot be used.
2. The vertical fall arrester is designed for single person use only rated to maximum user weight - 140kg. (Person and carry tools).
3. Fall arrest equipment is susceptible to deterioration when exposed to chemicals or hazardous environments and must be approved by the manufacturer for use in these applications.
4. This system, under normal use and environment, has a life expectancy of up to 10 years. A manufacturer's assessment and certification to confirm suitability for an additional 5 years' use is recommended. This will depend on location, usage and scheduled maintenance as per manufacturer and legislative requirements.
5. The structural requirements for the ladder to which the vertical fall arrester is connected to must be able to withstand the loads applied in the event of a fall which is 12kN (see fixing requirements recommendation).
6. The vertical fall arrester is designed for vertical climbing systems only to ensure correct operation of the fall arrest device. The fall arrest line system must not exceed 10° off vertical.
7. Only the approved SL228 vertical line fall arrester with energy absorber shall be used with this system. An in-line energy absorber must be installed for any system that does not include an energy absorber built in with the fall device.
8. All ladders fitted with a fall arrest system require a security cover or lockable access door or device to prevent unauthorised use of the ladder.
9. The vertical line fall arrester is not designed for use on portable ladders or structures.
10. Do not tamper with or make alterations to system components without manufacturer's consent.
11. This system is not to be used for tethering or lifting machinery or equipment.
12. The vertical line fall arrester must be recertified by a competent height safety inspector as recommended:
 - Non-corrosive/mild environment – 12 monthly
 - Corrosive/ harsh environments - 6 monthly (more frequently inspection may be required)



Kattsafe recommends that persons using fall arrest systems do not work alone in case of an emergency and help is required.

Should any part of the system/equipment have been subjected to abnormal loading, use must be discontinued until replaced/recertified by a competent height safety inspector.

DESIGN & LAYOUT

Must be read prior to installation

1. A vertical ladder with fall arrest system must only be installed if an angled cage ladder is not practicable. A vertical ladder with fall arrest system will require user competency training and ongoing recertification to ensure no deterioration of the system.
2. The ladder to which the vertical fall arrester is attached as well as the structure to which the ladder is attached must be structurally adequate to withstand fall arrest loads of 12kN. An engineer's certification must be obtained unless it is clear to a competent person that the structure will facilitate the required loads.
3. The cable fall arrest system needs to terminate a minimum of 1000mm above the ladder head exit landing and approximately 200 - 300mm from the base landing to allow safe connection / disconnection from the system.
4. The ladder head must be fitted with a safety gate to ensure the operator is guarded with a barrier whilst connecting / disconnecting from the system.
5. A guarded ladder head access kit must be installed to ensure safe entry / exit from the ladder head onto the roof.
6. As the steel wire rope is either 'crimp' or 'roll' swaged to the cable fall arrest end termination, it is essential to check into the cable viewing hole located at the top of the terminal shaft to make sure that there is no wire 'slippage' by ensuring that the cable is visible.
7. The swaged end termination of the cable MUST be attached to the ladder head anchor point and the cable tensioner termination MUST be attached to the ladder base anchor point. NOTE: The cable tensioner termination is mechanically connected to the cable by means of 2 x grub screws. This termination is not designed to handle excessive loads and must not be positioned at the ladder head fall arrest anchor point. Incorrect attachment of the tensioner termination to the top of the ladder system will cause the system to fail and lead to serious injury or death.
8. Single vertical ladders above 8 metres will require an intermediate cable guide to limit cable sway which can cause fatigue on the termination points. Kattsafe recommends 3 - 6 month recertification of vertical fall arrester systems in areas of high wind conditions.
9. Certain environments produce acidic atmospheric conditions which are detrimental to steel, alloy and concrete surfaces. Any acidic environments must be assessed and structural components certified by a competent person prior to installation of the system.



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INSTALLATION PROCEDURE

Step 1

- Prior to installation the condition of the ladder and structure must be checked for suitability.
- As this system is required to arrest a fall, an engineer's certification is required unless it is clear to a competent person that the structure is suited to the required loads.
- The checklist will assist with critical assessment criteria.

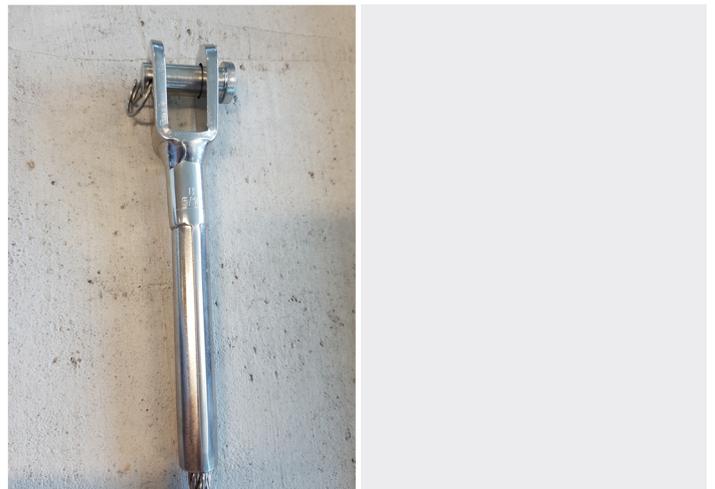
⚠ Do not proceed with installation of this system if any of the checking criteria does not meet the required standards. Seek advice from the manufacturer regarding other options.



Step 2

Secure cable to swage termination using a roll swage or crimp swage device.

⚠ A roll swage requires a minimum of 60mm of clamping length and a crimp swage requires a minimum of 5 crimps.



Step 3

Connect swaged termination with cable to the ladder head fall arrest bracket and secure with insert pin.



Step 4

Once pin is in home position lock in place with the spring clip provided.



Step 5

Attach the ladder base connection cable tensioner to the ladder base by inserting the pin through the bracket and lock in place with spring clip.

 Position ladder base connection bracket approximately 200 - 300mm from base of ladder.



Step 6

Position tensioner to allow adequate length of thread for tensioning.



Step 7

- Align cable alongside the tensioner and mark the cable where it needs to be cut.
- Ensure a minimum cable length of 20mm below lower grub screw is allowed.



Step 8

- Cut the cable using cable cutter to suit 8mm cable.



Step 9

- Insert the cable into the tensioner sleeve.
- Ensure cable is at least 20mm past lower grub screw.



Step 10

Fasten both grub screws securely using the allen key provided.



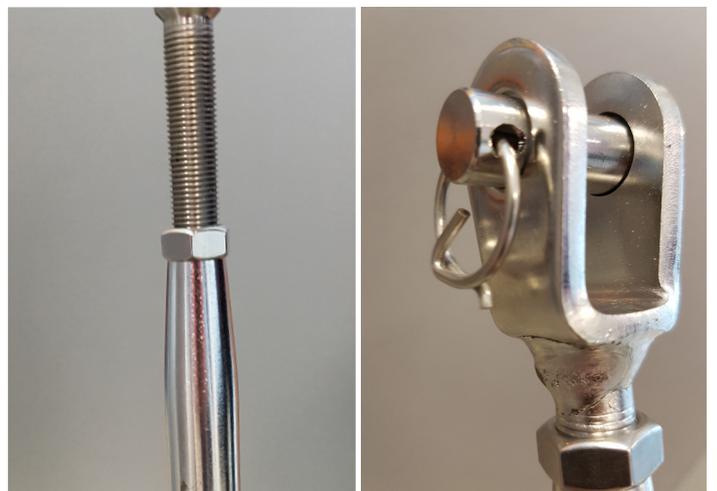
Step 11

- Tension the cable using the bottle screw until cable is steady.
- DO NOT over tension as this will cause unnecessary tension in the system.



Step 12

Once system is tensioned, fasten the lock nuts to top and base of the bottle screw tensioner to prevent it from coming loose.



RETROFIT VERTICAL LINE POST INSTALLATION PROCEDURE

General installation requirements

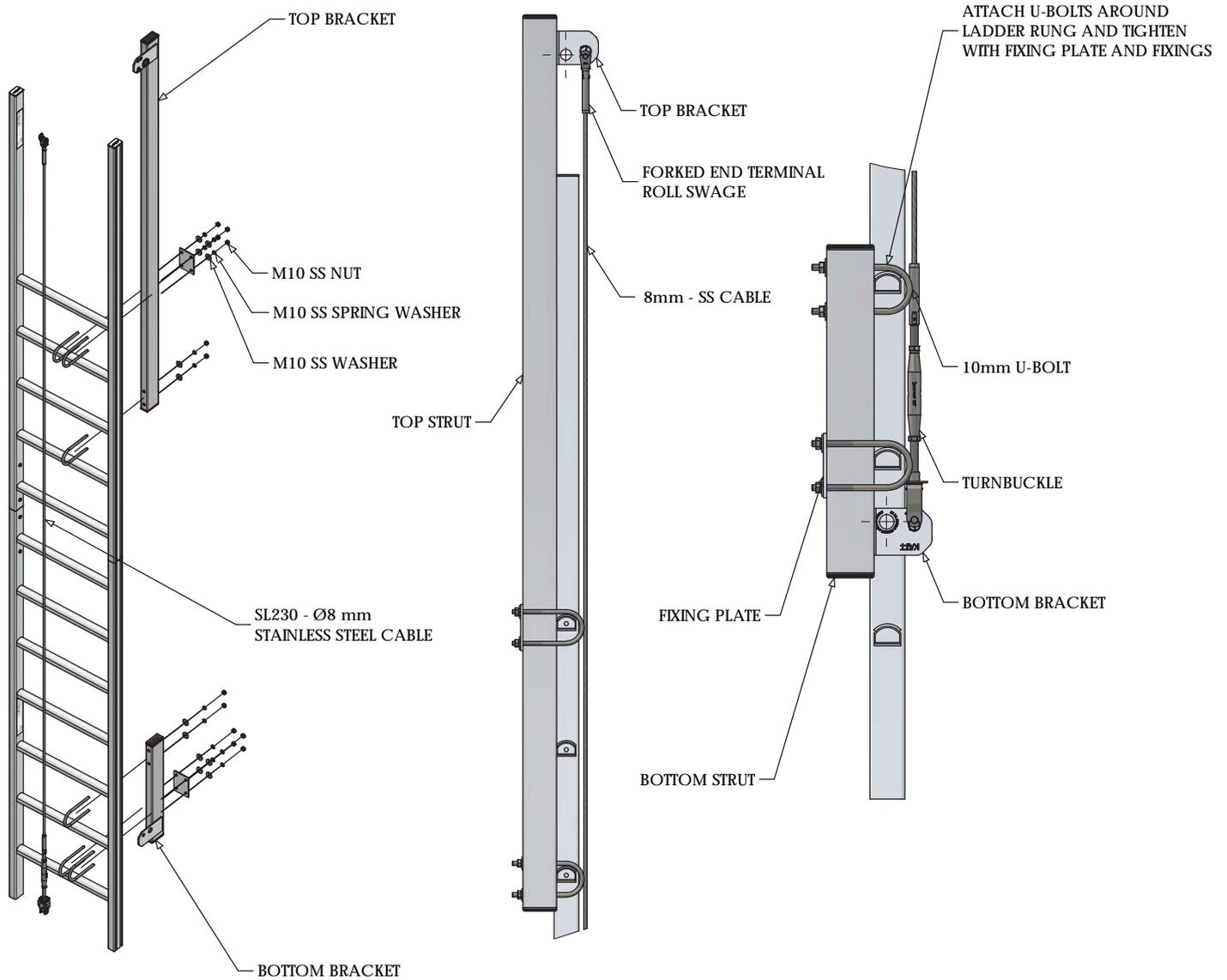
1. This system is only suitable for the following types of fixed ladder systems as follows:
 - Kattsafe rung ladders installed as per manufacturer requirements.
 - Steel ladders installed and approved for fall arrest attachment.
2. Ladder requires a minimum rung of 20m.
3. The ladder is required to support a 15kN downward load and 4kN horizontal (outward) load for fall arrest situations.
4. Suspended ladders or ladder without a structural solid base support or ladders attached to block work or brickwork are not suitable for fall arrest loads unless certified by a competent person.
5. The vertical fall arrester with energy absorber or approved equivalent must be used with this fall arrest system.
6. This system is designed to incorporate the 8mm cable system. The cable must be suitably attached to the fall arrest post to ensure required fall arrest load of 15kN in a fall situation.
7. The top fall arrest post is required to be attached to 2 rungs with a minimum distance between u-bolts of 500mm. If 500mm is not achievable spanning over 3 rungs, spanning over 4 rungs will be required.
8. The required torque setting for the u-bolt connection device is 20Nm.
9. Ladder must be fitted with suitable signage confirming limitations of use as well as specific usage directions and precautions.
10. All fall hazards must be suitably controlled during installation of the system.



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Should any part of the system/equipment have been subjected to abnormal loading, use must be discontinued until replaced/recertified by a competent height safety inspector.

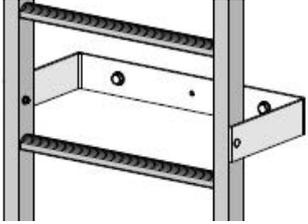
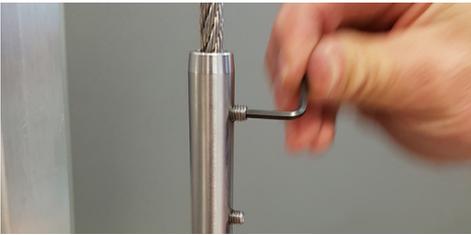
The Kattsafe vertical line post is designed to be attached to an existing fixed ladder along with the vertical fall arrester, providing fall protection when climbing the ladder. Ladder suitability and correct installation of the vertical fall arrester is paramount to ensure the safety of the user.



Installation procedure

1. Assess suitability of ladder to perform with system fall arrest loadings. Attain authorisation from a competent person if unsure of suitability.
2. Install top fall arrest support post to ladder head using 2 x M10 u-bolts on the top rung and 1 x M10 u-bolt on the lower rung.
3. Connect fall arrest line to top support post. Ensure cable is appropriately attached to withstand a 15kN downward load.
4. Install base fall arrest post to ladder rung using 1 x M10 u-bolt on the upper rung and 2 x M10 u-bolts on the lower rung.
5. Cut fall arrest post to length and attach to support post appropriately to ensure cable remains firm in a fall situation.

INSTALLATION CRITERIA

Component	Installation criteria
<p>Ladder structure</p> 	<p>Ladder connection to structure suitable for fall arrest use.</p> <p>Ladder head fall arrest system bracket suitable for required loads.</p> <p>Ladder in good condition and fit for purpose.</p>
<p>Ladder fall arrest line attachment to top fixing bracket</p> 	<p>Attached to ladder head fixing bracket.</p> <p>Must be minimum 60mm of roll swage OR minimum of qty x 5 crimps measuring 10.8mm - 11.2mm across crimp flats.</p> <p>Locking pin spring clip attached.</p>
<p>Ladder base cable attachment bracket</p>	<p>Secured to ladder using 2 x 8mm stainless steel bolts.</p> <p>Positioned approximately 200 - 300mm from base of ladder.</p>
<p>Ladder fall arrest line attachment to base of ladder</p> 	<p>Qty 2 x cable locking grub screws firm.</p> <p>Cable firm, not over tensioned.</p> <p>Cable tensioner positioned at base of ladder.</p> <p>Tensioner lock nuts secure.</p>
<p>Stainless steel cable</p> 	<p>Free from dust/grime.</p> <p>Cable guides fitted for lines exceeding 8.0m.</p>
<p>Labels and signage</p> 	<p>User information signboard installed.</p> <p>System information sign attached with required information.</p>

SYSTEM MAINTENANCE

Ensure system is maintained to the below requirements

1. This system needs to be checked and recertified by a competent height safety inspector every 12 months for non corrosive environments or 6 monthly for corrosive or harsh environments. (To be determined by competent person depending on severity of surrounding conditions.)
2. Never clean using acids or other chemicals that could damage the system components.
3. The cam pivot points on the vertical fall arrester should be lubricated using a dry graphite lubricant, NOT oil which will attract dirt.
4. The stainless steel cable must be cleaned and then coated with a dry graphite lubricant.
5. The identification/certification label must be completed confirming maintenance and recertification of the system.
6. Harness gear and equipment must be maintained and stored in a dry, protected area, away from acids and ultra violet rays which cause material fibres to break down and reduce their safety and life expectancy.
7. Any deterioration or damage to the system or equipment must be reported to the person in control of the workplace and relevant corrective action undertaken.
8. Maintenance inspections must be clearly documented. Any non-conformance must be clearly identified and tagged 'Do Not Use' until corrective action by a competent person has been completed.



Failure to follow all warnings, operation and maintenance instructions may result in serious injury or death.

MAINTENANCE CHECKLIST

The checklist below outlines key checking criteria required to ensure the safe use of this system. Any item of concern not shown on the checklist must be noted on the maintenance report and brought to the attention of the workplace manager.

Items ticked PASS - YES means they conform with the required checking criteria and are suitable for normal use until the next recertification date. System data plates must be updated showing current check date and next check date.

Item ticked PASS - NO means they do not conform to the required checking criteria. These items must be clearly tagged 'Do Not Use' and the required corrective actions put in place. The maintenance report must clearly document all non-conforming criteria.

 **This system must be maintained by a competent height safety inspector trained in the safe use and maintenance of this system.**

Component	Inspection criteria	Pass Y/N	Corrective action	Completion date
	Must be no deterioration of ladder fixing bracket integrity to support structure and ladder fixing.			
	Must be no visible deterioration or damage to ladder.			
	Must be no deformation of vertical static line stile extension or evidence of excessive load.			
	Must be no evidence of stress in static line vertical attachment bracket or deterioration of connection to ladder.			
	Must be no evidence of slippage or deterioration of cable connection to line attachment bracket (top and lower connection). Warning: crimp or roll swage terminal must be connected at the top of the ladder and the tensioner with locking screw at the base.			
	Must be no evidence of wear, cuts, corrosion or fraying of cable.			
	Must be no evidence of system shuttle wear, distortion, malfunction or energy absorber deployment.			
	Cable must be tensioned correctly and free from dirt and grime.			
	All ladder fixings must be sufficiently tensioned.			

TECHNICAL SPECIFICATION

Vertical fall arrester

SL228

The vertical fall arrester for safe access up vertical ladders for maintenance personnel. System design, supply, layout, installation and certification by a Kattsafe approved installer, as per the manufacturer's installation instructions and current standards.

Materials

- Shuttle: stainless steel (316)
- Energy absorber lanyard: polyester webbing
- Vertical line cable: stainless steel (316)
- Cable end terminations: stainless steel (316)

Dimensions

- Shuttle: 100mm (L) 44mm (W)
- Energy absorber: 130mm (static length)
- Vertical line cable: 8mm (7 x 7 strand)

Weight

0.90kg (shuttle including energy absorber)

Fixings (refer to installation manual)

- Structural steel fixing - M10 bolt set
- Concrete fixing - M10 mechanical concrete anchor
- Metal purlin fixing - 14G tek screw

Rating

- 140kg max weight
- 6kN rated - Single person use (in conjunction with energy absorber lanyard device).

Compliance

The vertical fall arrester is designed to conform with requirements of Australian and New Zealand Standards AS/NZS 1891.4.2009 and codes of practice and guidelines.

Testing

Testing and performance based on requirements of Australian and New Zealand Standard AS/NZS 1891.4:2009.

- Dynamic load tested: 12kN
- Resultant load on structure: 5.85kN

Product warranty

3 Years from date of purchase subject to correct installation. Use and maintenance to be in accordance with manufacturer's specifications and recommendations. (This excludes wearing parts).

Inspection and maintenance

Inspection and certification required every 12 months by competent person in accordance with manufacturer's specifications and requirements of Australian and New Zealand Standard AS/NZS 1891 (refer installation manual).

Important note

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

WARRANTY INFORMATION

Warranty period on this system:
3 years from date of purchase

Should you have a warranty claim as a result of a defect the following procedure must be followed:

Identify the following information:

- The product/system name and code number.
- The date of purchase/installation.
- Installation company details.
- The installation identification number.
- The name of the company using this system.
- A description of the defect/warranty claim.
- The periodic system maintenance report.

Forward the above information to sales@kattsafe.com.au or contact technical helpline, 1300 301 755.

Terms and conditions

All warranty claims must be made in writing within 14 days of the appearance of the defect.

Incorrect installation or work done by a non accredited Kattsafe system installer will void all warranty rights.

Systems that have been installed using non proprietary equipment will void all warranties.

System roof/cladding and concrete penetration seals are not covered in this warranty.

Systems/components that have not been maintained in accordance with manufacturer's/legislative requirements will void warranty.

Systems used by incompetent persons or use with non compatible accessories ie. harness gear, lanyards, travellers, fall arresters etc. will void warranty.

Systems/components used for purposes other than their intended use will void warranty.

General wear and tear is expected and will depend on the frequency of use and is not covered by warranty.



Product brochure
Rung ladders



Installation manual
Vertical fall arrester



Operations manual
Vertical fall arrester



QMS Certification
ISO 9001:2015

Find all related products and resources on our website.
kattsafe.com.au

Kattsafe

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and fall protection

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