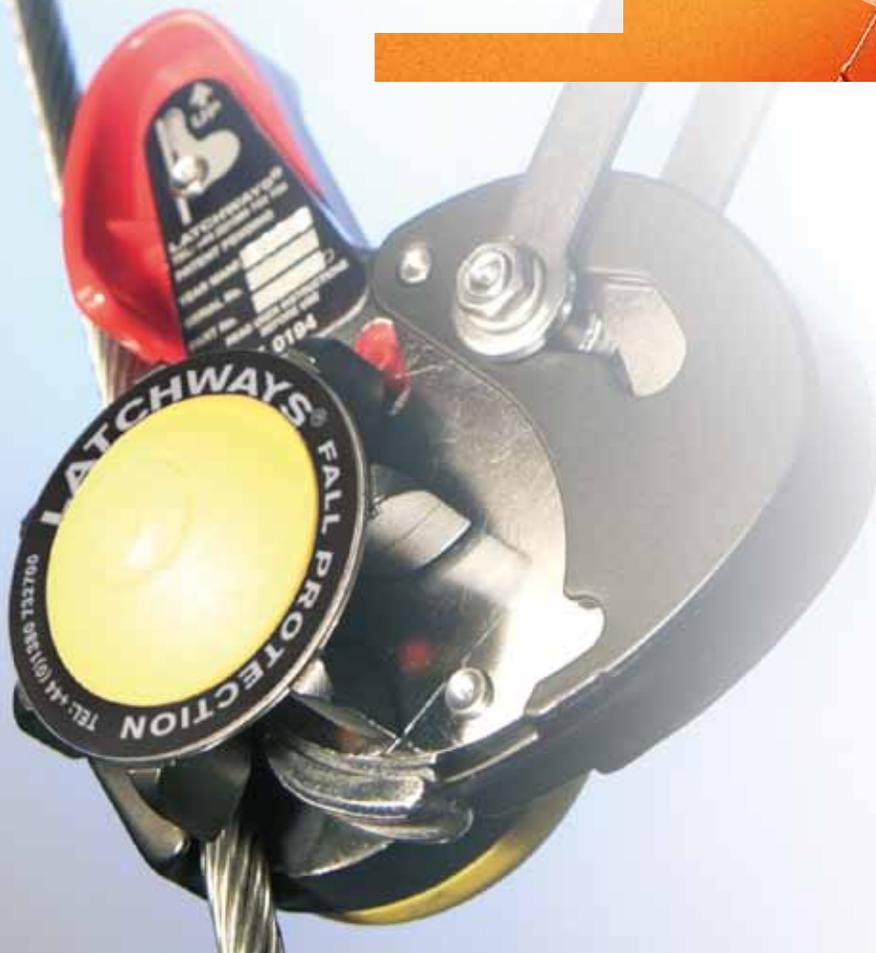
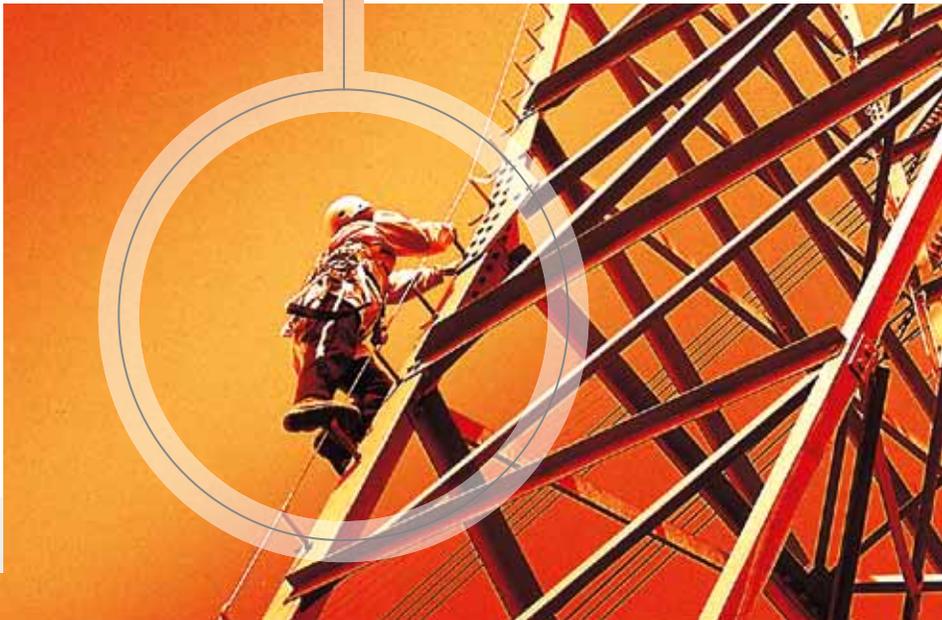


ManSafe® for Transmission Towers

Fall protection for the
energy industry

TowerLatch®
LadderLatch®



Fall protection matters



Falls from height are the single biggest cause of death and one of the biggest causes of serious injury in the workplace today. For businesses whose workers need to operate quickly and effectively at height, fall protection is already a major issue—and it's going to become increasingly important as regulatory authorities introduce ever-stricter legislation concerning:

- Where height safety should be implemented
- The systems that are acceptable for use
- Who is responsible for ensuring worker safety

Are you responsible?

The answer could well be 'Yes'. According to the health and safety legislation these people are 'duty-holders'—responsible for ensuring adequate fall protection and potentially liable in the event of an accident.

What you need to do

The official advice to duty-holders can be summarised as follows:

- Avoid work at height, where possible
- When working at height is essential, ensure that workers are not exposed to unnecessary risks
- Where it is not possible to eliminate the risk of falling, **use a suitable fall protection system to minimise the consequences of a fall**

Principal Contractor/ Sub-Contractors	Head of Network Deployment
Network Health and Safety Manager	Design Controller/ Quantity Surveyor
Asset/Supply Chain Manager	Project/Design and Construction Manager

**Latchways plc—global leaders
in fall protection**

ManSafe for Transmission Towers

Latchways LadderLatch and TowerLatch Solutions

Latchways' TowerLatch and LadderLatch fall protection solutions provide outstanding personal safety and their inherent flexibility means that they can be configured for use on virtually any type of structure. The systems are built around Latchways' innovative starwheel component—which offers workers hands-free security—and its Constant Force® energy absorber—a revolutionary technology that guarantees unrivalled protection for personnel working at height.

System users

Latchways' systems are installed on structures around the world and specified by all of the following suppliers:

- Scottish and Southern Energy plc—UK
- E.ON—UK
- TenneT—Holland
- Transpower—New Zealand
- SP AusNet—Australia
- Alpiq—Switzerland
- Western Power Distribution—UK
- Elia—Belgium
- SWBremen—Germany.

Safety

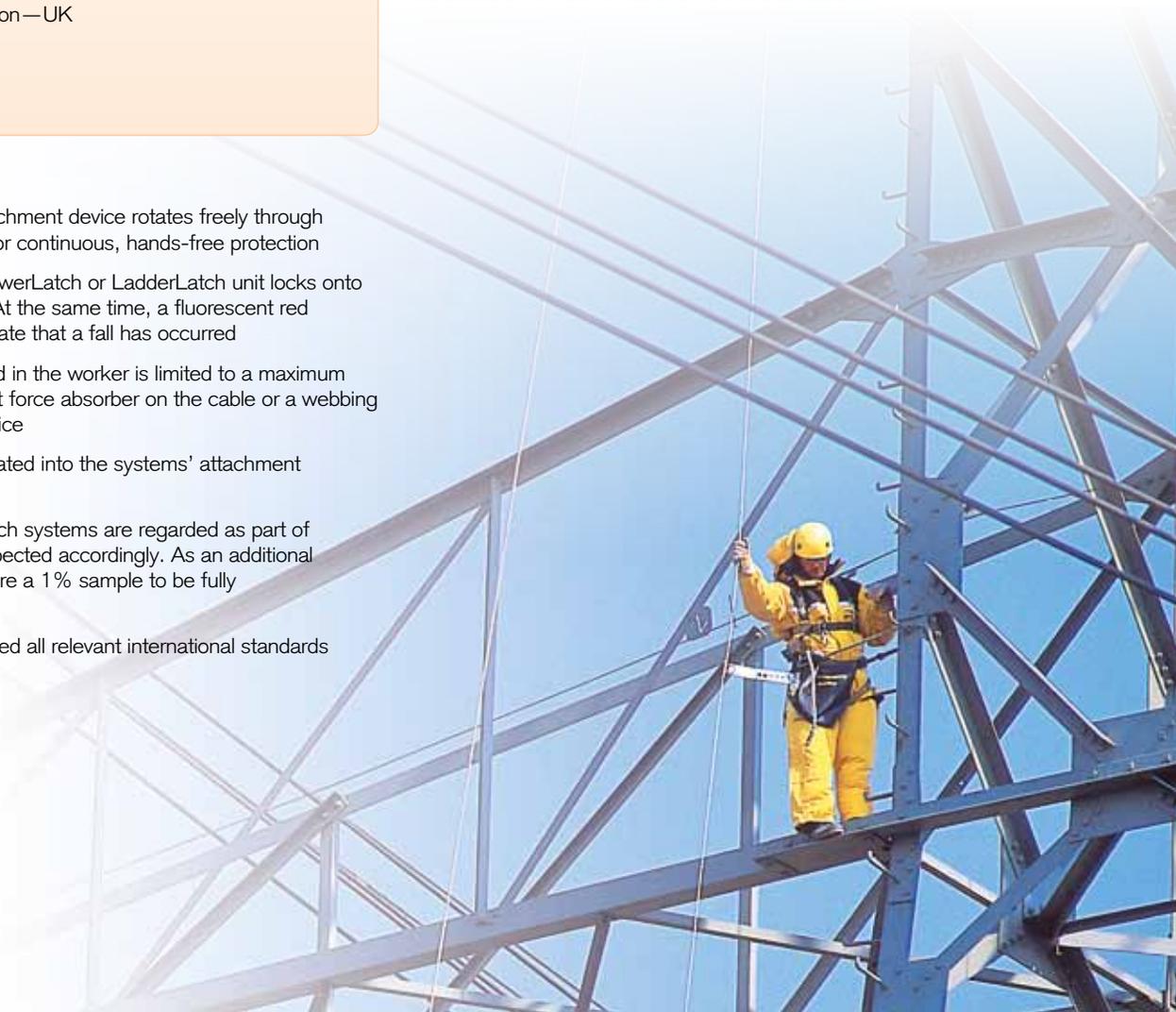
- The systems' universal attachment device rotates freely through intermediate cable guides for continuous, hands-free protection
- In the event of a fall, the TowerLatch or LadderLatch unit locks onto the cable to arrest the fall. At the same time, a fluorescent red indicator is exposed to indicate that a fall has occurred
- In the event of a fall the load in the worker is limited to a maximum of 6 kN by either a constant force absorber on the cable or a webbing energy absorber on the device
- A webbing strop is incorporated into the systems' attachment device to facilitate rescue
- TowerLatch and LadderLatch systems are regarded as part of the tower structure and inspected accordingly. As an additional safeguard, Latchways require a 1% sample to be fully inspected annually
- Both systems meet or exceed all relevant international standards

Ease of installation and use

- Can be incorporated at the design stage for new towers or retrofitted to existing structures
- Can be installed to follow the contours of any structure, including horizontal and inclined sections
- Comprehensive range of components enables quick and easy installation on any type of overhead line tower, vertical structure or ladder
- Can be designed for up to six users
- Attachment units can be attached or detached at any point in the system
- Can be installed in virtually any environment

The complete solution

As you might expect from the global leader, Latchways' fall protection solutions are flexible enough to accommodate every safety need for working at height. The comprehensive range of horizontal, vertical systems is ideal for personnel accessing the high voltage transmission towers or transformers in substations.



Bespoke Service

Latchways offers a flexible project management service to meet the exact requirements of each customer. The following steps illustrate an example of how this bespoke service can work.

Consultation

Thanks to the company's close working relationships with industry transmission and distribution companies, Latchways is well placed to offer customers expert support and advice on a series of working at height issues. These relationships also give the company a unique insight into individual customer requirements and an unrivalled ability to satisfy those requirements.

System design/specification

The specification process will vary to accommodate the customer's fall protection requirements. To date, Latchways has provided systems for thousands of different tower types and compiled a database of the characteristics of each to provide a quick and accurate reference for future designs. Latchways uses a custom software package to create a detailed specification sheet providing a complete breakdown of the parts and quantities needed to build each system.

Assembly

Using the specification sheets, a specialist Latchways team then ensures that each system is correctly kitted, packaged into boxes and labelled with all relevant details (e.g. customer name, line name, tower number, tower type and system height, where required).

Training

Latchways has a comprehensive training programme to help customers install these systems using their own contractor companies. The training—which covers both installation and use of the system—can be conducted within Latchways' facilities or at the customer's premises. A certificate and photo ID card is issued to all personnel who successfully complete the programme.



ManSafe for Transmission Towers

Why choose Latchways?

With over 30 years experience Latchways is the global leader in fall protection. Latchways revolutionised the industry with its patented Constant Force technology and the company continues to innovate, with new systems designed and manufactured specifically for the energy industry.

Engineering excellence

All Latchways' systems are manufactured to the highest international standards, using only the best materials.

Each component is individually numbered, batch conformance and dye penetrant tested—a quality standard unsurpassed in the industry.

In addition to rigorous in-house testing, all Latchways' products undergo external verification to ensure they meet or exceed the relevant industry standards.

The TowerLatch system has also been subjected to accelerated ageing, wind tunnel trials and cyclic testing—all of which have confirmed the inherent quality and durability of the system.

Latchways' products are specifically developed to take account of the latest structural innovations and the company's commitment to excellence means that its systems have a proven track record of safety and reliability—even in the most extreme environments.



Company profile

- Patented technology
- Products regularly specified on high-profile projects around the world
- Listed on London Stock Exchange
- Products conform to EC, CSA and OSHA standards and carry the CE mark
- US Department of Defense approved
- ISO 9001 certified
- ISO 14001 certified

System materials

- Components: marine grade 316S stainless steel
- Cast components: 17/4 PH stainless steel
- System cable 8 mm diameter: 1 x 19 stainless steel



Meeting the required standards

There are numerous standards which fall protection systems must comply with in order to be fit for purpose.

All Latchways products comply with the relevant standards and appropriate regulations.

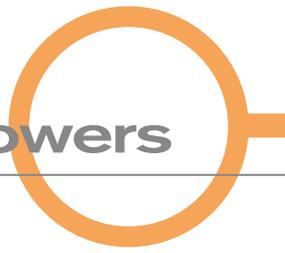
Standards

The key standards relating to fall protection systems within the electricity industry are:

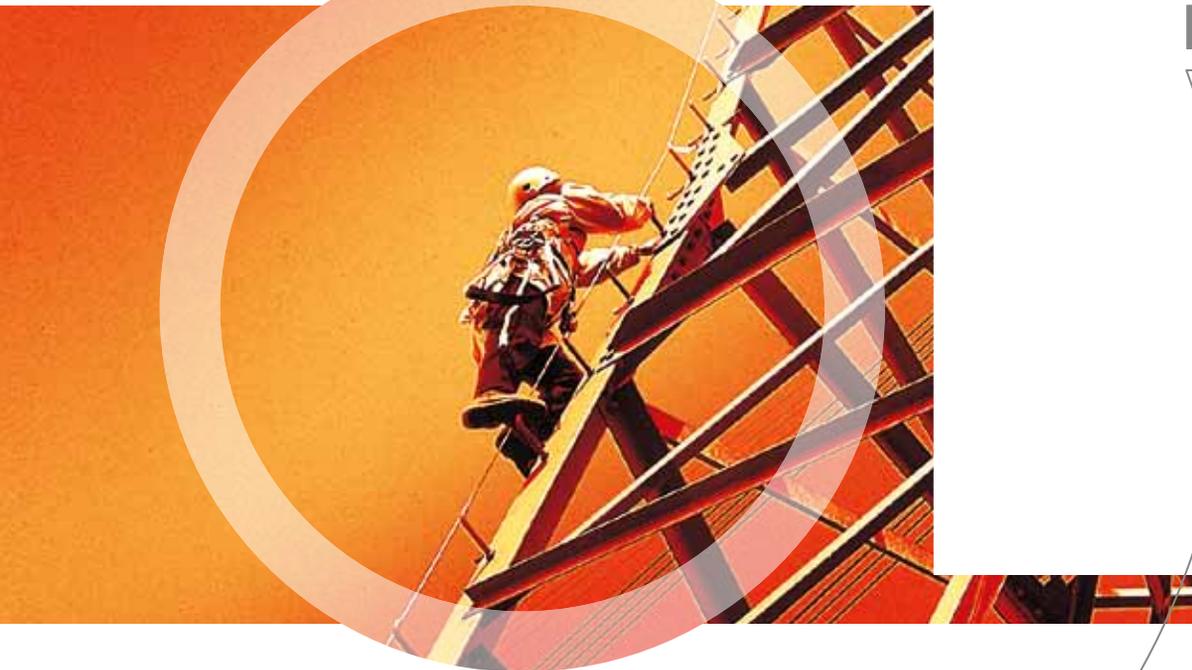
- EN 353-1 Personal Protective Equipment (PPE) against falls from a height— Specification for guided type fall arresters on a rigid anchorage line
- EN 353-2 PPE against falls from a height— Guided type fall arresters including a flexible anchor line
- EN 341 PPE against falls from a height— Descender devices
- EN 354 PPE against falls from a height— Lanyards
- EN 355 PPE against falls from a height— Energy absorbers
- EN 358 PPE for work positioning and prevention of falls from a height— Belts for work positioning and restraint and work positioning lanyards
- EN 360 PPE against falls from a height— Retractable type fall arresters
- EN 361 PPE against falls from a height— Full body harness
- EN 362 PPE against falls from a height— Connectors
- EN 363 PPE against falls from a height— Fall arrest systems
- EN 364 PPE against falls from a height— Test methods
- EN 795 PPE against falls from a height— Anchor devices— Requirements and testing
- AS/NZS 1891.3-1997 industrial fall arrest systems and devices— fall arrest devices
- ANSI Z359.1-2007 safety requirements for personal fall arrest systems, sub-systems and components
- CSA Z259.2.1-98 design and performance requirements for manufacturing fall arrest devices, vertical lifelines and rigid sections, including mounting components



ManSafe for Transmission Towers



ManSafe®



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ManSafe[®] for Transmission Towers

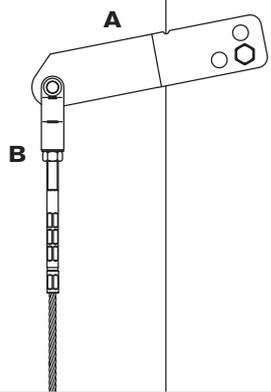
TowerLatch[®] — Climbing Leg System: Step Bolt

A vertical fall protection system for retrofitting to overhead line tower climbing legs. Fixed to the structure by the step bolts, the system has no in-line energy absorber. The TowerLatch SP attachment device incorporates a built-in energy absorbing pack to reduce the end load in the event of a fall. The system is designed for use by up to four workers at the same time.

Top anchor set

Side elevation

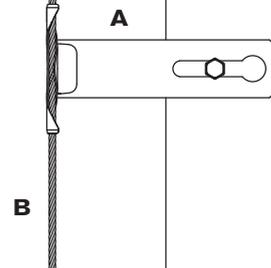
- A** Top anchor
- B** Swage to yoke



Intermediate set

Side elevation

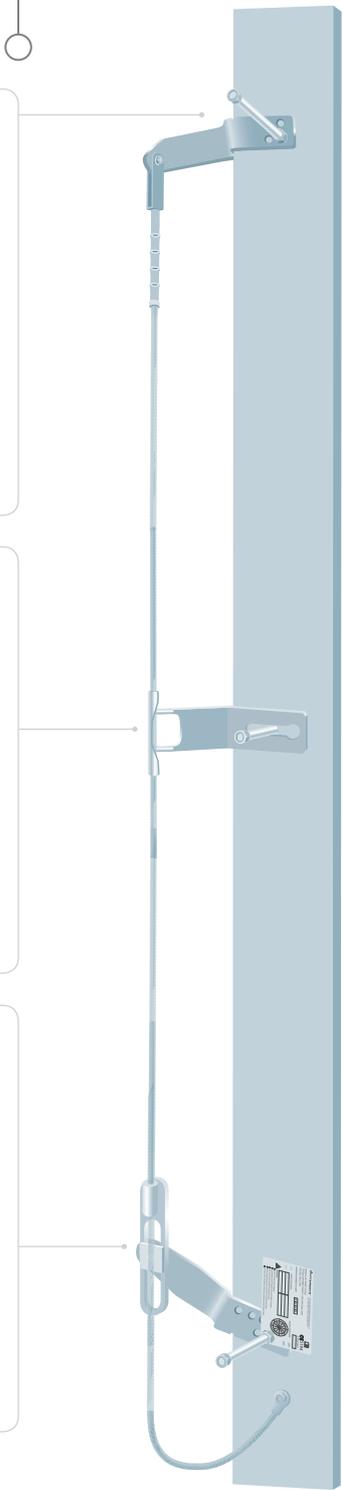
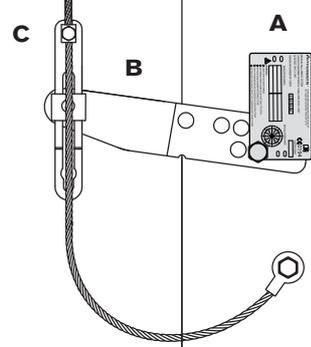
- A** Intermediate helix wire guide
- B** 1 x 19 m ø8 mm stainless steel cable



Bottom anchor set

Side elevation

- A** System warning label
- B** Bottom anchor bracket
- C** Cable clamp



System components



Top anchor

This bracket has a built-in factor of safety of 2½ times the potential load generated when a fall occurs.



Intermediate wire guides

These brackets support the cable, ensuring the correct stand-off distance from the structure is maintained. The bracket features a key-hole design to allow for easy retro-fit without removing the step bolts. The spacing of the intermediates is dependent on the height and location of the structure. An extensive range is available to cater for all types of structure.



Bottom anchor

This bottom bracket provides a swage-free system termination. The tensioning slider has a wedge-shaped profile to ensure tension is maintained, or alternatively can also be supplied with a built in tension indicator.



Cable

Latchways use a ø8 mm 1 x 19 stainless steel cable that has a unique identification system. The cable is factory tested to check its physical properties and to ensure performance is consistent.



TowerLatch SP unit

The TowerLatch SP unit secures the climber to the fall protection cable via the chest D-ring, which allows free movement up and down the structure, but immediately locks onto the cable in the event of a fall. The unit incorporates an energy absorbing pack to reduce loads applied on the climber and structure. The webbing then allows for ease of rescue using the cut-away method.



Bottom anchor tensioning device

The removable tensioning device enables the correct system pre-tension to be set and can be used for multiple cable systems. It is not installed as part of the system and is always removed once installation is complete.

Latchways has a comprehensive training programme to help customers install these systems using their own contractor companies. The training—which covers both installation and use of the system—can be conducted within Latchways' facilities or at the customer's premises.

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ManSafe® for Transmission Towers

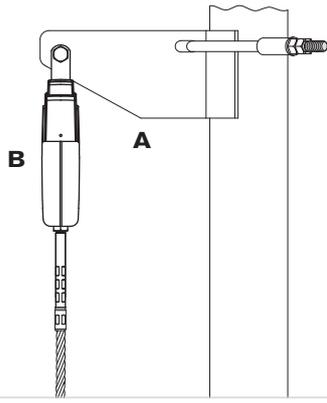
TowerLatch® — Climbing Leg System: L-bolt

A vertical fall protection system for retrofitting to overhead line tower climbing legs. The system is fixed to the tower by L-bolts, which are available in a range of sizes to suit each structure. The TowerLatch attachment device incorporates a webbing strap to facilitate rescue.

Top anchor set

Side elevation

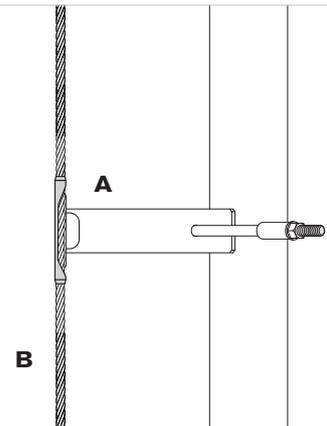
- A** Top anchor
- B** Coil energy absorber (yellow)



Intermediate set

Side elevation

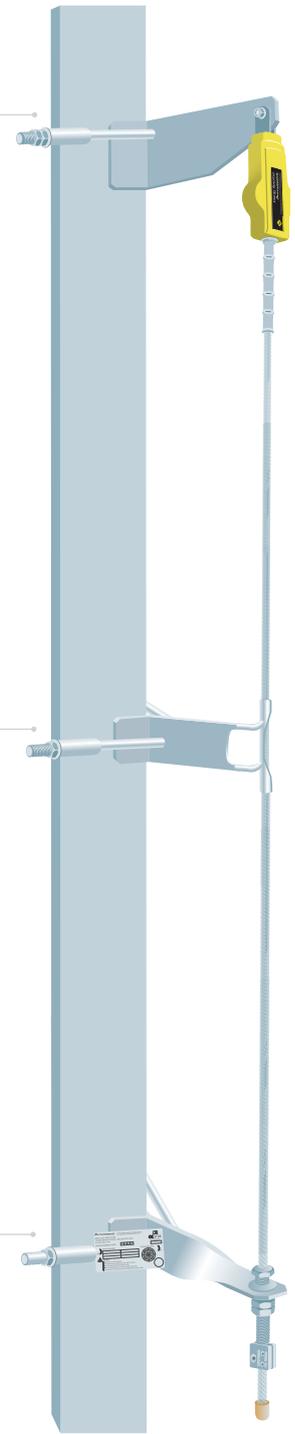
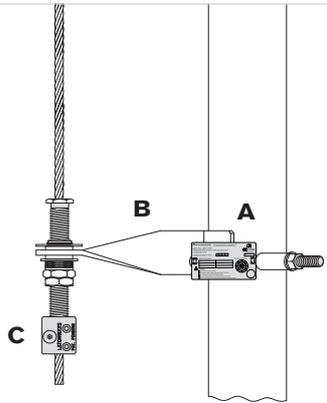
- A** Intermediate helix wire guide
- B** 1 x 19 m ø8 mm stainless steel cable



Bottom anchor set

Side elevation

- A** System warning label
- B** Bottom anchor bracket
- C** Cable clamp and tensioning device



System components



Top anchor

This bracket has a built-in factor of safety of 2½ times the potential load generated when a fall occurs. The system energy absorber is attached at this point.



Constant Force[®] energy absorber

This energy absorber ensures that the load applied back to the structure and the climber in the event of a fall is limited to a maximum of 6 kN. A three or six person version is available, with both units having a red fluorescent indicator showing if a fall has occurred.



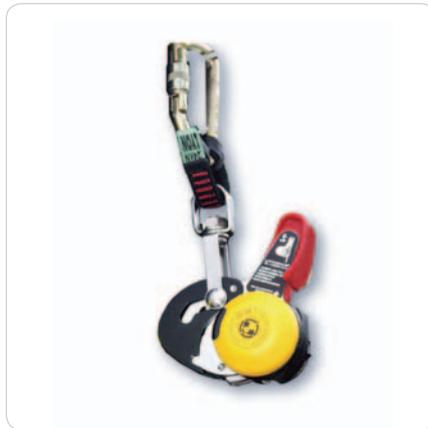
Intermediate wire guides

These brackets support the cable, ensuring the correct stand-off distance from the structure is maintained. The spacing of the intermediates is dependent on the height and location of the structure. An extensive range is available to cater for all types of structure.



Cable

Latchways use a ø8 mm 1 x 19 stainless steel cable that has a unique identification system. The cable is factory tested to check its physical properties and to ensure performance is consistent.



TowerLatch unit

The TowerLatch unit secures the climber to the fall protection cable via the chest D-ring, which allows free movement up and down the structure, but immediately locks onto the cable in the event of a fall. The unit incorporates a webbing strap to facilitate rescue.



Bottom anchor

This bottom bracket provides a swage-free system termination and an integral tensioning device. At the correct cable pre-tension, the unit's indicator disc will spin freely. Unauthorised system adjustment is prevented through the use of captive security bolts.

Latchways has a comprehensive training programme to help customers install these systems using their own contractor companies. The training—which covers both installation and use of the system—can be conducted within Latchways' facilities or at the customer's premises

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ManSafe[®] for Transmission Towers

LadderLatch[®] — Rung Mounted/Stringer Mounted

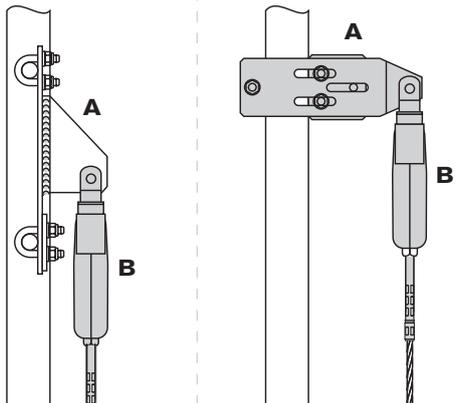
LadderLatch utilises a variety of brackets, allowing systems to be fitted to ladder rungs (round, square, triangular, L shaped), box section ladders, T-section ladders and flat or round ladder stringers.

Rung Mounted System

Stile/Stringer Mounted System

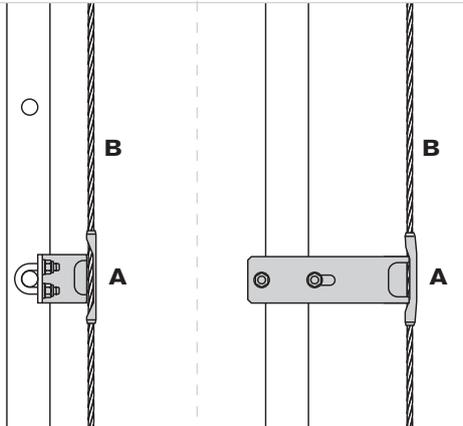
Top anchor set

- A** Top anchor
- B** Coil energy absorber (yellow)



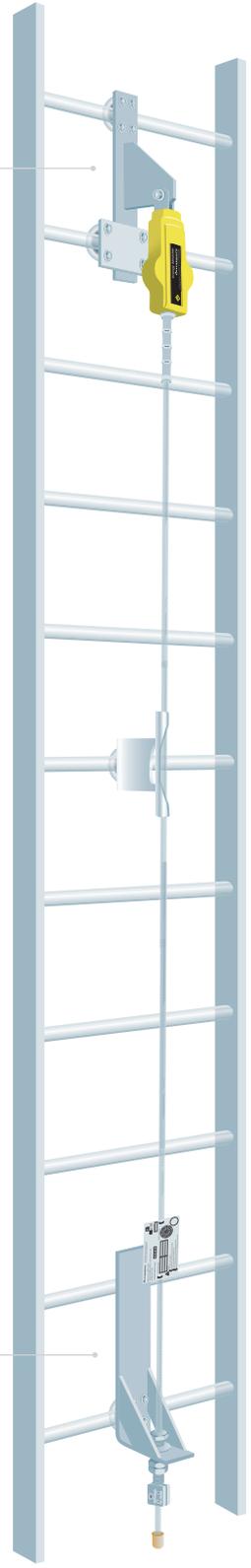
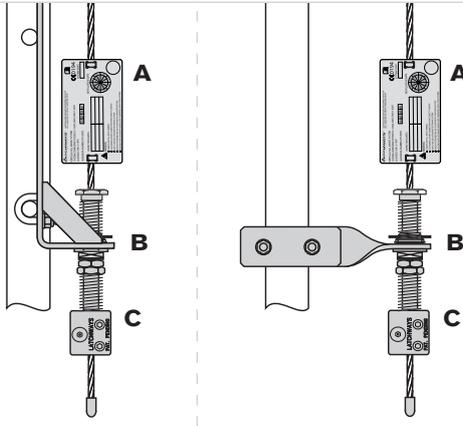
Intermediate set

- A** Intermediate helix wire guide
- B** 1 x 19 m ø8 mm stainless steel cable



Bottom anchor set

- A** System warning label
- B** Bottom anchor bracket
- C** Cable clamp and tensioning device



System components



Top anchors

These brackets have a built-in factor of safety of 2 1/2 times the potential load generated when a fall occurs. The system energy absorber is attached at this point.



Intermediate wire guides

These brackets support the cable, ensuring the correct stand-off distance from the structure is maintained. The spacing of the intermediates is dependent on the height and location of the structure. An extensive range is available to cater for all types of structure.



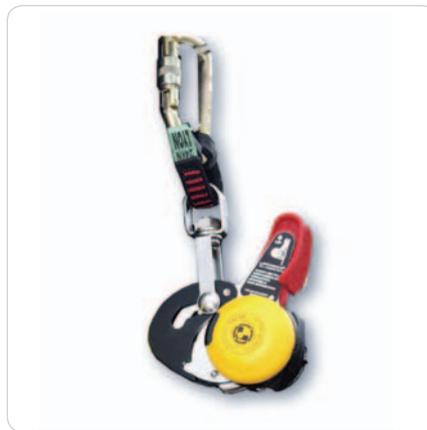
Bottom anchors

These bottom brackets provide a swage-free system termination and an integral tensioning device. At the correct cable pre-tension, the unit's indicator disc will spin freely. Unauthorised system adjustment is prevented through the use of captive security bolts.



Cable

Latchways use a $\varnothing 8$ mm 1 x 19 stainless steel cable that has a unique identification system. The cable is factory tested to check its physical properties and to ensure performance is consistent.



TowerLatch® unit

The TowerLatch unit secures the climber to the fall protection cable via the chest D-ring, which allows free movement up and down the structure, but immediately locks onto the cable in the event of a fall. The unit incorporates a webbing strap to facilitate rescue.



Constant Force® energy absorber

This energy absorber ensures that the load applied back to the structure and the climber in the event of a fall is limited to a maximum of 6 kN. A three or six person version is available, with both units having a red fluorescent indicator showing if a fall has occurred.

Latchways has a comprehensive training programme to help customers install these systems using their own contractor companies. The training—which covers both installation and use of the system—can be conducted within Latchways' facilities or at the customer's premises.

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