



Case study

TenneT

Client

TenneT

Requirement

Upgrading of safety systems for transmission pylons

Solution

Latchways ManSafe® for transmission towers

Product details

TowerLatch and LadderLatch fall protection systems

20,000 systems and still climbing



Background

TenneT is a leading European electricity Transmission System Operator (TSO) in the Netherlands and Germany. It supplies electricity to over 41 million end users and also is responsible for transmitting electricity across the high-voltage grid.

With around 21,000 kilometres of high-voltage lines, crossing borders and connecting countries, TenneT ranks among Europe's top five TSOs and works closely with governments, non government organisations, trading partners and private investors all over the world. It also provides system services and facilitates a functioning, liquid and stable electricity market, as well as actively contributing to the integration of renewable energy.

The requirement

In 2000, Arbo Union (the Dutch authority for Health and Safety) identified that safety could be improved with better climbing techniques on high voltage masts.

They compared three climbing techniques – the 3-point method, step-step (double hook lanyards) and a Latchways cable system – to decide which provided the best method. The results were analysed in terms of safety to the user, physical strain, working posture, climbing time and cost, among other things. The results showed that:

- The 3-point technique was regarded as 'not suitable unless safety aspects are improved'. In other words it had fundamental safety issues, which could only be overcome by choosing an alternative safety technique or by using personal safety equipment
- The step-step method was seen as 'by no means satisfactory'
- The Latchways system was regarded 'good and useful'





Arbo Union made the companies that run the Dutch national grid aware of the results of their research, recommending Latchways solution as the safest system. Following this guidance in 2001, the electricity companies, including TenneT, compared Latchways with other cable / rail systems to find the one that best met their needs.

TenneT invited Latchways and other fall protection companies to install test systems and after a year of intensive technical evaluation, in conjunction with field trials on many different tower types, the Latchways system was chosen as 'the best technical solution and competitively priced'. They awarded Latchways the tender in February 2002.



The Latchways Solution

The solution chosen by TenneT was Latchways' ManSafe Vertical cable system featuring a cable strung from the top of the tower or ladder to the bottom. Climbers use a free-running TowerLatch or LadderLatch attachment device to secure themselves to the cable. In the event of a fall a unique, patented energy absorber, incorporated into the cable system, limits the maximum load on the worker, anchor point and the structure to 6 kN.

The system is built using extremely high quality 'martensitic' stainless steel. This ensures efficient operation and long life – the system has been tested to withstand the equivalent of up to 30 years use.

The flexible nature of the system (cable as opposed to rail) means that is great for retrofitting as it can be easily adjusted to follow the contours of the structure. TenneT simply send Latchways a drawing of the tower and the system is engineered to fit. Other advantages are that it can be installed quickly and can accommodate two workers on a single system.

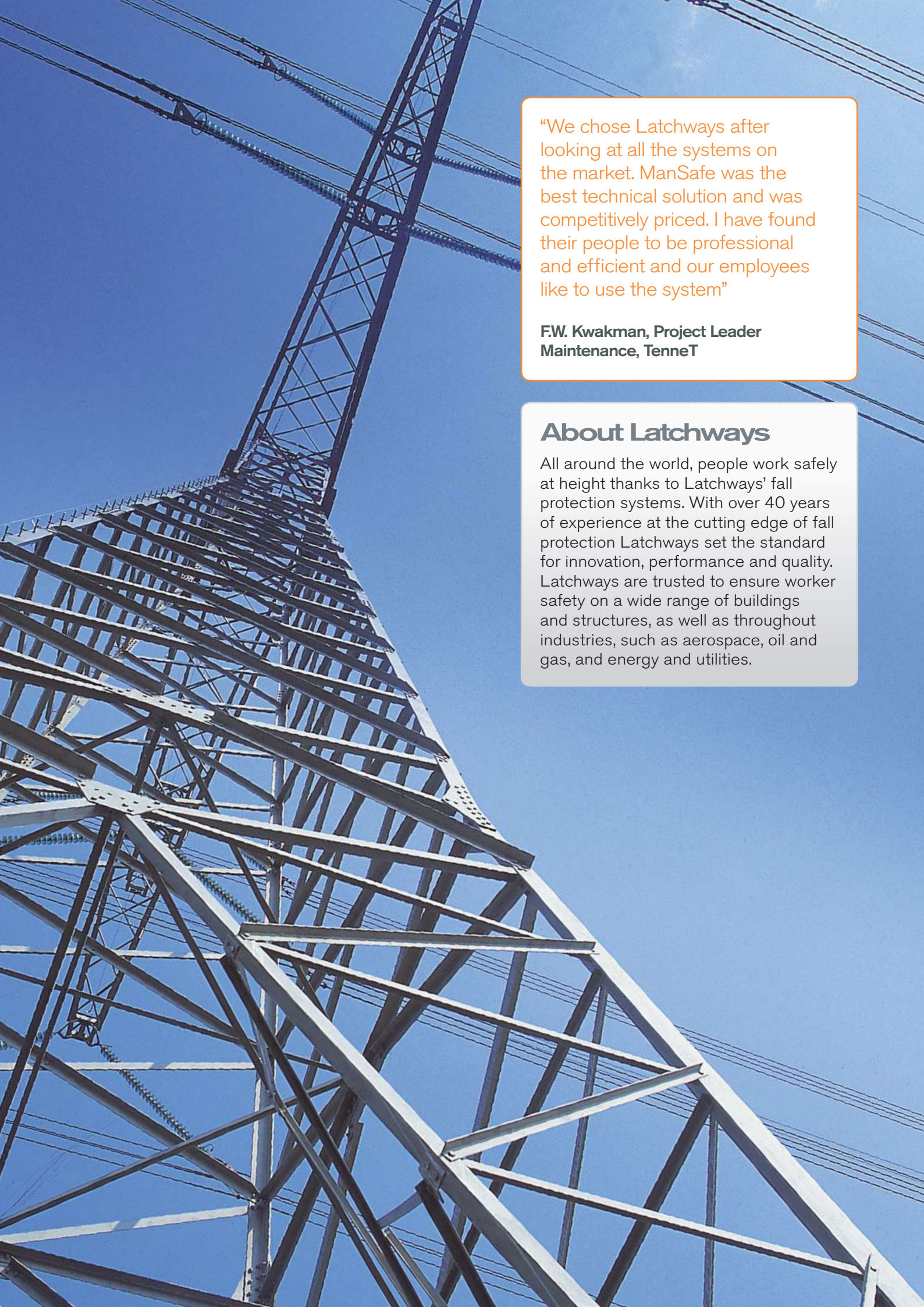
Since being awarded the contract Latchways has worked with installer AMEC SPIE and TenneT to supply, install and maintain around 20,000 systems. Initially these were installed on High Voltage masts, but have now been rolled out to other masts across all electricity distributors on the Dutch National Grid.





Benefits to TenneT's business

- Safety - Meets or exceeds the European standard EN 353-1:2014 with safety and quality of engineering
- Flexibility – The one system can be installed on any shape of tower
- Fast installation – A 50m tower can be completed in as little as 45 minutes
- Minimum maintenance – Highest quality components mean problem free operation
- Easy to use - Intelligent design makes climbing easier
- Long life expectancy – Expected to last as long as the tower itself
- Health benefits - Less physically demanding for the climber than conventional methods, with a reduced risk of repetitive strain injuries



“We chose Latchways after looking at all the systems on the market. ManSafe was the best technical solution and was competitively priced. I have found their people to be professional and efficient and our employees like to use the system”

**F.W. Kwakman, Project Leader
Maintenance, TenneT**

About Latchways

All around the world, people work safely at height thanks to Latchways' fall protection systems. With over 40 years of experience at the cutting edge of fall protection Latchways set the standard for innovation, performance and quality. Latchways are trusted to ensure worker safety on a wide range of buildings and structures, as well as throughout industries, such as aerospace, oil and gas, and energy and utilities.



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