

STRAP IN

Inexpensive and ubiquitous, polyester straps are the unsung heroes of load restraint.

But how should you look after them and extend their operational life? Chris Tindall reports

The humble webbing strap is used to secure a wide variety of loads. When used and maintained properly, it provides protection to the driver, other road users and anyone involved in unloading.

Lashing devices are manufactured under the European Standard for lashing: EN 12195-2. The various methods of load securing and exact calculations of load securing forces can be found in the first part, EN 12195-1. The standard says that when selecting and using web lashings, consideration should be given to the required lashing capacity, which takes into account the mode of use and the nature of the load to be secured. It states: "The size, shape and weight of the load, together with the intended method of use, transport environment and the nature of the load will affect the correct selection."

There are no laws that state how often straps and their ratchets must be tested, nor are there mandatory limits in the standard. But Kimmo Weissenberg, technical director at NWE Network Engineering, says load securing systems should be functional,

clean, unbroken and undamaged, and adds that they should be treated like seatbelts: "Straps must not be damaged, dirty, oily or extended in a prior accident," he says.

"Cut or abraded webbings, knotted webbings, webbings that have been subjected to overload, and webbings that have been subject to chemical attack are not permitted for use. These all weaken the tensional strength to a fraction of what the strap had as new."

Weissenberg adds: "Letting the straps lie on the floor is not a good idea; they will not be clean afterwards. Allowing pallets of goods to stand on



the strap ends might damage them. The correct way is to roll straps and store them, together with ratchet tensioners, in a box with proper seals against salt and water. Alternatively, use suspended straps that are cut to a suitable length, so the end is not touching the floor."

He says: "A strap can be destroyed very quickly with bad maintenance or practice, [such as] letting webbing become oily, or making knots in it, or leaving it under a pallet or around sharp corners when tensioned."

Similarly, ratchets do not like sand or salty water. The ratchet mechanism should be subject to regular inspection for function and damage. To maintain easy operation of the ratchet, its mechanism should be occasionally lightly oiled. Other metal components should also be subjected to regular inspection for damage or deformation.

COMMON MISTAKES

One common mistake that drivers and operators make is believing that a product to be transported is so heavy that it won't move (and so doesn't need tying down). "This is simply not true," says Weissenberg.

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"The fact is that the force causing a horizontal movement for the cargo is related to the weight of the item, but so is the frictional force which needs to be overcome before the item moves. All objects will move if the horizontal force overcomes the frictional force." And he warns: "The heavier the item, the more difficult it will be to stop after it starts to move."

Dennis Bijleveld, product manager at lashing product supplier Loadlok, says that confusion over lashing capacity and break strength is common. "One of the most-used lashing straps is regularly referred to as a 'five-ton lashing strap,'" he says. "Since BS 5759:1987 was withdrawn and superseded by EN 12195-2, forces of lashing straps are referred to by lashing capacity (LC), instead of the actual break strength of the product. Due to various safety factors on components in this current standard, a five-ton lashing strap could actually refer to various products where the break strength is the same but the lashing capacity is different. In this situation, operators mostly refer to LC 2000daN or LC 2500daN systems.

"When deciding what system is appropriate to secure the load, to avoid confusion, it is advisable to look at the LC, not break strength properties. That's especially true because break strength properties are not used in calculations; lashing capacities are."

Bijleveld says confusion can also arise when referring to LC or the standard tension force (STF): "While the LC is used for blocking of the load or direct lashing, the STF value is strictly used for tiedown or friction lashing," he explains, referring to the practice of running straps over the top of a load.

"You need the actual strength of a system when blocking loads. But you'll need the applied tension force that is caused by the tensioning device - the ratchet - when you want to tie down



a load. A high LC value does not automatically mean a high STF, and vice versa." He adds that a thinner polyester webbing can achieve higher tension forces than a thicker one with the same tensioning device.

"The length of the ratchet handle, however, is the main contributing factor in the magnitude of the STF."

DISCARD CRITERIA

As far as knowing when it's best to discard a strap, Bijleveld advises asking the supplier if one comes into contact with chemicals. He says: "Although polyester is a very tough fibre in various conditions, some chemicals such as acids will affect the quality of the material.

"Be aware of tears, cuts, nicks and breaks in the fibres and retaining stitches," he continues. "Polyester can be used in temperatures varying from -40°C to +120°C. If [a strap is] affected by heat or flames, it's best to replace or repair."

Although the strap coating and steel parts are given protective treatments during manufacture, over time they will succumb to moist conditions combined with oxygen and UV light.

A spokesman for the Health and Safety Executive says: "Straps can be easily damaged by their environment - rain, ice, chemical contaminants, or



STRAPPED FOR TIME

As there is no generally stated lifespan for a strap or ratchet equipment, working life mostly depends on the frequency of use and the environment. However, Loadlok lists some basic tips and tricks that can extend the life of this equipment.

- A load securing plan makes life easier and safer, and increases the lifespan of products by ensuring they are used in a proper way with the correct calculations and intentions
- Don't use different load securing materials for the same load: combining chains and polyester straps could result in damage and is risky, due to the different elongation properties of the materials
- Match the correct fittings with the correct track or other anchor points. Increased wear and damage occurs when making combinations that are not intended to be used together
- Store properly
- Always use corner protectors to protect the load and the equipment
- Do not use excessive force and maintain alignment of webbing being inserted into, or taken out of, a ratchet. Otherwise you risk the webbing becoming trapped in the teeth of the system.

even sunlight - and they can also be cut or worn when passing over sharp edges or abrasive surfaces. It is important that operators visually check straps on a regular basis and replace any that show signs of significant damage or wear. Drivers should visually check their straps for signs of damage - such as cuts or tears - when they use the straps." **TE**

FURTHER INFORMATION

Operators' duties under PUWER 1998
www.is.gd/ajinaz

DVSA guide on load securing
www.is.gd/lowuza

LEEA guidance document 050: load lashing equipment - www.is.gd/utiheh