ATIS CABLESKIN®

LONG TERM CORROSION PROTECTION SYSTEM FOR CABLES

FAQ'S

ATIS CABLESKIN®

DETAILS

? Why treat a zinc-plated or Galfan-treated cable with a corrosion protection system again?

! The intended service life of a bridge is often 100 – 120 years.

Zinc and Galfan will corrode from the SO_2-content in the atmosphere. Abrasion is considerably sped up if contamination collects between the wires, creating dangerous moisture nests in connection with salt.

Furthermore, there is often some assembly-related damage to the zinc-plating.

Therefore, it is sensible to apply a duplex system specifically aligned with cables to ensure best service life of the cables and low maintenance costs across the entire service life of the building.

DETAILS

? Why would connection to an anchor be better than other systems?

! a) Because this is a permanently ductile overall system.

b) Because all relevant components of the system are based on butyl rubber, thus creating a homogeneous, seamless sleeve.

c) Because the embedded PE layers apply a permanently ring tension on the system and thus actively push the embedded butyl rubber mastic into the fillet. Separating a piece of pipe wound with **ATIS Cableskin®** will soon cause **ATIS Cableskin®** to migrate beyond the cut edge by about 2 mm.

d) This is because the load-bearing connection area is additionally also treated with butyl rubber primer.

DETAILS

? Can the system be used on new cables as well?

! Of course it can be.
When a new cable is protected with a duplex system, its service life can be significantly increased. Damage to the zinc plating or the Galfan caused by assembly work is sealed.
Escaping of cable grouting media after load application on the cables is prevented.
You can also adjust cable colour this way.

DETAILS

? There are the according length expansions of the system due to the outer PE length in case of temperature changes, though?

! No, the individual layers are placed on top of each other like scales and are connected permanently ductile (inter-diffusion). There is virtually no length change, since it is limited to no more than 100 mm of the tape width. Length changes to the cable can be compensated easily.

DETAILS

? What happens when water is enclosed?

! As in any other system, water must not be enclosed.
The same corrosion principles apply. Therefore, work must be performed at 3 K above the dew point.

If compacted and open cable and wire bundles are formed to one cable using hard foam parts and **ATIS Cableskin®**, old moisture inclusions can be eliminated using a hybrid system with an active dehumidification system. Any moisture that causes corrosion is then eliminated.

DETAILS

? What happens with loose coating parts of old coatings?

! Loose coating parts could be wrapped over, but are in practice manually removed during previous running over by persons. We want to ensure that any moisture nests are removed.

DETAILS

? What happens with rusty areas at the cable?

! They are wrapped over. We preserve the present and structurally accepted condition of the cable.

Rust alone is not a problem.

The **ATIS Cableskin®** system poses no requirements to adhesion with the surface.

DETAILS

? Is the cable sand-blasted?

! The **ATIS Cableskin®** system poses no requirements to adhesion with the surface.
Sand-blasting is not necessary.
If required, loose parts are removed manually and the cable is cleaned with water when required by the conditions on site.

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DETAILS

? What environmental strain will result?

! **ATIS Cableskin®** is applied VOC-free.
ATIS Cableskin® is 100 % recyclable.
Sand-blasting, etc., is not required.

DETAILS

? Can anchors and clamps be wrapped over as well?

! There cannot be any generally valid answer for regular cables here. It is possible under certain prerequisites. Such requests must be considered from case to case.

If suspended bridge cables are protected from corrosion with **ATIS Cableskin®**, certain suspension clamps are protected with housing constructions of composites, neoprene or aluminium. These tight constructions are perfectly connected to the **ATIS Cableskin®** corrosion protection system.

DETAILS

? But you won't see the damage if rust does occur!

! We apply a corrosion protection specifically approved for this case to prevent rust! Otherwise, we wouldn't need any corrosion protection at all.

Regular visual inspections in the scope of the main inspection provide much better information on the effectiveness of the system than for conventional coating systems. Automatic systems are suitable for such regular inspections due to comparability of results (panorama images).

DETAILS

? You cannot see any rust escaping!

! Rust will only appear where there are the corresponding corrosion conditions. If no rust escapes, the system is intact. If the corrosion protection system is defective, e.g. due to vandalism or impact, and rust develops, rust will escape through the defect. It can be seen and the wrap can be repaired.

DETAILS

? You cannot see any damage in the corrosion protection system!

! If there is any damage to the corrosion protection system **ATIS Cableskin®**, you will find it at once by simple visual inspection. This is due to the homogeneous wrap.
Brittling and connected micro cracks are completely excluded due to the material properties of butyl rubber.

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DETAILS

? Escaping cable grouting agent may penetrate the corrosion protection system!

! Due to the high ring tension of the tapes and the PE layers embedded in the butyl rubber, the corrosion protection system **ATIS Cableskin®** will easily withstand the pressure.

Tests were performed with the objective of destroying the corrosion protection system by application of an inner pressure of 30 bar applied to an area of 20 mm^2.
This was not possible!

A comparable system is even used to temporarily seal leaks in gas pipelines.

DETAILS

? If any damage arises, e.g. from vandalism or impact, water may enter at the edge of the damage.

! This was examined in the scope of the European and German approval. Water will not get under the corrosion protection system **ATIS Cableskin®** by more than 1mm in the cable's longitudinal direction. Beyond this, protection is perfectly intact. Butyl rubber flows into all surface irregularities and will safely interlock with them.

Water can only radially enter in the area of the damage. Damage must be repaired, just like any damage. The repair takes place in an also-approved method by cleaning and wrapping over. It only takes a few minutes.

DETAILS

What options are there for quality control?

Depending on the customer's wish, control wraps are applied in an area that can be reached easily. The customer is able to remove these wraps and submit them to a lab for destructive inspection.

Simple counting of the prints and measurement of the wrapped layers can be used at any time to track the quality of the wrap. The material is provided to the customer as a retention sample. He can inspect its quality at any time.

Automatic wrapping is completely recorded as a video.

DETAILS

? The expected service life in excess of 60 years is unrealistic!

! No.

The system has been used since 1970. To this day, not a single case of failure of the corrosion protection of butyl rubber has occurred, in spite of an application amount in excess of 107 M m^2.

The basic layer alone meets the corrosion protection requirements. It was even tested individually. The cover layer acts as additional protection.

8 individually active barriers of the 2.6 mm thick corrosion protection system must be worn before the cable surface is reached.

27 year-old comparable systems without any sign of impending failure were opened.

The same, completely artificially weathered samples were artificially weathered again after an outdoor storage time of 5 years, without any negative findings.

DETAILS

? What happens if the connection comes loose and the tape no longer sticks?

! The connection cannot come loose, since butyl rubber merges into one mass by interdiffusion.

Since butyl rubber is virtually a liquid, you can imagine this like mixing coffee and milk - you cannot separate them into layers anymore either.

The tape does not stick.

It interlocks with the underground (substrate) by flowing.

DETAILS

? The cables cannot be inspected anymore after wrapping. Damage cannot be seen.

! The cables can still be gone over effectively with test systems after wrapping.
Outer wire breaks and changes to the looks of the cable surface would show through the plasticity of the system.

If any open or compacted cable bundles of suspended bridges with moulded parts and **ATIS Cableskin®** are formed into round or ellipsoid cables, sensible placement of the air ducts in the hard foam will lead to outstanding inspection properties of the cable surface with endoscope.

For comparison, when inspecting reinforced concrete, the protective concrete is not removed either to check the reinforcement irons.