

Protecting wire ropes against wear and corrosion

Automatic wire rope lubrication significantly reduces lubricant consumption and costs at a steel plant

Wire ropes that are subjected to strong pulling forces or harsh substances are particularly prone to corrosion and wear. How can we prolong the service life of a wire rope?

Here is a practical example:

In a rolled steel plant, the steel is processed into a wide strip and rolled up behind the roller. The roll, also called a coil, is hung onto a loop car. It is then moved back and forth over its movement path with wire ropes using winches.

Corrosion can take place due to cooling water and other liquids, or wear can occur due to friction, both of which reduce the service life of the rope. That is why they need to be lubricated on a regular basis.

Whether on a stationary or moving rope, manual lubrication is not a pleasant task and can be dangerous. It also is not very effective. Wire ropes, which can be quite thick, often move through inaccessible areas that are extremely difficult to lubricate. Simple lubrication systems that use brushes apply the lubricant only to the surface. Thus, the lubricant does not penetrate the wire rope.



The Wire Rope Lubricator (WRL)

What is the best way to get lubricant onto the rope?

Experts at Interflon Deutschland GmbH, a manufacturer of specialised lubricants, wanted to find a solution to this problem for their customer, a well-known steel manufacturer from West Germany.

It was important to the customer that the lubricant be applied continuously to the hauling rope of the loop car in an effective and cost-efficient manner.

Interflon approached their service partner with this challenge. Robert Mohr Zentral-schmierung from Schwelm in Germany had previously resolved difficulties relating to other applications.

Together, they determined a solution: a lubricator that encloses the rope and efficiently delivers the lubricant.

Robert Mohr installed an SKF WRL (Wire Rope Lubricator) with a pneumatic barrel pump to supply Interflon Grease OG, a specially developed lubricant. The WRL is installed in such a way that it encloses the wire rope as it runs through the lubricator. It is also firmly anchored at four fixed points using stainless steel chains. A flexible, pressurised hose line is used to connect the barrel pump and the lubricator.

The WRL applies a thin but sufficient amount of lubricant to the rope at high pressure. This means that the lubricant penetrates deep into the rope, continually reducing friction, corrosion and the generation of heat.



The lubrication system applies the correct amount of lubricant and distributes it evenly, thereby preventing over-lubrication.

Lubrication cycles are turned on and off using the system controls.

The process takes less time and reduces the amount of lubricant used.

When compared to the previously utilised manual lubrication method, this task is now completed in only 10–20 % of the time. The automatic system lubricates 30–35 metres of rope per minute, “by itself.” The precise dosing provided by the WRL also reduces the amount of lubricant used by up to 20 %. This is noticeably more cost-effective, as well as much kinder to the environment.

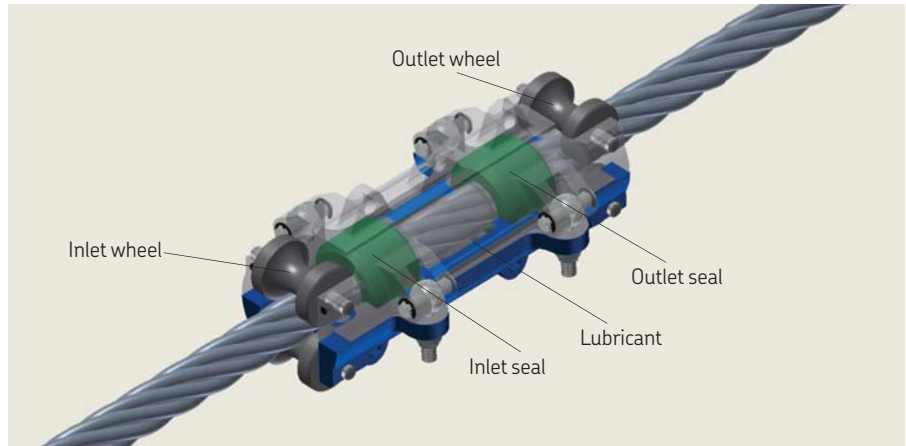
Success you can see

“Before, the floor beneath the system was covered with grease dripping from the ropes, which made it slippery. Now, there is hardly any of this.

But that’s not all. We proceed on the basis that the service life of a given wire rope, previously a maximum of two years, will be extended by around 50 % due to the WRL system. When you consider that replacing this type of rope, including removing the old one and installing the new one, costs around EUR 80,000, this is a significant savings for system operators!

The combined efforts and teamwork of everyone involved in this project resulted in success, and the customer has obtained the optimum solution to their lubrication issue.”

Robert Mohr, SKF authorised dealer



Other typical applications for the automatic Wire Rope Lubricator

The WRL is suitable for ropes from 11 to 52 mm in diameter and is ideal for use with all conventional wire rope lubricants.

Typical application areas include strip storage on feed-ins and discharges in production lines for plastic, paper or metal strips in pickling, zinc-coating and colour-coating plants.

Using the WRL helps increase service life for ropes that are subjected to strong pulling forces or harsh products.

SKF’s Wire Rope Lubricator is also recommended for use within the shipping sector, where harsh seawater can cause problems for the many wire ropes utilised. In these areas, the WRL is not fixed on the wire rope, but instead is only applied intermittently to the relevant rope according to the defined lubrication cycles. For instance, it may be applied to the winch of a rescue boat.

In these applications, lubricant is distributed so evenly that it adheres to virtually every single strand of wire, providing protection against friction, corrosion and the generation of heat.



The lubricator is applied intermittently on this wire rope to provide lubrication, which means that it can be used consecutively for many different ropes.

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