

WIRE ROPE LUBRICATION

ALL WIRE ROPES ARE NOT THE SAME...

Wire ropes used in heavy industry and mining usually suspend, drive or transmit motion to other components. Their multi-strand configuration varies due to the degree of flexibility required and loads that need to be carried.

Some ropes have fibrous cores to retain and dispense lubricant; others are of all-steel construction. In maintaining wire ropes, they must be kept clean so as not to attract contaminants; the inner strands must be properly lubricated and the sheaves which the rope passes over must be protected from wear.

WHICH LUBRICANT WORKS BEST?

Operating conditions and dispensing methods will generally determine which lubricant is chosen, however the operating environment should also be taken into account. Wire rope life is very dependent on adequate lubrication; it has been established that poor lubrication can reduce the normal working life of wire ropes by upto 70%.

As wire ropes generally drive critical production equipment such as ore carts, buckets cranes etc, premature rope failure will result in loss of productivity, incur high replacement costs and represents a substantial part of the maintenance budget.

Traditional failures on wire ropes are generally due to:

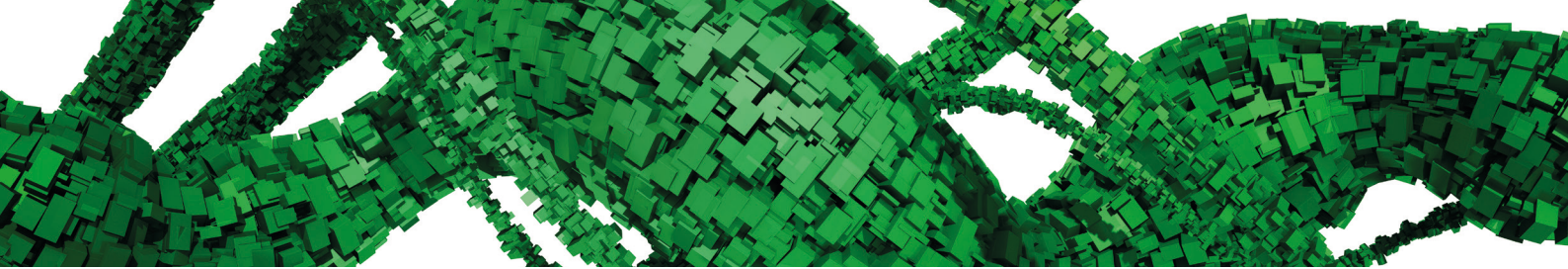
- Corrosion via water contamination
- Abrasion of strands and sheaves due to abrasive contamination
- Fretting corrosion due to inadequate lubricant performance



**POOR LUBRICATION CAN REDUCE THE NORMAL
WORKING LIFE OF WIRE ROPES BY UP TO 70%.**

IT'S MORE THAN JUST OIL.
IT'S LIQUID ENGINEERING.





WHAT CAUSES WEAR IN WIRE ROPES?

In all cases with wire rope wear, strand failure is caused if the lubricant cannot penetrate to the centre of the rope, this can be a result of simply applying the lubricant at the wrong place. The design of wire ropes is spiral and as the load is placed on the rope the strands tighten up and prevent the lubricant from entering inner areas. In all cases, the lubricant should be applied where the rope goes through a bend radius; such as sheaves. As it bends, the rope strands open up and allow the lubricant to penetrate.

A lubricant with good wetting and penetrating ability will carry the fluid to the core of the rope, however where possible Castrol wire rope lubricants are solvent free for improved Health and Safety. Special AW, EP and solid additives are required as pure sliding friction between strands will break down the lubricant and run the strands dry. This will result in Fretting Corrosion as local strand temperatures become extremely high. Fretting corrosion can often be mistaken as rust caused by moisture in the rope centre.

If the rope operates in an abrasive environment the lubricant must not attract dust as this will wear out the strands. If the ropes operate in wet or corrosive environments it must not entrap moisture which would lead to corrosion. As many ropes operate under several conditions on one machine, lubricant choice generally requires a balance of factors, aspects such as housekeeping, fling off and frequency of re-lubrication must also be taken into account.

WHAT PREVENTS WEAR IN WIRE ROPES?

Lubricant selection is generally a compromise between operating conditions, environment and rope type. High viscosity fluids that will carry AW, EP and solid additives to the core will provide protection against constant boundary conditions and typically offer the best protection to wire strands and sheaves.

The following points are critical considerations for selection:

- Wetting agents and tackiness additives to prevent fling off
- Emulsifiers to absorb moisture and corrosion inhibitors to prevent corrosion
- The consistency of the product as applied
- For dry abrasive applications, a compound or oil that will not attract dust and operate semi dry is appropriate
- For very wet applications, oil with high adhesiveness or a grease compound that will not form a skin is usually best
- For clean environments, a heavy oil or no solids lubricant is the best choice

THE CORRECT PRODUCT FOR EACH APPLICATION*

ENVIRONMENT	APPLICATION METHOD	TYPE	PRODUCT
DUSTY	Manual/Automatic	Oil	Molub-Alloy CH 22
WET / CORROSIVE	Manual/Automatic	Oil	Magnaglide D 220
			Viscogen KL 23
WET / CORROSIVE / HEAVY DUTY	Manual/Automatic	Compound	Molub-Alloy OG 936 SF
		Gel	Molub-Alloy OG 8031/3000-00
		Oil	Viscogen KL 300 Spray
ABRASIVE / WET / CORROSIVE / HEAVY DUTY	Manual/Automatic	Oil	Molub-Alloy WR 1000
			Molub-Alloy DRL 921
		Compound	Molub-Alloy OG 936 SF

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