



AIM

Application for
Industrial
Markets

New Lubrication System Protects Against Friction Wear & Corrosion



designed so that proper bearing clearances will exist to permit internal movement and adjustment of wires and strands when the rope has to bend.

PROBLEM

Wire rope replacement costs to the company were several hundred thousand dollars a year. One of the main concerns with a fleet of cranes this large and widely dispersed was that of wire rope maintenance and safety. Corrosion and wear were difficult to control because of the many different job applications and climate ranges in which the cranes were working.

The pendant lines that support the crane boom were of major concern because they had to be completely reliable for the period of the equipment's lease which could be up to two years.

Lubrication is a necessary part of the maintenance process because it helps prevent wear caused by the movement of the internal wires against each other. Lubrication also helps prevent deterioration of wire rope due to rust and corrosion. Lubricant is squeezed out of the rope as it runs over sheaves under tension, washed off by rain and if it is a dry film, it will flake.

In the industry, most wire rope maintenance is done manually by hand or mechanically through a spray system. Kirkpatrick & O'Donnell used a pneumatic spray method, as it was believed that maximum pen-

Customer
Kirkpatrick & O'Donnell

Application
Lubricating wire rope

Problem
Wire rope maintenance costs were high & results were not dependable.

Solution
Lubrication delivery system featuring Graco's 50:1 President™ & Fireball™ grease pumps

Results
System offers consistent protection against friction wear & corrosion.

HISTORY

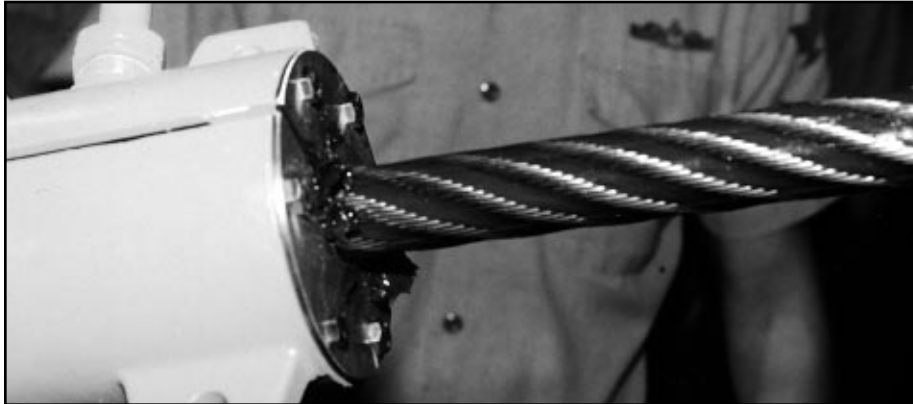
Kirkpatrick & O'Donnell, a construction equipment company in Dallas, Texas, owned a fleet of approximately 300 heavy lift cranes. These machines were involved in many different lifting applications across the United States, Canada, Mexico, as well as worldwide.

Wire rope (also known as cable or wire line) is used to lift, anchor and pull. Each wire rope has many moving parts. A typical 6 x 25 rope (six strands consisting of 25 wires each) has 150 wires in its strands, all of which move independently and together in a complicated pattern around the core as the rope bends. Clearances between wires are balanced when a rope is



etration could only be achieved with thin wire rope dressings.

Even though both the hand and spray method were the best methods available at the time, neither offered consistent protection against friction wear or corrosion of the individual wire strands of a wire rope. The manual hand method, where high



viscous lubricant is applied to the surface of the wire, only served to trap any corrosion inside causing moisture, while the spraying method which utilized thin lubricants through a spray nozzle applicator, provided minimal fluid film barrier between individual wire strands allowing excessive friction wear.

In addition, there was a good deal of lubricant loss due to drainage and misting and there was no way to be assured that 100% lubrication had occurred.

The need for a more thorough and dependable method of lubrication was proven when one of their rental crane's pendants snapped on a job site causing the boom to drop. Even though the surface of the wire rope showed lubricant residue, the core of the subject wire rope had turned to powder. The customer had used the aforementioned methods of lubrication. Fortunately, damage was minimal and there were no injuries.

GRACO SOLUTION

As a consequence, Kirkpatrick & O'Donnell began using the pressure lubrication method of wire rope lubrication by designing a system which

would give maximum penetration and coating of both low and high viscosity lubricants into the internal strands of their cranes' wire rope.

This lubricant delivery system centers around Graco pump packages, specifically 50:1 Presidents™ and Fireball™ grease pumps. The pump pack-

ages delivered the wire rope lubricant from the lubricant container to the lubrication collar which clamped around the wire rope to be lubricated.

The Kirkpatrick Group, Inc. was subsequently created to market the system and since that time, have created a niche market in the wire rope maintenance industry.

TESTING

The United States Navy was notified as to the availability of the new system. They then initiated testing to verify that this system could apply and penetrate their wire rope using heavy highly viscous MIL-SPEC greases. The testing incorporated over 10 demonstrations at various US locations.

In all cases, the system's performance surpassed any other method previously used in their preventative maintenance schedules (PMS). As a consequence, this new wire rope lubrication system has now been placed on the U.S. Navy Allowed Equipment List (AEL) and three of the models have been assigned a National Stock Number by the Defense Construction Supply Center. Over three hundred

Kirkpatrick Systems have been placed with government sources worldwide. These include the U.S. Navy, U.S. Army, U.S. Army Corps of Engineers, U.S. Maritime Administration, N.O.A.A and the U.S. Coast Guard.

BENEFITS

Graco's Presidents and Fireball grease pumps were chosen for this system because of the consistency of the pump's performance in a wide range of maintenance applications coupled with the quick response of Graco's management and technical support group to The Kirkpatrick's Group's needs. This has helped The Kirkpatrick Group give quick service response to their customers worldwide.

The dependability and simplicity of the Kirkpatrick system has changed the way wire rope maintenance is performed worldwide. Input from hundreds of users has confirmed that when used properly, this wire rope lubrication system will significantly increase the life of wire rope.

These systems have been designed so that in only one application, wire rope can have its surface and grooves scraped clean of product buildup and grit while at the same time any new lubricant is uniformly applied to the newly cleaned surface and injected into the very core. Moisture trapped in the internal strands is forced out and replaced with the new lubricant. All systems are compatible with low as well as high viscosity lubricants.

For additional product information or the name of a local authorized Graco distributor, call toll free 800-367-4023 in the U.S.A.

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