

The Line Monitor

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LCI monitor systems for decoking

Flowserve selects MTNW for decoking system retrofits

Measurement Technology NW has recently provided Flowserve Corp. with tensiometers and LCI displays for monitoring the operational status of their decoking systems.

Coking is an oil refinery process that consists of heating a heavy oil stock in order to "crack" its long-chain hydrocarbon molecules into usable distillate components, leaving behind a product known as petroleum coke.

Coking is often done in dual-drum units that are up to 30 feet wide by 150 feet tall. Some coking units produce as much as 5,000 tons of coke per day. Refineries normally have 2 to 4 of these units operating continuously, but newer refineries can have up to 16 units.

Petroleum coke is a hard, porous, charcoal-like substance that is used in many commercial applications, but cutting it out of the drum is difficult.

For over 100 years Flowserve has specialized in high-pressure coke cutting tools designed to remove finished coke and prepare the drum for its next processing cycle. Flowserve's most recent cutting head and pump produces 4,500 psi with 1,200 gpm throughput that can cleanly empty a coking drum with only 2-4 hours of automated cutting.

IN THIS ISSUE:

- LCI Decoking System Retrofits
- New LCI-80 Display
- Ingersoll-Rand Hoist Controls
- Made in the USA!

However, during this process cut coke will often fall down on the waterjet head and trap it in the drum. To alert operators of this condition, Flowserve chose MTNW's 3-sheave RL-1013K tensiometers (dynamometers) tied to PLC controls to understand where the jet is in the drum (line payout), how fast the jet is being lowered (line speed) and how much weight is on the jet (line tension). This kind of accurate line control data allows operators to increase both personnel and property safety factors.

The RL-1013K tensiometers were designed for maximum sensitivity under 0-6,000kg line tension loads, and are rated for hazardous Class 1 Div 1 environments. Both the force transducer and rotational sensors were supplied with ATEX certification.

More than 150 refineries around the world rely on FLOWSERVE equipment for their hydraulic decoking systems.

These devices feature easy wire rope installation via an instrumented (and removable) center sheave, allowing the RLT to be mounted on the line without unspooling or removing end terminations.

Quality is evident throughout, with every RLT unit constructed from powder-coated alloy steel with 316 stainless steel fasteners, 4140 hardened steel sheaves, and spherical roller bearings with external seals.

Whatever your application, from decoking, to rig mooring, to towing and ship assist work, let us build a "cutting edge" system for you!



New LCI-80 Display



Measurement Technology NW introduces the newest member of its rugged, LCI display line, the **LCI-80**. This smart, affordable display is the ideal replacement for panel meters and analog gauges, and offers the perfect balance of compact size and high-performance functionality.

The LCI-80 is a great choice for winch, hoist, crane, and/or instrumented sheave applications requiring high visibility, high reliability, and need to monitor just a few key variables. Its crisp EL (electroluminescent) screen - a technology originally developed for military jet fighters - is easily seen in direct sunlight. A 170-degree viewing range provides remarkable visibility from all angles, making the LCI-80 excellent for outside use or in-cab operations. Measuring approximately 4 x 5.5 x 2.5", this petite powerhouse delivers all the performance you need while consuming minimal counter, cab, helm, console, or lab space.

DynaWinch, a world leader in the downhole services industry, is using the LCI-80 to view winch speed and payout on their wireline trucks, and we're pleased to report that customer feedback has been very positive!

"The LCI-80 is compact, fast, easy to work with, and very readable. When our trucks are out in the field lowering specialized sensor packages 15,000 to 20,000 ft down a well bore, the LCI-80 is the display we trust for accuracy and reliability, even in the extreme temperature ranges we see up in the Canadian oil fields." said Albert Roy, President of DynaWinch.

Five fully-sealed pushbuttons within a heavy-duty 316 stainless steel front panel access an easy-to-follow English language menu for field calibration changes, I/O channel configuration, alarm settings, network settings, and screen layout - all intuitive and right at your fingertips. Payout and line speed are displayed

Monitor speed and payout in winch, crane, sheave, or any rotating shaft application. For use wherever accurate and reliable line control is required.

on a bright 160x80 EL display for unmatched readability in all light conditions. Two I/O data channels and serial networking capability add flexibility, and the LCI-80 can be linked with other LCI-80's configured as remote displays to create a full

LCI-80 Features

- Full programmability via English language menus.
- Four alarms, each independently linked to any high/low setpoint parameters.
- Configurable parameter position, scale, and units.
- Menu-based speed response tuning.
- Ethernet (USB) interface, network configurable.
- On screen calibration, diagnostics, and configuration security.
- Enclosure size: H3.9" x W5.6" x D2.5"
- Operating Temperature -40°C to 70°C (standard).
- Weatherproof front panel. Watertight rear enclosure option available.
- Two output relay channels, SPDT.
- 9-36VDC power (8W).

monitoring network. The LCI-80 will also be of interest to anyone involved in smaller winch applications. Operators currently using panel meters and analog gauges now have an alternative that lets them enjoy the benefits and value of LCI technology.

Imagine your current LED panel meter system after an upgrade to the LCI-80. No more blurry numbers that can't be read from a distance. No more waiting for the unit to "catch up".

No more babying an instrument housed in a plastic case that was never meant for real-world working conditions. No more anguish over limitations that prevent system expansion or modification. With the LCI-80, you can say "problem solved".

Ingersoll Rand using MTNW to build air-hoist control consoles

Ingersoll Rand is a global diversified industrial firm providing products, services and solutions for both commercial, industrial and residential industries. Founded in 1924, their Seattle, Washington facility is home to IR's world-class Winch and High Capacity Hoists Sales, Engineering, and Manufacturing group.

IR and MTNW have enjoyed a 20 year relationship. During that time we've supported IR in many different ways,

speed and (specifically) initiate an overspeed alarm on their Force 5 "Onshore" Man Rider winch systems.

To satisfy ANSI A10.22 requirements, the LCI-90 was chosen to monitor and indicate overspeed conditions so that the winch could be used to lift people. When coupled with rotational sensors specified and provided by MTNW, as well as a rechargeable battery system, IR's custom Line Speed Monitoring System was born.



monitoring system that would meet these new specifications. After a review of the BOP Handling System, we identified four areas where our engineers could apply their expertise:

- 1) Determining how and where to apply force transducers to the Hoist.
- 2) Determining how to best provide operators with a unified view of the four hoists used in each BOP Handling System. This led to the application of our LCI 4X Tension display, which can simultaneously monitor four tension inputs.
- 3) Revising the LCI firmware so the display's over-tension alarms interlock to the hoist controls.
- 4) Fabricate/wire the entire control console and associated j-boxes for the system, and provide the necessary equipment and onsite expertise for hazardous environment installations.

Measurement Technology NW is an authorized UL Panel Shop, so console fabrication and wiring was well within our capabilities! The first of these new control consoles and MTNW instrumented hoists will be deployed in Sept 2009.

Ingersoll Rand BOP Handling Systems are designed to meet or exceed specifications issued by the following regulatory bodies – American Bureau of Shipping (ABS), Det Norske Veritas (DNV), and Lloyds Register of Shipping (LRS) for the oilwell drilling industry.



A current MTNW project involves the Ingersoll Rand BOP (Blow Out Preventer) Handling System. The BOP Handling System consists of four 50-ton hoists with motorized trolleys attached to a common load (the BOP).

The four hoists/ trolleys are operated from a single control station which allows each individual unit, or any combination of units, to be used as required.

Hoists are equipped with an integral load sensing/overload prevention device that enables the

operator to monitor and distribute weight equally, thereby preventing inadvertent overloading of any hoist during operation.

The system works well, but in the last 12 months the American Petroleum Institute, looking to improve industry safety records, developed a new operating protocol for offshore oil and gas rigs in which all hoist loads must be overload-limited to within 10%. MTNW was called in to help design a

and examples of our projects include:

- Electric hoist motor/brake control
- Defining and installing strain gages on a new winch to acquire stress and strain data for FEA evaluation
- Air motor test stand w/regenerative AC variable frequency drive
- Custom line speed monitors with battery backup

Several years ago IR asked MTNW to come up with solutions for monitoring



Don't miss hearing what our customers have had to say about the LCI system and the after-the-sale service provided by Measurement Technology NW. As of this newsletter's publication date, eight Project Profile stories have been posted for your review on the

MTNW website, under the section titled "Background". Use this link (<http://www.mtnw-usa.com/linesystems/casestudies.html>) to access all of them. New project profile stories are posted on a regular basis, so check in often for the latest MTNW customer feedback.

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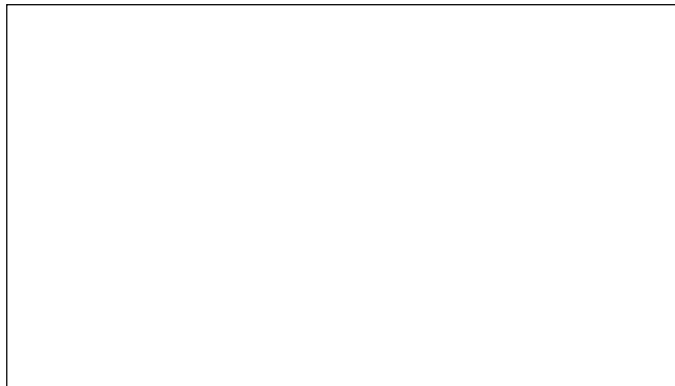
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Measurement Technology NW designs and manufactures rugged, multi-channel winch line control instruments used to monitor speed, payout, and tension (both cable and chain) in single or multi-winch systems used for ROV/equipment deployment, barge and platform positioning, fixed-place mooring, drawbridge controls, helicopter or ship towed arrays, mining and oilfield drilling, and wherever accurate and reliable line control is required.



MTNW now building tensiometers at our Seattle facility

Measurement Technology NW has added production capacity at our Seattle location and is now building all running line tensiometers here - from the little RL-1020K (20KIPS) to the big RL-40800K (800KIPS).

Every RLT unit is constructed from powder-coated alloy steel with 316 stainless steel fasteners, 4140 hardened steel sheaves, and proven, premium quality sensors.

When paired with an LCI display, these systems provide real-time line

parameter monitoring and maximum flexibility in remote viewing, sensor calibration, and data logging.

From single-winch installations to complex rig or vessel monitoring



networks, MTNW equipment is fast, accurate, easy to use, and so reliable that every LCI display we've built is still performing out in the field.

Look for MTNW at Oceans '09 in Biloxi, MS October 26-29, 2009. Our LCI displays, tensiometers, sensors, and software will be on display at Booth #619.

Interested but won't be attending Oceans '09? Then give us a call at 206-634-1308, or send an email to lici@mtnw-usa.com.