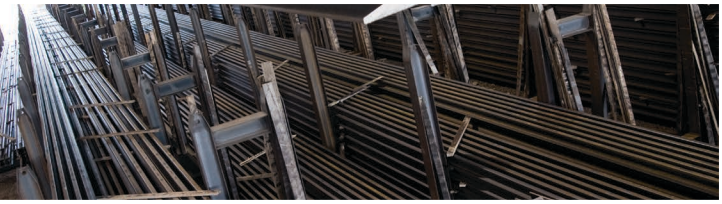


21ST ANNUAL CRANE SYMPOSIUM

08–10 JUNE 2014

PITTSBURGH, PA., USA

ABOUT THE COURSE

The symposium will deliver practical information and experiences from crane maintenance personnel, crane manufacturers, equipment manufacturers and engineering consultants who strive to make electric overhead traveling (EOT) cranes and their runways the safest, most reliable, durable machinery and equipment in the industry. This two-day program will include presentations focused on safe work practices and ergonomics, electrical, mechanical and structural maintenance techniques, crane inspection technologies, and best practices in EOT crane modernizations. As part of the Crane Symposium program, the Crane Innovator of the Year Award winner will be announced, recognizing the individual who has brought forth the latest in technology, or increased efficiencies in operational and maintenance practices for the continuous improvement of heavy industrial cranes.

WHO SHOULD ATTEND

Plant maintenance staff; applications, electrical, mechanical, safety, service and design engineers; operations and maintenance personnel and management; and those people who supply parts, equipment and services to the industry. Anyone who has responsibility for cranes and crane service and is interested in improvements and incidents in this area should attend.

SCHEDULE OF EVENTS

SUNDAY, 8 JUNE 2014

4 p.m.
Registration

5 p.m.
Reception

MONDAY, 9 JUNE 2014

7 a.m.
Registration and Continental Breakfast

8 a.m.
Welcome

8:15 a.m.
Advancements in Crane, Crane Rail and Structural Measurement
Mike Falk and Bobby Rennaker, Falk PLI
The presentation will review case studies which include performing crane rail surveys during crane operation, without shutting down operations and while meeting U.S. Occupational Safety and Health Administration (OSHA)

standards. The presentation will include a discussion of various crane rail and crane square measurement practices. This practice saves valuable production time and allows time before an outage for planning, specification and bidding of maintenance and repair.

8:45 a.m.

Crane Maintenance at ArcelorMittal Cleveland Flat Carbon

Bill Rinehart, ArcelorMittal Cleveland

The crane maintenance program at ArcelorMittal Cleveland Flat Carbon Integrated Steel Mill will be presented. Crane maintenance from visual inspections to predictive technologies is employed to ensure the reliability and sustainability to production needs.

9:15 a.m.

Redundant Controls for Process Cranes and the Impact

Troy Hall, Terex Services

This discussion will include what redundant controls are, what is required of them, and how to design and implement them.

9:45 a.m.

Break

10 a.m.

Real-Time, Condition-Based Maintenance

David Cunningham, Hoist & Crane Service Group

Many have striven to achieve the standard of real-time, condition-based maintenance, but have been unsuccessful due to available technology or economics, or both. Now the two have intersected. It is now possible to take an old crane and make it "smart." With today's technology, an older crane can now tell the operator when maintenance is due rather than relying on schedule calendar intervals or run to failure methods. By having the crane "talk," maintenance costs can be reduced up to 66%.

10:30 a.m.

U. S. Steel Crane Mechanical Repair Training

Joe Bavuso, U. S. Steel – Gary Works

Hands-on instruction in the best practices for safe and efficient mechanical repairs of EOT cranes.

11 a.m.

Options of Crane Rail Joining and Consequences

Fred Kaster, Atlantic Track & Turnout Co.

11:30 a.m.

Using Thermography for Crane Inspections

Matthew Bookholt, ArcelorMittal Burns Harbor

How thermography can be and has been used at ArcelorMittal Burns Harbor for the diagnosis of electrical and mechanical problems.

Noon

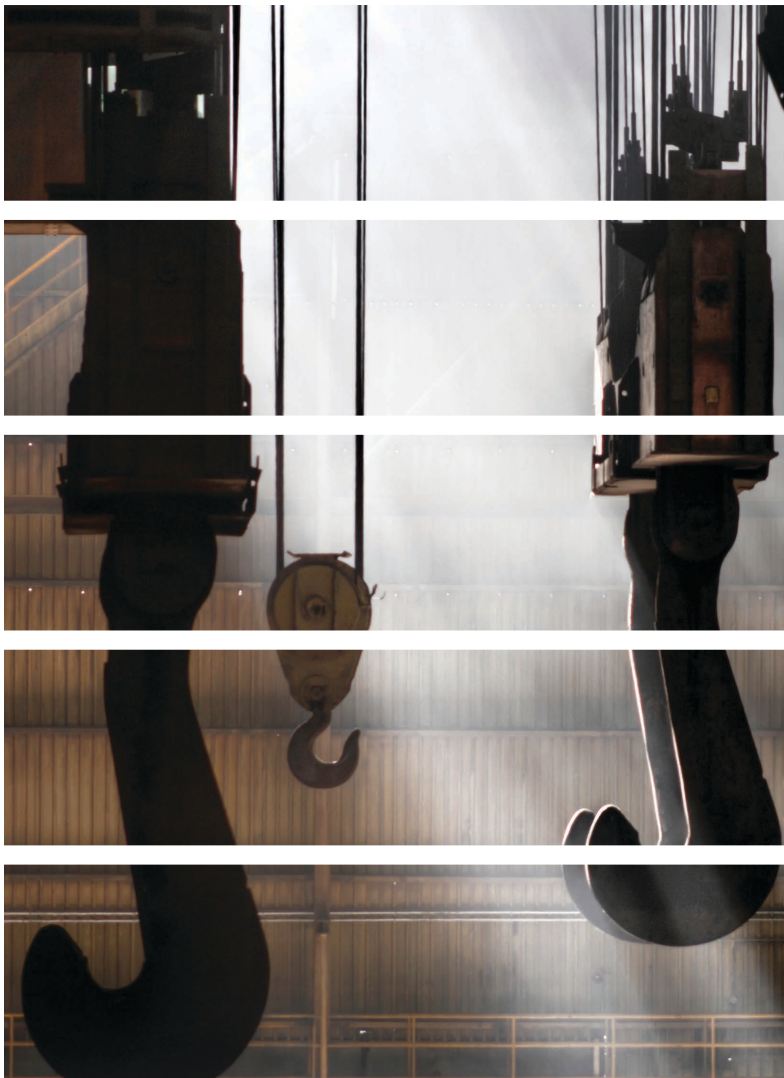
Lunch

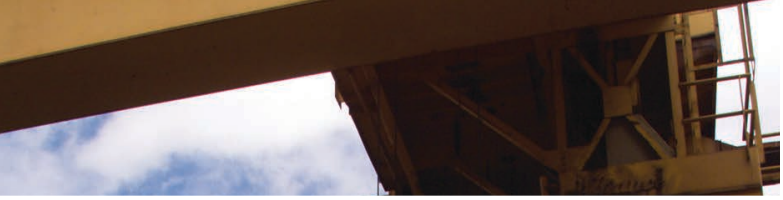
1:15 p.m.

Crane Companies That Endure Have a Solid Past and a Positive Future

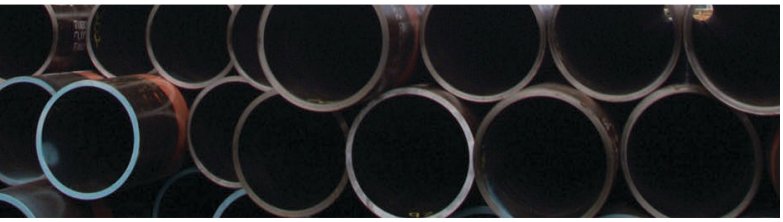
Edward Yakos, Whiting Corp.

Very few crane companies exist today that have a long history of manufacturing safe and reliable industrial overhead cranes. Companies that do have such a history can attribute their success to ever-evolving knowledge of the crane industry, extensive engineering capabilities in the design and innovative development of overhead cranes, and continuously improving manufacturing expertise, including large productive gains and conservative financial resources that never lose sight of the bottom line. They also have successfully satisfied their customers and have placed a deep focus on this important factor. This presentation aims









to provide the history of crane manufacturers in the United States, as well as discuss the characteristics and capabilities that few crane manufacturers have been able to sustain to remain successful in the overhead crane industry.

1:45 p.m.

Using Modern Technology to Increase Safety and Get the Most Out of Your Cranes

Rich Warriner, Flow In Motion LLC; and Ajay Bajaj and Gerry Prezeau, Rotator Products

By combining load sensing, load limiting, position sensing, data logging, communications and computer logic, today's cranes can work longer, safer and smarter than ever before, with reduced maintenance costs and greater reliability. This presentation discusses how multiple cranes and hoists can safely work together through load sensing, summation and communication. It explains how load sensing, position sensing and communication can monitor column loading with multiple cranes on adjacent runways. It lays out the method and advantages of monitoring hook loading and crane functions in real time to establish the most effective and efficient maintenance program.

2:15 p.m.

Break

2:30 p.m.

Affirmative Abrasion: Friction Materials and Industrial Braking Systems Demystified

Chris Koralik, Kor-Pak Corp.

This presentation will attempt to educate the audience on ways to achieve optimal performance of friction materials and industrial braking systems in the realm of EOT cranes. This will include sharing facts, case studies, information about new developments/advancements in research and technology, etc., that allow end users to reduce their costs/downtime and achieve enhanced performance and efficiency from their equipment.

3 p.m.

Predictive Maintenance for Automated and Manual Overhead Bridge Cranes

Karl-Heinz Foerderer and Tom Anderson, PSI Technics Ltd.

Whether your bridge cranes are fully automated or include operator control, understanding when to conduct maintenance has historically been a process based on the experience of the operator or maintenance team; crane availability during management-mandated shutdowns; a calendar schedule; or in the worst case, unplanned and forced maintenance after disturbances. But how do you know if any of these methods is really what's best for the crane system? With the advent of new communication protocols, positioning approaches and other technologies, there are more opportunities than ever before to capture real-time and relevant data about how fast a crane moves, when it moves, how fast it accelerates, how often it creeps into position or overshoots its position, how much energy it consumes during movement, how much load the crane is carrying, and more. Learn the importance of being able to capture and report on all of this relevant data and how it can be used to alert management and crane maintenance teams to truly provide the opportunity for predictive maintenance. By knowing when to conduct maintenance tasks, not only will you extend the life of all critical crane/system components, you will also ensure you are not wasting money by overmaintaining cranes.

3:30 p.m.

Component Improvements on Lifting Equipment

John Novak, Siemens Industry Inc.

The presenter will break down the industrial lifter by components. The industrial lifter is known as a tong and has a variety of components. The industrial lifter is the hand of the crane. Also discussed will be components based on safety, economics, maintenance, performance, environmental, turnaround time and space constraints.

4 p.m.

Panel discussion

6 p.m.

Dinner at Hofbäuhaus Pittsburgh

TUESDAY, 10 JUNE 2014

7 a.m.

Continental Breakfast

8 a.m.

Welcome Back

8:15 a.m.

Application of Variable Frequency Drives to Traverse Motions

Bob Schmitt, Magnetek Material Handling

Variable frequency drives (VFDs) are applied to overhead crane hoist, bridge and trolley motions in a wide array of applications. Bridge and trolley motions each pose their own unique application and design challenges based on the motor configuration, crane use and operator expectations. These factors can be accounted for with VFDs through the consideration of a wide range of drive configurations and speed control algorithms.

8:45 a.m.

Learning to Maintain Multiple Crane Designs

Robbie Sturgill and Dennis Gates, Severstal Columbus

European crane designs are different from cranes designed in North America. This has provided an opportunity for maintenance personnel to understand these differences and learn to maintain both crane designs.

9:15 a.m.

U. S. Steel EOT Crane Safety Rules

Chris Petrouski, U. S. Steel – Gary Works

Overview of preplanning and permitting for work conducted on or around U. S. Steel's EOT cranes.

9:45 a.m.

Break

10 a.m.

Life Prediction in Industrial Equipment

Bin Wu, Purdue University – Calumet

To ensure continued operations, many large-scale industrial processes undergo scheduled maintenance and repairs. Due to their long operating life, many of these processes use equipment designed without the aid of computational methods. The application of a modern computational method such as finite element analysis can enhance maintenance efficiency by helping to identify key structural areas within an equipment assembly. This paper proposes a general methodology to be applied to existing or proposed large-scale industrial equipment. The six-step methodology presented uses the combination of finite element-based structural simulations, fatigue life modeling based on load conditions experienced during standard operations and three-dimensional visualizations. Simulation results are used to identify areas with critical levels of stress or structural fatigue. The created model is then validated through the simulation of an industrial assembly with the integration of inspection data and the comparison of results with known future damage. The results can then be used by operators and engineers to refine downtime scheduling, improve inspection plans or identify changes to be made to the existing or planned structure.

10:30 a.m.

Crane Wheel Flange Lubricator Comparison Case Study

Bill Wagner, ArcelorMittal Indiana Harbor

A comprehensive trial comparison of two crane wheel flange lubricator systems at ArcelorMittal Indiana Harbor West.

11 a.m.

Introduction of the AIST Crane Maintenance, Inspection and Repair Guideline Handbook

Frank Petrek, Xtek Inc.

11:30 a.m.

Further Development of Crane Usage and Maintenance

Craig Chisholm, Severstal Dearborn, and Joel Flatt, Whiting Corp.

Overview of overhead bridge cranes installed in the new pickling line and tandem cold mill facility at Severstal in Dearborn, Mich. Discussion will include: how the cranes are being utilized, how the cranes are performing and how the cranes are being maintained.

Noon

Lunch

1:15 p.m.

Crane Innovator of the Year Presentation

Kevin Ormanoski, Nucor Steel Memphis Inc.

1:45 p.m.

TR13 Discussion

AIST Mill Buildings Subcommittee

2:15 p.m.

Break

2:30 p.m.

A Retrofittable Crane Weighing System for Optimal Process and Service Interval Control: Compliant With European Crane Standards

Donald Andres, Vishay Precision Group

Crane standards in Europe have adopted methods that mandate a "safe working period" (SWP) for hoists with capacities above 1,000 kg. Compliance is accomplished by measuring the "full load hours" and comparing that to the remaining SWP of the crane. By constantly measuring and logging the loading spectrum, an economical and robust solution can be retrofitted on existing cranes. An accurate and repeatable solution is achieved through a combination of state-of-the-art strain-gauge-based load cells and advanced load cell signal processing electronics and software.

3 p.m.

Crane Networking for Maintenance and KPI Data Collection

John Rowe, Schneider Electric

AM/NS Calvert required the design of a plant-wide crane monitoring system to record all maintenance and KPI data. The system was designed to monitor, record and alarm on operational data as well as recording all operational KPIs. The solution stores all information in a historical database which allows viewing and trending all the way to day one operational data. System monitoring and alarms allow for predictive maintenance planning.

3:30 p.m.

Managing the Clean, Lube, Inspect and Tighten Program

Bankim Skula, JSW Steel

OR

Case Study on Camber Fault, Wheel Alignment and Span Fault. Live Correction

Wayne Kennedy, Konecranes

4 p.m.

Panel Discussion

4:30 p.m.

Conference Adjourn

REGISTRATION FEES

Advance registration by 28 April 2014: Member US$795, Non-member US$1,010. Registration fee after 28 April 2014: Member US$895, Non-member US$1,110. Registration fees include Sunday reception, continental breakfasts, lunches and continuous breaks Monday and Tuesday, dinner at the Hofbräuhaus Monday evening, and a course workbook.

>> REGISTER NOW

COMPANY DISCOUNT

Three or more individuals from the same facility attending any one seminar can receive a 10% discount per person. All registrations must be received together along with payment to qualify for the discount. Not applicable with any other discount.