

# Evolution

SUMMER 2007

A MAGNETEK MATERIAL HANDLING PUBLICATION

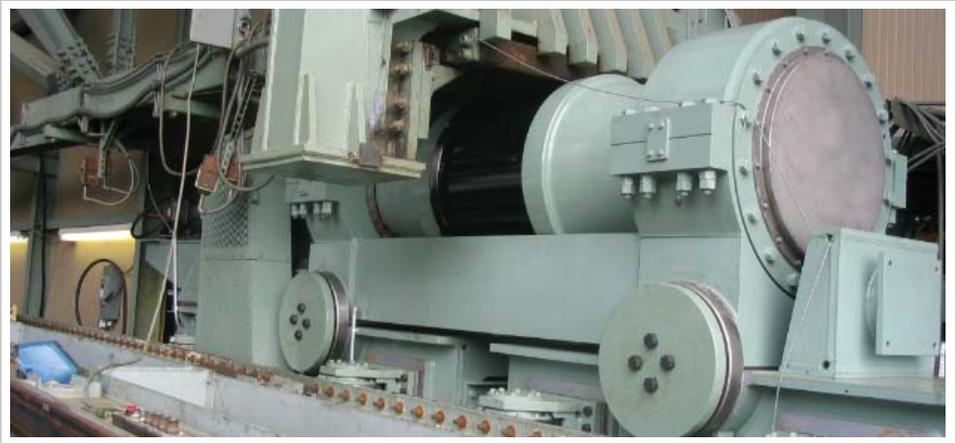
## Inside this issue:

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## MONDEL BRAKES HELP WIN THE GAME!

Miller Park, home to the Milwaukee Brewers Major League baseball team, was in need of some "relief" — and Magnetek Material Handling assisted with the "save."

This one-of-a-kind ballpark features traditional architecture with a unique fan-shaped retractable roof. The 25-million pound, 7-panel design opens and closes in about 10 minutes. Each moveable panel is supported at its pivot end (behind home plate) and at its running end (beyond the outfield). Ten bogies (referred to as end-trucks in the crane industry because they consist of the truck frame, wheels, bearings and axles which support the bridge girders) open and close the roof.



These bogies run on a curved rail system. Although Miller Park's retractable roof is unique and provides protection from the elements, it has required design changes to improve performance.

### Miller Park's Operational Issues

In 2003 the retractable roof at Miller Park required improvements at the running end of

each of the movable panel. The Southeast Wisconsin Professional Baseball Park District (SEWPBPD), part owners of Miller Park, hired the engineering firm Hardesty & Hanover, LLP of New York to analyze the situation and provide a recommendation.

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# MONDEL BRAKES HELP WIN THE GAME! - continued

## What is a Bogie?

A Bogie is a type of short end truck that is attached to the end of one girder or to a connecting member if more than one truck is utilized per girder. Bogies are used when the design of the runway necessitates more than four wheels on the crane.

## Miller Park's Bogie System

A bogie system moves each roof panel at Miller Park back and forth and is comprised of three basic systems:

- (1) the guide system
- (2) the 4-wheel bogie containing the drive train assembly
- (3) the rail support system

The guide system guides the bogies as they travel along their circular path, as well as provides restraint against tipping over. In turn, the bogies transfer the weight from the moveable panels to the fixed structure through the rail support system. Thruster brakes stop and hold this movement. The bogie's frame supports subsystems such as: wheel assemblies, an expansion assembly, drive machinery, upper guide rollers, and lower guide rollers. The rail support system transfers the weight of the roof from the bogie wheels to the fixed structure.

to Mike Astemborski, Sales Manager for Magnetek's Mondel Brakes, "Because of our extensive application expertise, quality and service, we were chosen over other brake companies." Astemborski also added, "It was a great win that a Milwaukee-based company was selected to be a part of such an important project. We are now associated with a major Milwaukee landmark!"

Whether you're specifying new equipment or modifying your existing mechanical drive system, Magnetek offers a Mondel Braking System to meet the requirements of your specific application. Our product range includes:

- [General-purpose industrial shoe brakes](#)
- [AIST-NEMA rated mill duty shoe brakes](#) for use in harsh environments
- [Severe-duty disc brakes](#) for the most demanding high-speed, high-performance applications
- Custom "drop in" brakes designed to match the footprint of the brake to be replaced
- Our "[Brake by Wire](#)" [Braketronic™](#) System, which provides adjustable torque control to Mondel Hy-Thrust™ Operated Shoe or Disc Brakes

## H&H Bogie Recommendations



After extensive evaluation, Hardesty & Hanover recommended the bogie system be redesigned to improve performance. All 10 existing two-wheel bogies would be replaced with four-wheel bogies containing the drive train assembly. The drive train consisted of a new motor, brakes, and gear box assembly. The new bogie would now allow the weight of the load (roof panels) to be equally distributed over four wheels versus the original two wheels—all within the height, width, and length restrictions defined by the existing structure.

## Brakes are Critical Component of Drive Train System

Brakes are an integral component of the bogie's drive train system. They assist with stopping and holding the roof panels. It was essential that the brakes used in this project feature a rugged design that could consistently perform in harsh environments. Hardesty & Hanover selected Magnetek's [Mondel 10" AIST Mill Duty AC Thruster Brakes](#) because of our proven reliability on previous Hardesty & Hanover moveable bridge projects. Our high quality and cost-competitive brakes offered easy initial installation, adjustment, and start-up, as well as three limit switches that provided feedback to the control system. Our nitrided steel components were also viewed as critical to future performance. According

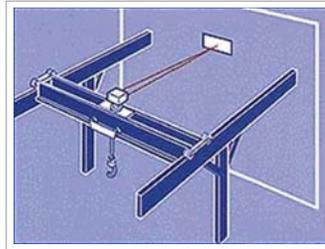


Whatever your needs, Magnetek can provide the solution. Call your local Magnetek Sales Representative or Magnetek's Brake Sales Department at 1-800-288-8178.

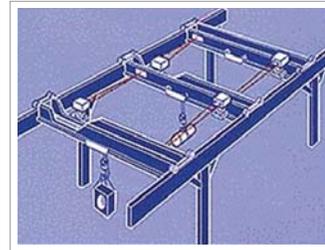
Final note—the initial testing of the new bogie system was successful. Miller Park's NEW roof and the Milwaukee Brewers were ready for a FANtastic 2007 season. Play ball!

# Prevent Collisions Before They Happen

When you invest hundreds of thousands of dollars in overhead cranes, you can't afford even one collision caused by operator error. Why not prevent accidents before they happen? Magnetek's ReFlx™, ReFlx Plus™, and LaserGuard™ Distance Detection and Collision Avoidance Systems watch over your operation, silently protecting your most valuable assets—your people, your facility, and your cranes. These collision avoidance systems enhance the performance of your material handling operation by preventing crane to crane-or- crane-to-object contact. And avoiding collisions means reduced maintenance costs and increased operator safety! Magnetek offers one of the largest selections in collision avoidance systems available on the market—we have a system that will meet your application needs.



For protection from crane-to-wall collision, install one collision detection system on each crane.



For protection from crane-to-crane collision, each crane requires a collision detection system in all directions. In this example, the three cranes on one bridge should have a total of four collision avoidance systems.

## Here's How They Work

Magnetek's Collision Avoidance Systems utilize an infrared signal that is transmitted at a target or object. The receiver senses the reflected signal from the target or object. The information is processed and the appropriate relay opens, providing for slow down or stoppage of the motion. The type of protection needed for the application will determine the number of systems required.

## We'll Help You Choose the System that's Right for Your Application

### ReFlx™ 120 and 120 "Plus" Systems

ReFlx 120 and 120 "Plus" Systems are designed with reliability and economy in mind. They feature a solid-state control board in a small enclosure, making them easy to install. This means they can be used as a stand-alone unit, or be removed from their enclosure and mounted as one piece on your existing control sub-panel. ReFlx Systems are ideal for use with a variety of control technology, including all types of adjustable frequency drives and stepped controls.

Magnetek offers two types of ReFlx Collision Avoidance Systems.



### ReFlx 120

Our ReFlx 120 System features a two-channel infrared sensor, which can be adjusted to give separate outputs for each channel at distances from 20 to 120 feet. The most commonly wired configuration is the use of one channel to provide the primary stop command to the motion control, while the second channel is used as a redundant stop command.



### ReFlx 120 "Plus"

To provide an extra measure of safety to your collision avoidance system, the ReFlx 120 "Plus" offers you the addition of a second, shorter range sensor. The first sensor, which has two channels, is most commonly wired to use the first channel as a "slow down" command or warning signal. The second channel is used as a primary stop command. The second sensor has a single channel, with a range of 1.5 to 20 feet, and is most commonly used as a redundant stop command. The second sensor does not require a reflective target to be utilized.

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# Prevent Collisions Before They Happen - continued

## Telemotive LaserGuard™ System

With built-in self-monitoring and three adjustable control zones, LaserGuard is the premier choice for detecting and preventing crane-to-wall and crane-to-crane collisions.

The system uses self-monitoring optical lasers to monitor your crane's position. The most technologically advanced anti-collision system in the industry, LaserGuard is flexible enough to manage crane-to-crane and wall-to-crane operation. The rugged NEMA 4X housing and Class 1 laser have a rated life of more than 10 years. Plus, it's easy to install and maintain.

The Laser Guard has a range of 10-150 feet and can be adjusted for three individual contact closures within the range. For added safety, the system also features an alarm circuit that will alert you if the signal is not operating properly.

For additional information on Magnetek's Collision Avoidance Systems or other Magnetek Material Handling products visit [www.magnetekmh.com](http://www.magnetekmh.com) or contact us at 1-800-288-8178.



## Registration of 2008 Training Classes NOW OPEN

### Technical Training Program for IMPULSE®•G+/VG+ Series 3 and IMPULSE®•P3 Series 2 Drives

Dates	Days
February 12-14, 2008	Tuesday-Thursday
April 15-17, 2008	Tuesday-Thursday
June 17-19, 2008	Tuesday-Thursday
August 12-14, 2008	Tuesday-Thursday
October 14-16, 2008	Tuesday-Thursday

### Telemotive Remote Radio Control Products

Dates	Day
February 15, 2008	Friday
April 18, 2008	Friday
August 15, 2008	Friday
October 17, 2008	Friday

### Technical Training Program for OmniPulse DDC Drives

Dates	Day
March 11, 2008	Tuesday
May 13, 2008	Tuesday
July 8, 2008	Tuesday
September 9, 2008	Tuesday
November 11, 2008	Tuesday

Visit [www.magnetekmh.com](http://www.magnetekmh.com) and click Support. Or contact Lisa Dunkovich at [ldunkovich@magnetek.com](mailto:ldunkovich@magnetek.com) to register for training.



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