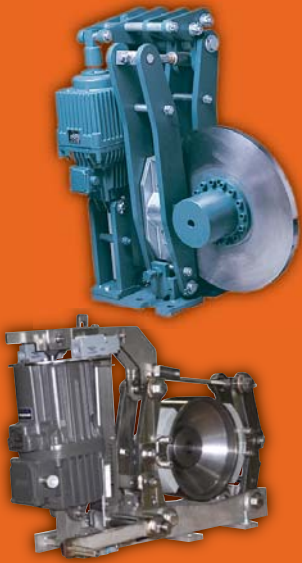




MAGNETEK

CONTROL AND POWER
DELIVERY PRODUCTS FOR
MARINE TERMINAL APPLICATIONS



MAGNETEK
MATERIAL HANDLING

Magnetek, a premier provider of innovative power control solutions to the material handling industry, brings that expertise to the control of marine terminals. Our state-of-the-art products, plus our extensive application engineering experience, make Magnetek the ideal complete control system solution for marine terminal applications.

WE CAN PROVIDE A COMPLETE MOTION CONTROL PACKAGE. OUR PRODUCTS ARE MADE IN THE USA AND INCLUDE:

- Mondel® Braking Systems
- IMPULSE® AC Digital Drives
- OmniPulse™ DC Digital Controls
- Drive Diagnostics
- Complete Control Panels
- I-Beam Festoon Systems
- AC Motors
- DC Motors
- Radio Remote Controls

We're your one-stop-source for cost-effective solutions to upgrade your existing marine terminal crane and manage on-shore applications.

MONDEL® BRAKING SYSTEMS

Mondel Brakes are designed with high performance, ease of use, reliability and safety in mind. Our advanced design features are ideal for applications requiring reliable braking with minimal maintenance and downtime.

AISE-NEMA MILL DUTY SHOE BRAKES

- 5"-30" diameter
- 10-11,000 lb. Ft. Torque
- AC Thruster, DC Magnet or Hydraulic

HEAVY DUTY DISC BRAKES

- 12"-50" diameter
- 50-30,000 lb. Ft. Torque
- Type ADT Brake conforms to AISE ratings and dimensions
- AC or DC Thruster
- Adjustable external torque spring with calibrated indicator
- Available in 230/460 Vac, 575 Vac, and 230 Vdc (special voltages available)

DROP-IN REPLACEMENTS

- Thrusters to fit existing brake installations
- Select manufacturer drop-in replacement brakes

COMMON BRAKE OPTIONS AVAILABLE

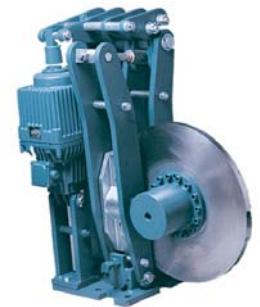
- Corrosion protection
- 304 stainless steel construction
- Externally adjustable, stepless time delays—for set, release or both
- Latching manual hand release
- Limit switches indicating brake release, brake set and hand release
- Actuator operating fluid covering a wide ambient temperature range is available
- Brake wheels or discs that may be mounted on motors as a complete package

ACCESSORIES

- Brake wheels supplied with finished bore and keyway or rough stock bore for finishing on-site
- Brake wheel couplings in geared or flexible grid versions
- Discs
- Discs/Hubs (Rigid)
- Discs/Couplings (Flexible)
- Stainless steel enclosures that stand up to the harshest environments; available with NEMA 3R or 4X protection



Mill Duty Shoe Brake



Heavy Duty Disc Brake



Thruster

Magnetek also offers general purpose shoe brakes with many of the same features and options – consult factory for more information.



IMPULSE®•G+

IMPULSE®•VG+

IMPULSE® AC DIGITAL DRIVES

Magnetek's Energy Engineered™ IMPULSE®•G+ and VG+ AC Digital Drives offer the latest in advanced technology. They provide unmatched performance, versatility, reliability and safety. We offer open loop vector and closed loop flux vector control that will meet the demands of your application.

- Crane and hoist-specific software features
- Motor torque proving at start
- Brake torque proving at stop
- Xpress Programming™ — allows programming initial setup in seconds
- Safe Operating Windows™ — reduces the possibility of programming unsafe parameters
- Load Sharing* — allows two or more mechanically coupled motors to be controlled in a master/slave torque control fashion
- Load Float™* — allows motor to be held in position at zero speed without setting the electric brake
- Brake Test* — allows testing of available brake torque
- Encoder Loss Detection* — signal loss detection at all times even when the motor is not rotating (during load float)

- Snapped Shaft Detection* — detects a broken coupling shaft or discontinuity in the drive train
- Built-in RS-485 communication (Modbus - RTU)
- Network communication options — provide reliable digital linkage among various system peripherals including Modbus+, Ethernet/IP, Modbus TCP/IP and Profibus DP
- Inverter control of wound rotor motors — convert existing wound rotor motors to IMPULSE variable frequency drive compatibility with a simple process.
- Application-specific software — available options include:
 - Sway control
 - Grab/bucket
 - Drive synchronization
- 120 Vac control logic
- UL, cUL and CE listed

*Features on IMPULSE•VG+ Flux Vector Controls only

IMPULSE DRIVE DATA

Ratings*	200-240 Vac, 7 to 346 AMP (1-125 HP) 380-460 Vac, 2.1 to 675 AMP (1-500 HP)
Overload Capacity	150% of rated load for 1 minute
Braking Torque	150% or more with dynamic braking (optional)
Speed Range	G+ Adjustable Frequency/Open Loop Vector Drives: 40:1 in V/F Mode (15 preset V/F Patterns, 1 Adjustable), 100:1 in Open Loop Vector Mode VG+ Flux Vector Drives: 1000:1
Operating Temperature	14° to 113° F (-10° to 45° C) (Consult factory for high ambient applications)

* 575 Vac available. Consult factory.



OmniPulse™ DSD



OmniPulse™ DDC



OMNIPULSE™ DC DIGITAL CONTROLS

OMNIPULSE™ DSD REGENERATIVE DRIVES

Easy to install and program, our OmniPulse DSD Drives provide reliable, energy-efficient DC control of shunt wound motors, while significantly reducing operating and maintenance costs. State-of-the-art performance, safety and troubleshooting features are built in.

FEATURES

- Crane and hoist specific software
- Motor torque proving at start
- Brake torque proving at stop
- Four quadrant AC-to-DC control
- Load Float™ allows a load to be held in position at zero speed
- Microprocessor-based built-in diagnostics
- Saves last 16 faults, automatic reset, or external fault reset
- Built-in motor overload protection

OMNIPULSE™ DDC DRIVES

The Energy Engineered™ OmniPulse DDC will improve the performance and reliability of your DC operated marine terminal crane, while minimizing downtime, maintenance expenses and energy costs. This microprocessor based, solid state, four-quadrant DC-to-DC control is designed for series, shunt, or compound wound motors. Most importantly, OmniPulse DDC will also improve safety at your terminal. Failsafe torque proving and load control software ensures the operator always has control of the load.

OmniPulse DDC was designed with comprehensive software that provides superior flexibility and allows for quick parameter changes (software upgrades can be flashed from a PC). These parameters allow the drive to compensate for the mechanical timing of the crane, increasing brake life and efficiency.

FEATURES

- Includes built-in intuitive diagnostics to troubleshoot crane performance and keep your system up and running (records 15 most recent faults)
- Available with tachometer feedback for up to 0.1% speed regulation
- Compact modular design
- Fully regenerative design maximizes energy savings
- Interfaces with IMPULSE•Link 4.1 Basic or WDS (wired or wireless), offering remote parameter modification and diagnostic capability

OMNIPULSE DSD AND DDC DRIVE DATA

	DSD DIGITAL REGENERATIVE DRIVES	DDC DIGITAL DC DRIVES
Input Ratings	230/460 Vac, 3-phase +/-10% 48 to 62 Hz	230-320 Vdc, 360-720 Vdc, -20%/+10%
Output Ratings	15-800 HP (DC output voltage proportional to AC input), 25-1270 AMP	5-500 HP, 30-2000 AMP
Overload Capacity	200% of rated load for 1 minute	150% for one minute 200% for three seconds
Braking Torque	200% fully regenerative	
Speed Range	1000:1 speed range with encoder	Application dependent
Operating Temperature	14° F (-10° C) to 130° F (55° C)	14° F (-10° C) to 122° F (50° C) enclosed
Certification	CSA Certified	

DRIVE SUPPORT AND DIAGNOSTIC TOOLS

Magnetek offers a complete array of drive diagnostic, monitoring and support tools including:

DATALOGGER/DATAPULSE

- This user-friendly recording device simplifies troubleshooting and gathers information for preventive maintenance. It plugs into the keypad pocket of the drive and allows operators to easily access the run, alarm and fault histories.

IMPULSE•LINK 4.1 WIRELESS DIAGNOSTIC SYSTEM (WDS)

- IMPULSE•Link 4.1 WDS is a Windows-based interactive drive software and hardware package designed to enhance productivity by allowing you to efficiently program, monitor and troubleshoot your drive from a remote location and PC.

IMPULSE•LINK 4.1 BASIC—INTERACTIVE DRIVE SOFTWARE PACKAGE

- IMPULSE•Link 4.1 Basic is a Windows-based interactive parameter management tool for a direct link to local IMPULSE controls.

DRIVE SIMULATION SOFTWARE

- This Windows-based program allows parameter programming and simulation of drive functions.

DRIVE TRENDING TOOL

- This Windows-based digital chart recording program allows real-time or off-line analysis of control system performance.

COMPLETE CONTROL PANELS

Magnetek's custom engineered panels with IMPULSE® and OmniPulse™ controls feature all the components needed to provide complete motor control for crane applications.

Built in Magnetek's UL508A certified panel facility and designed to your specifications, these panels can be customized with an unlimited number of configurations, components and accessories.

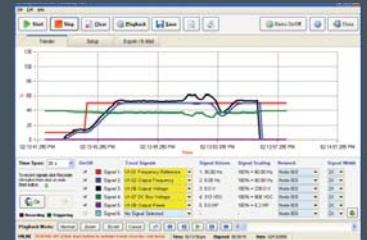
Available custom options include:

- Enclosures for caustic and other environments
- Wiring for radio remote controls
- Mainline contactors
- Rod disconnects
- Control transformers
- Flanged disconnects
- Main circuit breakers
- NEMA brake contactors
- Load and line reactors
- Air conditioning
- Cooling fans
- Heaters and thermostats
- Enclosure insulation
- Selector switches
- Indicating lights
- Door mounted keypads
- Horns/bells
- UL 508 certification

In addition, our skilled engineering staff can provide technical support and overhead handling expertise when quoting your project.

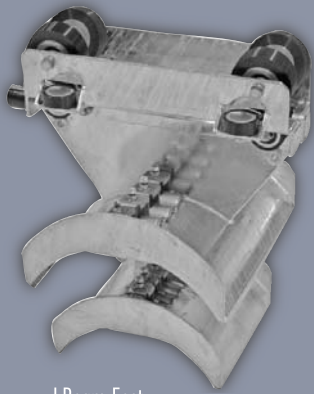


IMPULSE•LINK 4.1 WDS



Driving Trending Tool





I-Beam Festoon

I-BEAM FESTOON SYSTEMS

Magnetek's I-Beam Festoon Systems are perfectly suited for your marine terminal crane. They are designed for heavy-duty applications operating in a harsh environment.

FEATURES

- Standard 4" diameter trolley wheel
- Trolleys are manufactured from low carbon steel and hot-dipped galvanized
- Clamps are supplied to secure cable
- Capacity of non-flanged trolley wheel (with side guide wheels)
 - 1000 lbs. @ 400 ft./min.
 - 800 lbs. @ 600 ft./min.
- Urethane coated wheels
- Custom sizes available
- Stainless steel construction available

Whatever your requirements, Magnetek can provide the power and control you need in an I-Beam Festoon System. Consult factory for additional information.

MOTORS

As part of a complete solution, Magnetek's motors are the ideal complement to our control package when precision motion control and performance are a must.

AC MOTOR FEATURES

- Up to 1000 HP
- 1.0 Service Factor on PWM drives
- 1000:1 speed range when coupled with our IMPULSE•VG+ Flux Vector Drive
- Available—
 - Totally Enclosed Non-Ventilated (TENV) 60 Minute duty
 - Totally Enclosed Blower Cooled (TEBC) continuous duty
 - Totally Enclosed Non-Ventilated (TENV) continuous duty
- NEMA design A, optimized for operation with IGBT inverters
- Standard Class H insulation with patented winding system for use with IGBT variable frequency drives
- Class F thermostats (klixons) in all three phases
- Cast iron frame and brackets for strength and corrosion resistance
- 230, 380, 460, 575 and 690 volt, 3 phase, 60 Hz

CABLE ORGANIZERS

Keep cables organized with:

- Cable tie organizers – steel strips with a row of holes that can be used on the bottom of cable loops with heavy-duty nylon cable ties
- Bulk cable organizers – steel cable clamp used on the bottom of cable loops

CABLE PROTECTORS

The proper use of tow chains, tow cable and shock cords may be necessary to protect festoon cable from impact and acceleration forces.



Blue Max® Motor

DC MOTOR FEATURES

- Up to 800 HP
- Available in NEMA or IEC designs

COMMON MOTOR OPTIONS AVAILABLE

- Re-greasable ball bearings
- Moisture resistant insulation
- Special extended shaft to match mechanicals
- Drain plugs
- N/C thermostat
- Frame finished with corrosion-resistant paint or coating
- Certified motor test reports provided when required
- Encoders
- Space heaters
- Severe duty treatment
- Double shaft/taper shaft
- Brakes
- Inpro seals



RADIO REMOTE CONTROLS

Magnetek's radio remote controls are the ideal complement for your marine terminal crane and on-shore applications. Our radios provide safer operation along with increased reliability and production. These radios can be used with a variety of applications, including on-shore gantry cranes, shiploading conveyor or vacuum systems, and material loading onto auto trucks and rail cars.

We offer a complete line of radio products from open/closed pushbutton systems to complete plug-and-play hydraulic control packages engineered to your specifications, which increase productivity by reducing manufacturing costs, and provide safer operation with increased reliability.

Our bellybox transmitter options range from our compact MBT to the advanced XLTX, and each may be packaged with our versatile Flex M receiver. Handheld options include the rugged Flex EX series and the heavy-duty *telePendant* system.



FEATURES

- Wireless I/O modules reduce or eliminate wiring between sensors and the operator console
- Graphic display that shows operator functions, diagnostics, battery life, and other information
- Custom programmed to your application
- Available in two-way RF for applications that require information displayed to the operator, such as CAN-BUS parameters, alarms, sensors, or other information
- Frequency options include 400MHz, 900MHz, and 2.4GHz
- NEMA 4, stainless steel, and explosion proof enclosures
- Analog 0-10 Vdc, 3-6-9V interfaces available
- Digital inputs or outputs available
- Synthesized RF technology available for:
 - Unlicensed (FCC Part 15) 400 and 900MHz – dial in any of the 32 frequencies
- Frequency Hopping Spread Spectrum RF technology available for:
 - Unlicensed (FCC Part 15) 900MHz up to 125mW with 32 channels
 - Unlicensed (FCC Part 15) 2.4GHz up to 125mW with 32 channels



MAGNETEK'S UNBEATABLE SERVICE, TESTING, AND SUPPORT AVAILABLE 24/7/365

All Magnetek Material Handling products are backed with:

- On-site technical support
- Emergency control replacement
- Field start-up service available
- Complete application and engineering support
- Factory-certified dynamic performance testing available with every job
- On-site and in-house training programs



Our highly trained team of service technicians offers superior aftermarket support. We're always on call — available to you 24/7/365 days per year. Our team is unsurpassed at providing you with service and support — where and when you need it.



MAGNETEK
MATERIAL HANDLING

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TELEMOTIVE
ENRANGE
MONDEL**

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