



CONTROL AND POWER DELIVERY PRODUCTS FOR MARINE TERMINAL APPLICATIONS

MONDEL® BRAKING SYSTEMS
IMPULSE® AC DIGITAL DRIVES
IMPULSE® AC LINE REGENERATIVE SYSTEMS
OMNIPULSE™ DC DIGITAL CONTROLS
DRIVE SUPPORT AND DIAGNOSTIC TOOLS
COMPLETE CONTROL PANELS
CABLE REELS
I-BEAM FESTOON SYSTEMS
MOTORS
RADIO REMOTE CONTROLS



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:

- Mondel® Brake Products
- IMPULSE® AC Digital Drives
- IMPULSE® AC Line Regenerative Systems
- OmniPulse™ DC Digital Controls
- Drive Support and Diagnostics Tools
- Complete Control Panels
- Cable Reels
- 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.

AIST MILL DUTY SHOE BRAKES

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



HEAVY DUTY DISC BRAKES

- 8"-50" diameter
- 50-30,000 lb. ft. torque
- Type ADT Brake conforms to AIST 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

- Nitride Corrosion protection
- 304 stainless steel construction
- Externally adjustable, stepless time delays in both directions; set and release
- 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

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

IMPULSE® AC DIGITAL DRIVES

Magnetek's 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
- X-Press 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 configuration
- Load Float™* — allows motor to be held 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
- Motor Auto-Tuning built-in
- Communication — built-in RS-485 communication (Modbus - RTU)
- Network communication options — provide reliable digital link among various system peripherals, including Modbus RTU, PROFIBUS-DP, PROFINET, and Ethernet/IP, Modbus TCP/IP
- 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 Control
 - Drive Synchronization
 - Static Stepless Simulation
- 120 VAC control logic (24 VAC, 48 VAC, or 24 VDC optional)
- UL, cUL, RoHs and CE listed

*Features on IMPULSE•VG+ Flux Vector Controls only

IMPULSE DRIVE DATA

Ratings	200-240 VAC, 3 to 415 AMP (0.75-150 HP) 380-460 VAC, 1.8 to 1090 AMP (0.75-900 HP) 500-600 VAC, 1.7 to 200 AMP (1-200 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), 200:1 in Open Loop Vector Mode VG+ Flux Vector Drives: 1500:1
Operating Temperature	14° to 140° F (-10° to 60° C) (Consult factory for high ambient applications)



IMPULSE® AC LINE REGENERATIVE SYSTEMS

Magnetek's high performance AC Line Regenerative Systems are ideal for adjustable speed applications that include a high demand braking cycle. These industrial grade units take surplus regenerative energy from the motor and return it to the AC power source, reducing total energy consumption and improving energy efficiency.

IMPULSE®•D+ units are available with ratings up to 830 HP, while IMPULSE®•D+ HHP units are suitable for uses up to 2,000 HP. They can be combined with IMPULSE®•G+ or VG+ digital drives and sized to fit the expected regenerative need.

AC REGENERATIVE SYSTEMS PROVIDE:

- Energy efficiency
- Cost savings – payback can be seen in the first year
- Elimination of dynamic braking resistors wiring and maintenance



RATINGS

IMPULSE•D+	230V Class	460V Class
Input Voltage +10% / -15%	200-240VAC	380-480VAC
Input Frequency	50/60Hz ± 2%	
Motor Rated Current	15-400A	8-1040A
Horsepower Rating	5-150HP	5-830HP
Ambient Operating Temperature	-10 to 50°C (14 to 122°F)	
Power Factor	>0.99 at full load	
Overload Tolerance	150% for 60 seconds, 200% for 3 seconds	

IMPULSE•D+ HHP	460V Class	575V Class
Input Voltage +10% / -15%	380-480VAC	500-600VAC*
Input Frequency	50/60Hz ± 5%	
Motor Rated Current	414-2000A	
Horsepower Rating	300-1,750HP	375-2,000HP
Ambient Operating Temperature	-10 to 40°C (104°F)	
Power Factor	>0.99 at full load	
Overload Tolerance	150% for 60 seconds, 200% for 3 seconds	

*For higher voltage, contact Magnetek.

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 aloft at zero speed
- Microprocessor-based built-in diagnostics
- Saves last 16 faults, automatic reset, or external fault reset
- Built-in motor overload protection
- End of Travel Limits allows for slow down and stop inputs
- Micro-Speed™ provides precise speed control, minimising load swing

OMNIPULSE™ DDC DRIVES

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

- Built-in intuitive diagnostics troubleshoot crane performance and keep your system up and running (records 15 most recent faults)
- Tachometer feedback available for up to 0.1% speed regulation
- Compact modular design
- Fully regenerative design maximizes energy savings
- IMPULSE•Link software offers remote parameter modification and diagnostics

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	200-320 VDC, 360-600 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	150% of rated load for 2 minutes, 200% for 10 seconds	150% for one minute, 200% for three seconds
Braking Torque	200% fully regenerative	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 149° F (65° C) enclosed
Certification	CSA Certified	CSA Certified

DRIVE SUPPORT AND DIAGNOSTIC TOOLS

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

DATALOGGER

This user-friendly recording device simplifies troubleshooting and gathers information for preventive maintenance. Operators can easily access Run, Alarm, and Fault histories, drive parameters, and drive trending data.



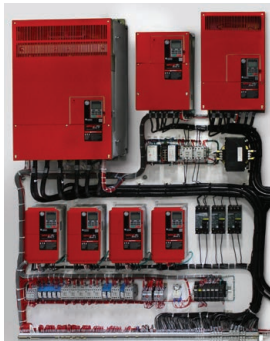
IMPULSE•LINK WIRELESS DIAGNOSTIC SOFTWARE

IMPULSE•Link 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 PC location.



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. In addition, our skilled engineering staff can provide technical support and marine terminal crane expertise when quoting your project.



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

CABLE REELS

Magnetek's wide range of cable reels are an optimal solution to effectively and compactly manage large lengths of cable for a variety of marine terminal applications, including ship-to-shore container cranes, port gantry cranes, deck and construction cranes, and hoisting equipment of all types.

INDUSTRIAL DUTY SPRING REELS

- General purpose applications
- Cost-effective
- Pre-engineered
- Available in five standard sizes

MOTORIZED REELS

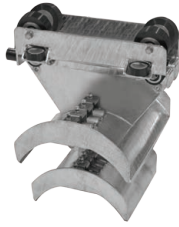
- Ideal for long travel lengths and high voltage applications
- Indirectly coupled or directly couple with Variable Frequency Drive (VFD) technology
- Ideal for high-speed and heavy-duty applications
- Custom engineered
- Available in multiple sizes

SLIP RING ASSEMBLIES

- Provides consistent power to rotating components, providing continuous revolution
- Custom engineered
- Available for any size or configuration
- Communication wires or fiber optic cables available



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
- Custom sizes available
- Capacity of non-flanged trolley wheel (with side guide wheels)
 - 1000 lbs. @ 400 ft./min.
 - 800 lbs. @ 600 ft./min.
- Urethane coated wheels
- Stainless steel construction available

CABLE ORGANIZERS

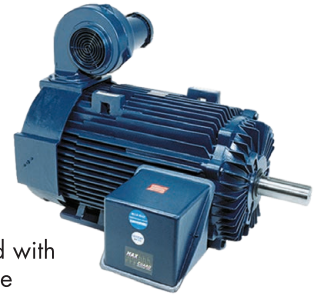
- Cable tie organizers – steel strips with a row of holes that can be used on the bottom of cable loops with heavy-duty nylon cable ties
- Bulk cable organizers – steel cable clamp used on the bottom of cable loops

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.

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

MOTORS



AC MOTOR FEATURES

- Up to 1000 HP
- 1.0 Service Factor on PWM drives
- 1500:1 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 Max Guard® 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

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 epoxy paint
- Certified motor test reports provided when required
- Encoders
- Space heaters
- Severe duty treatment
- Doubleshaft/tapershaft
- 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, container cranes, shiploading, conveyor, or vacuum systems, and material loading onto 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 Mini-MBT to the advanced XLTX, and each may be packaged with our versatile Flex M receiver. Handheld options include the rugged Flex Pro series and the heavy-duty *telePendant* system.

FEATURES

- Wireless I/O modules reduce or eliminate wiring between sensors and the operator console
- Graphic display shows operator functions, diagnostics, battery life, sensor information, 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) 2.4GHz high power with 32 channels



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

All Magnetek 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

WWW.MAGNETEKMH.COM
SALES@MAGNETEK.COM

MH1156_Marine Terminal Brochure
© Magnetek, Inc. 2017

HEADQUARTERS
N49 W13650 Campbell Drive
Menomonee Falls, WI 53051
Toll-Free Phone 800.288.8178
Toll-Free Fax 800.298.3503
Phone 1.262.783.3500
Fax 1.262.783.3510

CANADA FACILITY
161 Orenda Road, Unit 1
Brampton, Ontario
L6W 1W3 CANADA
Toll-Free Phone 800.792.7253
Phone 905.828.1526
Fax 905.828.5707

UK FACILITY
Unit 3, Bedford Business Centre
Mile Road Bedford MK42 9TW UK
Phone +44 (0)1234 349191
Fax +44 (0)1234 268955