



# Mill-Duty Contactor Crane Control



## Class 6121/31 DC Control Class 6420/21/22/26/35 AC Control

### 17 Million Moves, No Problem

The typical life of a properly maintained EC&M contactor control system is 25 years. Multiply that by 690,000, the average annual moves of an electric arc furnace charging crane, for a total of 17 million crane moves — that's rugged, reliable control!

### Over a Century of Dependable Mill-Duty Crane Control

Simple, strong circuit design means less downtime, less routine maintenance and increased productivity compared to other contactor based systems. That's because with EC&M's contactor crane control is manufactured with the best power and control circuits coupled with the best contactor. Our rugged mill-duty DC and AC contactors are built using the highest quality materials and tested to the toughest mill-duty standards.

### Type M Contactors and Type K Relays Standard on All Control Panels

Type M contactors feature the Line-Arc<sup>®</sup> arc extinction method originally patented by EC&M in the 1930's. This arc extinction method results in the longest tip life and minimizes arc chute wear. The Type M also features steel pan mounting and readily accessible power and control terminations. We complete our control with disconnects, motor protection, and the durable and reliable Type K relay.

### EC&M's Mill-Duty Contactor Control

#### Ratings and Sizes

- DC- 1 to 500HP, 115VDC thru 600VDC
- AC- 1 to 300HP, 115VAC thru 575VAC
- Standard control panels rated to 40°C
- High temperature panels available up to 60°C
- Devices can be de-rated to meet 60°C ambient temperature

#### Features

- Multi-speed control of DC series wound motors and AC wound rotor motors
- Reversing dynamic lowering control for hoist drives
- Reversing plugging control for travel drives
- Meets requirements of NEMA Service Classifications I
- 5 or 6 speed points are standard
- Large number of panel size modifications available
- Available in NEMA contactor sizes 1 through 8, single and multiple motor applications
- Complete motor protection

#### Enclosure types

- Open Panel
- NEMA 1 with Gasket
- NEMA 3R
- NEMA 12

#### Applications

- Ladle Cranes
- Charging Cranes
- Pickling Line Cranes
- Slab Yard Cranes
- Ore Bridge/Bucket Cranes
- Coil Handling Cranes
- Scrap Handling (Magnet) Cranes
- Rolling Mill Cranes
- Shipping Cranes
- Maintenance Cranes
- Billet Cranes

*Ask our experienced applications team for help with any of your crane needs.*



The Electric Controller and  
Manufacturing Company, LLC

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## Accessibility

With EC&M's Class 6121 & 6421 control panels, everything is up front and easily reached. Front mounting and wiring gives you easy access to all connections, for both power and control.

In fact, all components can be serviced from the front of the controller. Enclosures are available in NEMA Type 1 gasketed, 3R, and 12 design. Plus the enclosures are available as floor or wall mounted, and feature lift-off or hinged doors. Open panel controllers are also available.

## Dependable — Even in Extreme Heat

Our contactor crane control panels thrive in the heat and are designed to be dependable — even in extreme conditions. Standard panels are rated to 40°C with high temperature panels are available to 60°C. EC&M's contactor control panel and devices can be de-rated to 60°C, without air conditioning.

## You're In Complete Control

EC&M's dynamic hoist circuit has been an industry standard for almost 100 years. Today, that same basic circuitry and the best components keep you in control of your operations and your downtime. Our hoist circuit allows all line current to pass through the brake coil ensuring quick, positive release of the brake and gives the operator complete control for accurate load spotting capability. What's more, a limit switch relay prevents hook over-speed when lowering out of a tripped power limit switch. Our outstanding resistor designs allow for accurate low speed operation under heavy loads; and high speed operation under light load conditions, perfect for most crane operations. These designs also allow remarkable energy returns to the power system under lowering conditions, to help save energy.

## Quality Components Mean Smooth Performance

For smooth operation, EC&M's travel circuit uses a reversing-plugging system to protect motor and control circuit. This circuit has the most widespread use and longest service record of any crane control style. The EC&M hoist circuit has been in operation almost a century in severe duty mill applications. Its simplicity and reliability mean the least operating down time available.

## Type M Line-Arc® Contactor

Uses the time-tested and proven LINE-ARC arc® interrupting principle gives you very long contact tip life and minimizes arc chute wear. The rugged construction is ideally suited to applications where heavy vibration or severe atmospheric conditions exist, and is specially designed to eliminate surfaces that might accumulate conductive dust. Power terminations on both sides of the contactor allow easy wiring of line and load connections. A convenient wire accessway in the contactor base can be used for control wiring. Both moveable and stationary tips are interchangeable for contactor sizes 3 through 8. Self lubricating bearings in the cast metal operating arms result in mechanical life measured in millions of operations.

## Type K Relay

The versatile mill type KDC relays are used to operate as line voltage relays, plugging relays or as voltage or current sensitive relays. The Type K relay is a rugged, front-connected, front-wired device built to withstand severe conditions, and offer direct DC/AC current or voltage monitoring. Operating coils have a wide range of operating voltages or currents, with wiring configurations for shunt, series, and shunt+series relay operation.

## Type AO and NO Overload Relays

These highly reliable and rugged magnetic-only current relays provide motor protection in the harshest environments. Designed to have low resistance and impedance, they are connected directly in series with the motor load. Available as instantaneous or with adjustable current time delay, these temperature insensitive devices operate in high ambient temperatures and high dust environments. Available options are hand reset and normally open contacts.

DC/AC  
Electromechanical  
and Electronic  
Crane Control



Contactors,  
Relays and  
Master Switches



Brakes and  
Limit Switches



Power Resistors,  
Replacement Parts  
and OEM Kits



## EC&M — For All Your Crane Control Needs

We know efficiency and production are the keys to your business. That's why we use our experience and expertise to look for innovative ways to keep you up and running. From AC and DC solid state drive control, and magnet control systems, to traditional AC and DC electromechanical contactor control, we offer the most complete line of crane control products available.

*Crane Control. What we do. All we do.*



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