Glossary of Common Crane Terms:

Adjustable brakes: Electro-mechanical device to control crane deceleration.

Bridge beam: Traveling beam connected to end trucks - supports trolley hoist and load.

Bumpers: Energy absorbing device mounted on end trucks or trolley that reduces impact when the truck or trolley contacts either its end stop or another truck or trolley.

Capacity: Maximum rated load which a crane is designed to carry. Commonly expressed in Tons. (1 Ton = 2,000 lbs.).

Drop stops: Means to limit the drop of a bridge or trolley in case of wheel or axle failure.

Electronic Acceleration Control (EAC): Electronic control for adjusting rate of crane acceleration; also known as Electronic Soft Start.

End truck: Load-bearing crane component that supports the bridge beam and consists of a frame, wheels, axles, etc.

Festooning: Wiring and support system that delivers power to trolley hoist across bridge or runway beam.

Rail sweeps: Device designed to clear obstructions from wheel running surface.

Runway beam: Stationary beams that support crane and load. Commonly fabricated from S or W beams or patented track.

Runway electrification: Delivers power to crane as it travels along runway.

Span: Dimension from one runway centerline to the other runway centerline.

System max wheel load: Maximum load exerted on runway beams for a crane loaded to its rated capacity. It occurs when trolley hoist is located at its maximum end approach and includes an allowance for vertical inertial forces associated with electric hoists. This value is expressed for Series 3 cranes as lbs./wheel for top running and lbs./wheel pair for underhung cranes. For Series HPC 500 cranes, both top running and underhung are lbs./wheel pair.

Top running: Crane type that travels on top of rail or bar attached to runway beams.

Underhung: Crane type that travels on the lower flange of runway beams.

Compliance

In order to meet requirements of the Crane Manufacturers Association of America (CMAA), the National Electric Code (NEC) and the American National Standards Institute (ANSI/ASME), Harrington cranes include:

- Thermal protection for all motors.
- Stationary crane wires that are enclosed in conduit.
- Rubber bumpers for crane and powered trolleys.
- Hoists load tested to 125% of rated capacity.
- Drop stops for cranes.
- Rail sweeps for top running and underhung cranes.

Crane Service Classifications:

Crane Service Class:

- The Crane Manufacturers Association of America (CMAA) has established six service classes for cranes. These classes are Class A through Class F, and are based on load cycles and load magnitude. Class A cranes are suited for the least severe service, and Class F cranes are suited for the most severe service.

Class C Service Class:

The load cycle and magnitude combinations that define the Class C Service Class are:

- Load is usually between 1/3 and 2/3 of rated capacity and is frequently equal to rated capacity, and design service life is 20,000 to 100,000 cycles.
- Load is usually 1/3 of rated capacity and is rarely equal to rated capacity, and design service life is 100,000 to 500,000 cycles.
- Load is usually very light and rarely is equal to rated capacity, and design service life is 500,000 to 2,000,000 cycles.

Class B Service Class:

The load cycle and magnitude combinations that define the Class B Service Class are:

- Load is usually 1/3 of rated capacity and is rarely equal to rated capacity, and design service life is 20,000 to 100,000 cycles.
- Load is usually very light and rarely is equal to rated capacity, and design service life is 200,000 to 500,000 cycles.

Bridge Crane Control Panels

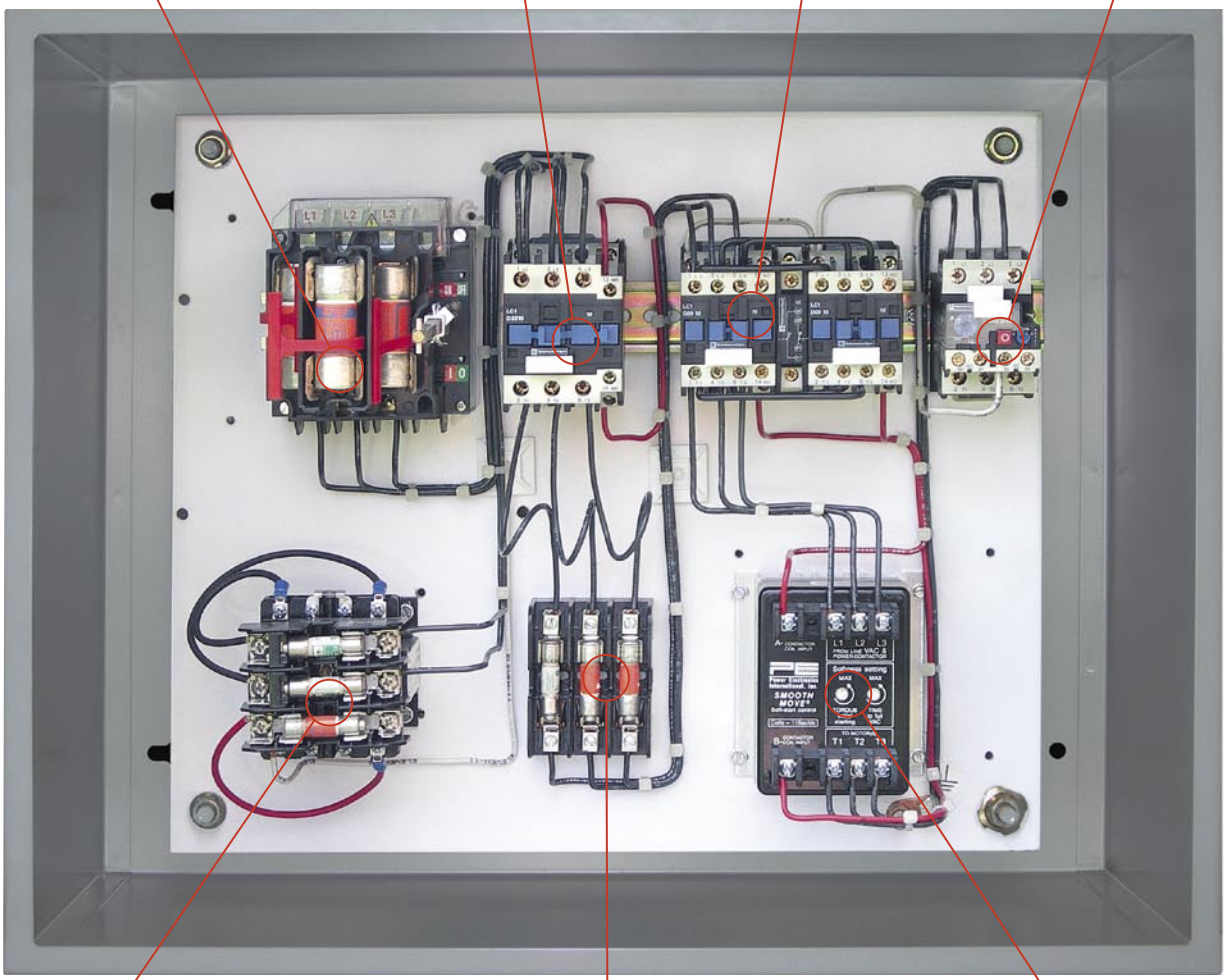
All motorized bridge cranes require a master panel to control bridge crane functions. Harrington control panels are completely pre-wired and tested, and ready to mount on bridge beam. Standard panel is NEMA 1 rated and includes:

Through-the-door fused disconnect switch *is OSHA compliant lock-out capable*

Main line contactor *allows the crane to be turned on and off from the pendant*

Reversing contactor *provides bridge crane forward and reverse control*

Thermal overload relay *(auto-reset) protects crane drives from overheating*



Control transformer *(with primary and secondary fusing) provides low voltage control circuit for pendant*

Fusing for crane drives *protect motors and are NEC compliant*

Electric Acceleration Control (EAC) *allows easy field adjustment of crane acceleration and helps minimize load swing*

NEMA 4 bridge crane control panels available upon request.

Bridge Crane Control Panels

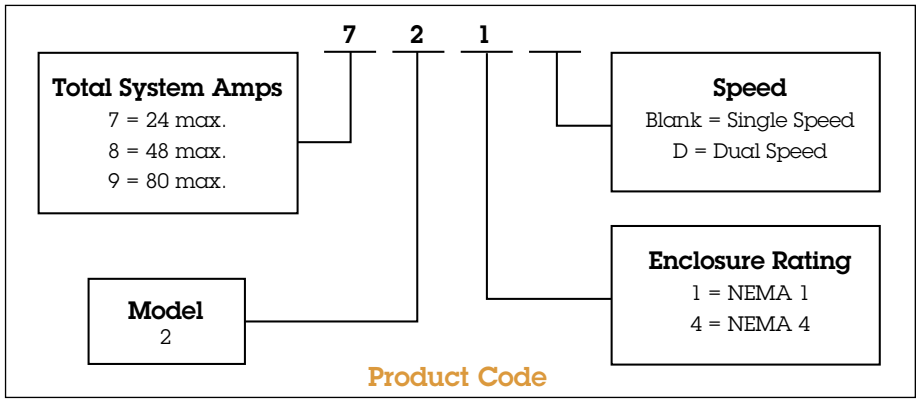
These panels are for use with all Harrington Series 3 motorized end trucks and are NEC compliant for overhead bridge cranes. All panels include bridge mounting bracket and wiring diagram. Specify voltage when ordering.

Standard Panel

Single Speed and Dual Speed Models with EAC—700, 800, 900 Series

Standard features include:

Lock-out compatible through-the-door manual disconnect switch with system fusing, 110 volt control circuit transformer with primary and secondary fusing, mainline contactor, mechanically interlocked reversing contactor, time and torque adjustable Electronic Acceleration Control (EAC), branch circuit fusing for bridge, auto-reset thermal overload relay, and bottom hinged door.



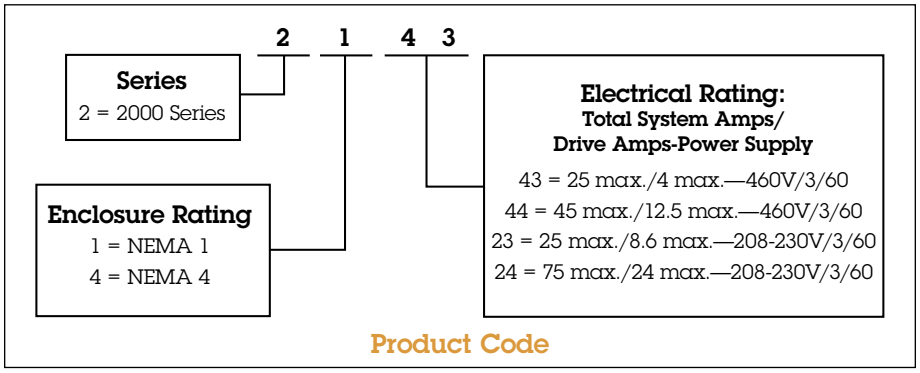
Optional Panel

Variable Frequency Drive Models—2000 Series

Standard features include:

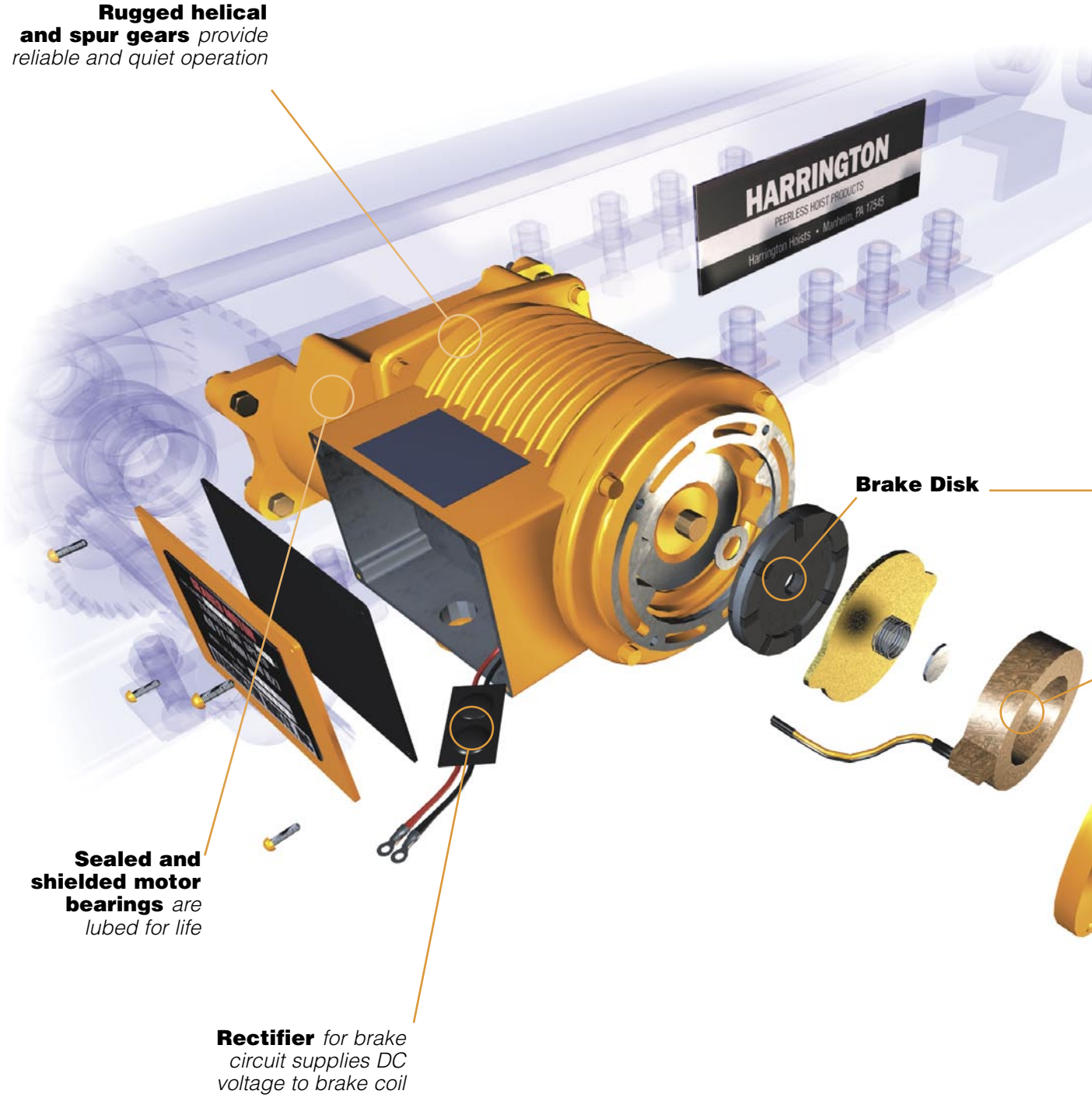
Lock-out compatible through-the-door manual disconnect switch with system fusing, 110 volt control circuit transformer with primary and secondary fusing, main-line contactor, Variable Frequency Drive (VFD), brake relay, branch circuit fusing for bridge, auto-reset thermal overload relay, and bottom hinged door.

These panels can be used for dual and multiple speed applications, infinitely variable speed applications and programmed acceleration/deceleration control. VFD comes pre-loaded with many easy-to-select programs to fit virtually any crane control application, and includes fault-code troubleshooting.



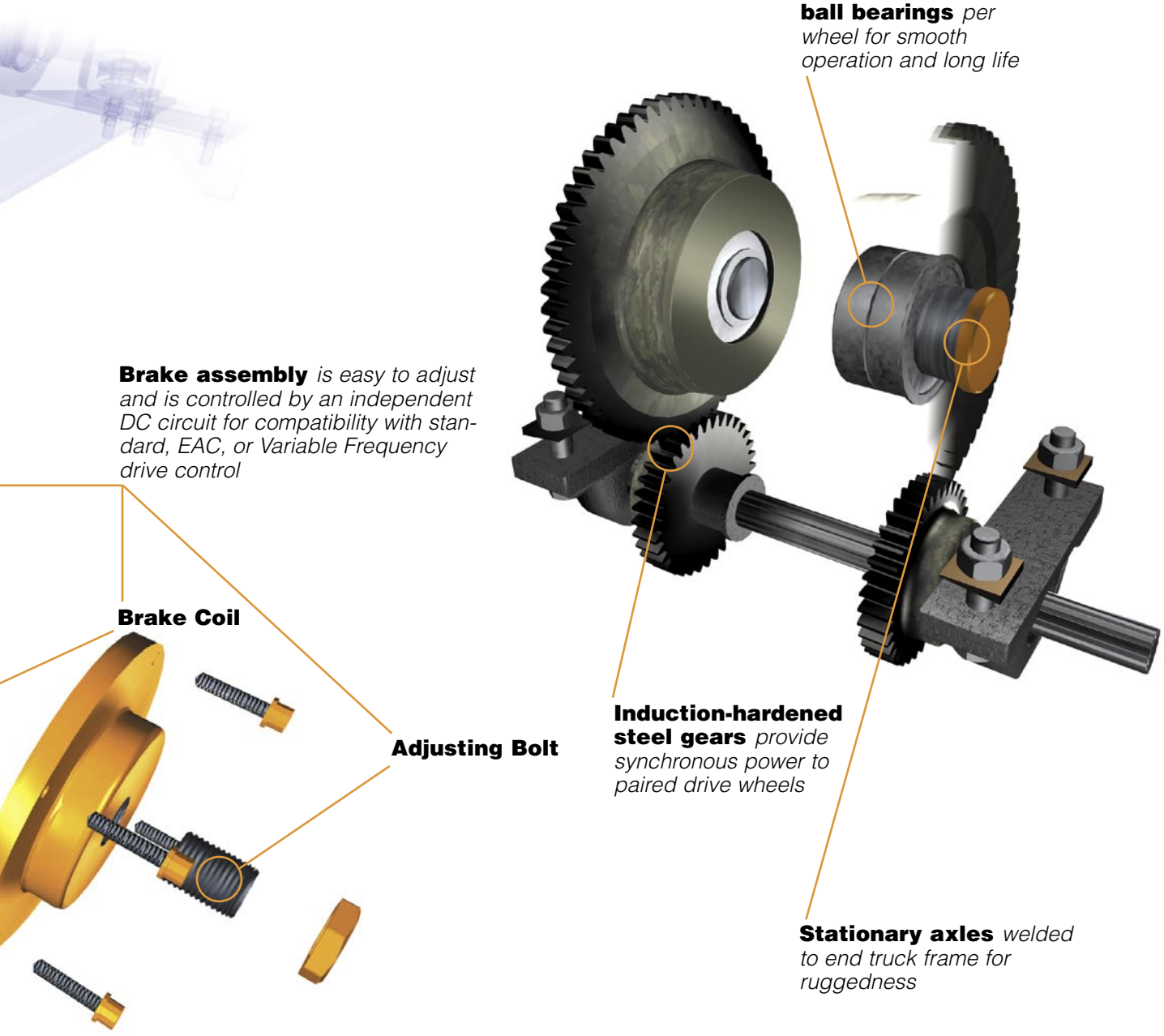
Motor and Brake

Harrington motorized cranes are dual drive type, employing two totally enclosed non-ventilated drives per crane. Drives use helical and spur gearing and are equipped with adjustable DC brakes.



Series 3 Underhung Crane Drive Wheels

Harrington's motorized and geared underhung cranes use a gear system that drives two of the four wheels on each end truck. All Series 3 underhung cranes have two bearings in each wheel.



Two deep groove ball bearings *per wheel for smooth operation and long life*

Brake assembly *is easy to adjust and is controlled by an independent DC circuit for compatibility with standard, EAC, or Variable Frequency drive control*

Brake Coil

Adjusting Bolt

Induction-hardened steel gears *provide synchronous power to paired drive wheels*

Stationary axles *welded to end truck frame for ruggedness*

Bridge Beam Selection Charts

SERIES 3 — SINGLE GIRDER BEAM SIZES

Bridge beam sizing is based on Harrington products' weights and speeds

Maximum Allowable Span (ft)	Capacity (Tons)						
	1/2	1	2	3	5	8	10
10	S8x18.4	S8x18.4	S10x25.4	S12x31.8	S12x40.8	W18x71	W21x93
15	S8x18.4	S8x18.4	S10x25.4	S12x40.8	S15x50	W21x83	W18x106
20	S8x18.4	S10x25.4	S12x31.8	S15x42.9	S15x42.9 C8x11.5	W21x93	W18x119
25	S10x25.4	S10x25.4	S12x31.8 C8x11.5	S15x42.9 C8x11.5	S15x42.9 C10x15.3	W24x103	W24x103 C12x20.7
30	S10x25.4	S12x31.8	S15x42.9	S15x42.9 C10x15.3	W16x77	W24x103	W27x129
35	S12x31.8	S15x42.9	S15x42.9 C8x11.5	W16x67	W21x83	W27x114	W30x148
40	S15x42.9	S15x42.9 C8x11.5	W18x60	W18x71	W21x83	W27x114 C12x20.7	W27x129 C15x33.9
45	S15x42.9 C8x11.5	W16x57	W18x71	W18x76	W24x94	W27x114 C15x33.9	W30x148 C15x33.9
50	W16x40	W18x60	W18x76	W21x83	W27x102	W30x124 C15x33.9	W30x148 C15x33.9
55	W16x57	W16x67	W21x83	W24x94	W27x114	W30x132 C15x33.9	W30x148 C15x33.9
60	W16x67	W18x76	W21x93	W27x114	W30x116 C15x33.9	W33x141 C15x33.9	W33x169 C15x33.9

Note: Above caps are span less 10'0" for overall length.

HPC RECOMMENDED BRIDGE BEAMS — ELECTRIC HOIST

Bridge beam sizing is based on Harrington products' weights and speeds

1. Includes 15% allowance for Electric Hoist load factor.
2. Based on Harrington's electric chain hoist product.
3. For spans greater than 10 ft, braces between end truck and bridge beam are recommended.

Capacity (Tons)	Maximum Allowable Span (ft)			
	10	15	20	24
1/2	S8x18.4	S8x18.4	S8x18.4	S10x25.4
1	S8x18.4	S8x18.4	S10x25.4	S10x25.4
2	S10x25.4	S10x25.4	S12x31.8	S12x31.8 C8x11.5

Crane Selection Form

Crane model: ☐ Single Girder ☐ Max-E-Lift ☐ CHPC

Capacity: *Ton*

Span: *feet -* *inches*

Top running: *floor to top of rail* *feet -* *inches*

Underhung: *floor to bottom of runway beam* *feet -* *inches*

Bridge travel: ☐ *motorized (speed)* ☐ *geared* ☐ *push*

Trolley hoist model:

Power supply voltage: / /

Runway electrification: ☐ NO ☐ YES runway length feet

Special dimensional requirements:

Options

Flat Cable Festooning
- Roving pendant
- Hoist/trolley power
- Runway—crane power

Variable Frequency Control
- Multiple speeds
- Infinitely variable speeds
- Programmable acceleration and deceleration

Remote Control
- Radio
- Infrared
- Wall-mounted pendant (hard-wired)

24V or 48V Control Voltage (110V is standard)

NEMA 4, 4X, 12, or 13 Bridge Control Box (NEMA 1 is standard)

NEMA 4 or 4X Pendant

Warning Devices
- Lights
- Audible alarms

Enclosed Conductor Electrification
- Bridge
- Runway

Multiple Hoists on Single Bridge

Power Supply—Other Voltages Available

Interlocking Bridges

Patented Track Runway Applications (3 1/4" and above)

Travel Limit Switches

Load Limiting Device

Special Applications