

1.0 Scope

- 1.1 To define the requirements for NER2 Motorized Hoist On Motorized Double Girder Trolley on Double Girder Crane.

2.0 Codes and Standards

- 2.1 CMAA 70, "Specifications for Top Running Bridge & Gantry Type Multiple Girder Electric Overhead Traveling Cranes"
- 2.2 ASME B30.16, "Overhead Hoists (Underhung)"
- 2.3 NFPA 70, "National Electric Code"
- 2.4 FEM 9.682, "Rules for the Design of Serial Lifting Equipment – Selection of Lifting Motors"
- 2.5 ISO 4301, "Cranes and Lifting Appliance – Classification"
- 2.6 IEC 34-5, "Rotating Electrical Machines – Classification of Degrees of Protection Provided by Enclosures of Rotating Electrical Machines (IP Code)"
- 2.7 IEC 529, "Degrees of Protection Provided by Enclosures (IP Code)"

3.0 Design

3.1 Electric Chain Hoist

- 3.1.1 H4 – 60 Minute Extreme Duty Rated (single speed), Fan Cooled Motor (TEFC), Standard thermal protection (Dual speed 30/10 Minute rated).
- 3.1.2 Guardian Smart Brake Technology, DC Current Motor Brake with electrical failsafe design.
- 3.1.3 Count hour meter tracks running time and usage history by instant digital display.
- 3.1.4 IP55, Electrical Enclosure suitable for harsh environments
- 3.1.5 Grade 80 DIN Nickel plated chain standard for superb durability and strength.
- 3.1.6 Upper/Lower Limit switches standard and provide excellent Headroom (low profile paddle type).
- 3.1.7 Heavy duty cast iron chain guide for improved wear versus stamped steel.

- 3.1.8 5 or 6 deep-groove load sheave pockets for reduced vibration, noise and chain wear.
- 3.1.9 Friction Clutch protects hoist from damage and over winding.
- 3.1.10 Forged Carbon Steel hooks with ball bearings for smooth hook rotation, heavy duty latches.
- 3.1.11 Mechanically Inter locked heavy duty contactors standard (single speeds only).
- 3.1.12 Optional variable frequency drive "under-the-cover" dual speed, 2 step or 3 step infinitely variable speeds.
- 3.1.13 Optional mechanical Load Brake (secondary Weston style load brake, ER Models only).

3.2 **Double Girder Motorized Trolley**

- 3.2.1 Totally Enclosed Non-Ventilated Motors (TENV) with class B insulation with Adjustable DC Brakes.
- 3.2.2 IP55 Rated.
- 3.2.3 Helical Gear Reducers.
- 3.2.4 Externally Adjustable, DC Brakes Allow Controlled Deceleration.
- 3.2.5 Thermal Overload Protection Standard.
- 3.2.6 Rubber Bumpers are Rail Sweeps Standard.
- 3.2.7 Machined Steel, Flat Tread Wheels with Side Guide Rollers Reduced Wheel Friction.
- 3.2.8 Fully Machined Frames. Holes are drilled and tapped for easy installation.
- 3.2.9 Top Running frames ASTM A500 structural tube for superior strength and rigidity.
- 3.2.10 Optional power electronics variable frequency drive on trolley motion.

3.3 **End Trucks**

- 3.3.1 Totally enclosed Non-Ventilated Motors (TENV) with class B insulation with Adjustable DC Brakes, IP 55 Rated.
- 3.3.2 Helical Gear Reducers.

- 3.3.3 Externally Adjustable, DC Brakes Allow Controlled Deceleration.
 - 3.3.4 Thermal Overload Protection Standard.
 - 3.3.5 Rubber Bumpers and Rail Sweeps Standard.
 - 3.3.6 Machined Steel, Flat Tread Wheels with Side Guide Rollers Reduced Wheel Friction, wheels suitable for S or W beams.
 - 3.3.7 Fully Machined Frames. Holes are Drilled and Tapped for Easy Installation.
 - 3.3.8 Bridge Beam Hardware Kit Included.
 - 3.3.9 Cross Bracing Provided for Spans Greater than 10 foot.
 - 3.3.10 Top Running Frames ASTM A500 Structural Tube for Superior Strength and Rigidity.
 - 3.3.11 Underhung Frames from M C Channel for Superior Strength and Rigidity.
 - 3.3.12 Guide Roller to Span Ratio is 7:1.
- 3.4 **Crane Control Panel and Drives**
- 3.4.1 Electronic Acceleration Control standard via Soft Start or VFD.
 - 3.4.2 Completely Pre-Wired and Tested.
 - 3.4.3 Through-the-Door Fused Disconnect Switch is OSHA Compliant and Lock-Out Compatible.
 - 3.4.4 Control Transformer with Primary and Secondary Fusing Provides Low Voltage Control Circuit.
 - 3.4.5 Fusing for Crane Drives Protects Motors and are NEC Compliant.
 - 3.4.6 Thermal Overload Relay (Auto-Reset) Protects Crane Drives from Overheating.
 - 3.4.7 Panel Built to NEC Codes (Panel is NEMA4/12 and UL 0508A listed under normal circumstances).
- 3.5 **Wiring**
- 3.5.1 Industrial Flat Cable Festoon Track System used on both Hoist/Trolley Power (DWRPA).

- 3.5.2 Optional Roving Pendant –(DWRPB) Flat Cable Roving Pendant Provides Safe and Effective Handling without Close Proximity to Load.
- 3.5.3 Durable, Tangle-Free, Clean Design Provides Smooth and Maintenance Free Operation.
- 3.5.4 Pre-Wired, Pre-Fit and Completely Pre-tested Electrical Panel. Minimal Wiring Required.
- 3.5.5 Optional Plug and Play wiring with quick disconnect plugs for easy Crane Assembly.
- 3.5.6 Modular Design for Easy Packaging and Installation.
- 3.5.7 Wiring meets NEC Codes.
- 3.6 **Paint**
 - 3.6.1 Water Based Enamel, Sprayed on Direct to Metal, Semi-Gloss Finish.
 - 3.6.2 Color: RAL 1007 Yellow.
 - 3.6.3 VOC Compliant.
 - 3.6.4 Dry Film Thickness (DFT) of 2-4 mils.

4.0 Documentation

- 4.1 Each Crane shall be supplied with a Crane Binder that includes the following information:
 - 4.1.1 CMAA 79, "Crane Operator's Manual"
 - 4.1.2 Wiring Diagrams/Assembly Drawings
 - 4.1.3 Product Owner's Manuals
 - 4.1.3.1 Important Information and Warnings
 - 4.1.3.2 Installation and Operation
 - 4.1.3.3 Inspection
 - 4.1.3.4 Lubrication, Maintenance and Handling, and Troubleshooting
 - 4.1.4 Repair and Warranty Service Information