

## **SPECIFICATION FOR OPEN DECK HOISTING MACHINERY FOR CLASS D & E WITH TROLLEY**

### **GENERAL**

All American Crane cranes are manufactured in accordance with current mandatory requirements of the National Safety and Health Act, OSHA Section 1910.179 and 1910.309 as applicable. Additionally, all American Crane cranes are manufactured in accordance with the appropriate standard of ANSI specifications, the National Electric Code, and the Crane Manufacturers Association of America (CMAA) specifications.

### **END TRUCKS**

End trucks are constructed of high strength ASTM A500 structural tubing or welded structural shapes forming a rigid box section. Trucks are provided with rail sweeps and suitable bumpers designed to meet or exceed safety standards.

### **TROLLEY WHEELS**

Double flanged wheels fabricated from C1045 rolled steel, or forged steel, per AISI 1070, rim toughened to 320 Brinell minimum per ASTM A 504. Wheels are mounted on high strength alloy steel rotating axles and supported by spherical roller bearings to provide a minimum L10 life as per Specification #70.

### **HOIST BRAKE**

Fail safe, spring set, electrically released, totally enclosed disc or shoe type thruster brake with self-adjusting mechanism to automatically compensate for lining wear. Brakes are sized for minimum 150% full motor torque.

### **HOIST MOTOR**

Variable speed vector motor with high temperature Class H insulation to ensure reliability. Foot or flange mounted ribbed frame construction with 100% copper conductors capable of 1000-to-1 speed range. Motor encoders are mill duty type with state-of-the-art sensors that are unaffected

#### **Corporate Headquarters**

531 Old Swede Road, Douglassville, PA 19518 USA  
Toll Free 1-877-877-6778 | Tel: 610-385-6061 | Fax: 610-385-3191

#### **Service, Parts & Standard Cranes**

1440 Ben Franklin Hwy, Douglassville, PA 19518 USA  
Toll Free 1-877-503-2972 | Tel: 484-945-0420 | Fax: 484-945-0431

by common contaminants. The encoder enclosure is of ductile cast iron construction for rugged reliability.

### HOIST GEARBOX

Ductile cast iron, fully enclosed gearbox with hardened alloy steel planetary gearing rigidly supported by heavy duty tapered roller bearings for high load capacity and long service life for standard Class D hoists.

Class E hoists have foot mounted gear cases, parallel shaft type, cast iron enclosures with helical gearing supported by roller bearings. Helical gears are fabricated from alloy steel, carburized and finish ground.

### TROLLEY DRIVE

Keyless shaft mounted, parallel helical gearing with integral motor and brake. Gears manufactured from certified steel, heat treated to a case hardness of 58-62 Rockwell C and finished ground or shaved to assure maximum mechanical efficiency. The drive is totally enclosed with all gears oil splash lubricated.

### LOWER BLOCK

A fabricated steel housing supports ball bearing equipped steel sheaves. The forged steel hook features a minimum 5-to-1 design and is supported via a swiveling crosshead and roller type thrust bearing for 360-degree rotation. Safety latches are provided based on customer preferences.

### DRUM

Seamless tubing with machined left hand and right hand grooves, with groove depth and pitch per CMAA 70 Specifications. The drum is supported with a "barrel" type coupling or splined connection to the hoist gearbox, thereby avoiding a statically indeterminate loading condition. The opposite drum end is supported by a spherical roller bearing.

### LIMIT SWITCH

Rotary geared type limit switch directly driven by the hoist drum to accurately control upper and lower position of the block. The switch features independently adjustable cams for precise control. A paddle type control circuit limit switch is also included.

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## TROLLEY FRAME

Welded steel construction from rolled shapes and precision bored. The hoist frame is designed to rigidly support all machinery with minimal deflection for long service life. All welding is performed in-house in accordance with AWS D1.1 by AWS Certified Welders. Lifting lugs are provided to allow ease of installation.

## ELECTRICAL

The electrical control panel is custom designed and engineered in accordance with all applicable codes. Panel wiring is labeled to match the wiring diagram, utilizing computer generated “Brady” style markers. Branch circuit protection is provided by fuses or breakers. A manual disconnect switch and mainline contactor, mounted in the electrical enclosure, allows maintenance personnel to shut off the power supply to the crane. Mainline contactor and reversing starters, where applicable, are modular plug-in style and designed for rugged reliability and a mechanical life of up to 10 million operations.

The electrical controls are housed in a heavy-duty 14-gauge gasketed steel NEMA 12 enclosure designed to provide protection from dust, dirt, oil and water. The door is mounted on a continuous hinge and is easily removed by pulling the single hinge pin. A hasp and staple are provided for padlocking. Wiring is in accordance with NFPA 70 Article 610. All wiring external to an electrical enclosure is placed in rigid galvanized steel conduits where the fittings and junctions are watertight. Short lengths of flexible steel conduit with a watertight covering are used to make connections to control devices, such as limit switches or equipment subject to vibration.

## PAINTING

All painted surfaces will receive proper metal preparation and cleaning prior to application of the paint coating system to insure good adhesion. A rust inhibiting prime coat shall be applied followed by a finish coat of industrial enamel. Finish color will be safety yellow for crane bridge unit and blue for trolley unit, thus providing good trolley positioning contrast.

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## DOCUMENTATION

Three (3) maintenance and repair manuals will be provided. Manuals will be provided in CR-ROM format at the request of the customer. A recommended spare parts list shall be included in the Operating, Parts & Maintenance Manual.

## FINAL FACTORY INSPECTION AND RUN TESTING

All motor, control and drive equipment will be operationally no load, power run tested upon completion of manufacture. Factory run test/check reports are completed to insure manufacturing compliance. Upon completion of shop testing, parts that require disassembly are clearly match-marked and tagged.

## OPTIONS

- Custom designed hoisting machinery available up to 100 tons
- Auxiliary hoists
- Flame-hardened drums
- Centralized lubrication
- Power circuit limit switches
- Rotating lower blocks
- Weigh scale systems
- Positioning systems
- Mill duty AISE hoist brakes
- Deep hardened wheels up to 62 Rc

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