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ENGINEERING SPECIFICATIONS
OVERHEAD CRANE ELECTRIFICATION SYSTEMS

US-SAFETY TROLLEY – SPAN-GUARD®

U-S SAFETY TROLLEY
A DIVISION OF UNIVERSAL ELECTRIC CORPORATION

October 2023

OVERHEAD CRANE ELECTRIFICATION SYSTEMS

PART 1 GENERAL

1.01 SCOPE

A. The installing contractor shall furnish and install the US-Safety Trolley Span-Guard® system including all necessary fittings, hangers and accessories as specified herein and as shown on the installation drawings.

B. The trolley system must be suitable for indoor/outdoor environments to include but not subject to, under the continuous exposure to severe weather including rain, snow, or ice, harsh manufacturing environments, chemical plants, corrosion environments, etc.

C. The trolley system shall be of such design that expansion joints will not be required for satisfactory operation, except at points in conjunction with building expansion joint locations.

D. The trolley system shall be used to provide moveable electrical power as shown on the approval drawings.

E. The trolley system shall be new and unused products of an established manufacturer and shall be a model that has been successfully operated in similar service for 20 years of time to establish its reliability.

1.02 APPLICABLE STANDARDS

A. Trolley systems components shall be designed, manufactured and tested in accordance with the latest applicable following standards of NEC, ANSI, and NEMA.

B. Installing Contractor shall adhere to NEC, OSHA, State, and Local safety guidelines, laws, rules, and regulations.

C. Installing Contractor/personnel shall conform to all applicable ANSI, CMAA, and HMI specifications and/or standards.

D. All conductors, components and hardware must be manufactured and supported in the USA.

1.03 DELIVERY, STORAGE AND HANDLING

Equipment shall be handled and stored in accordance with manufacturer’s installation instructions.

PART 2 PRODUCTS

2.01 APPROVED MANUFACTURERS

A. SpanGuard Corporation

Address:

SpanGuard Corporation

14 N Main Street

Tioga, PA 16946

Main: (570) 948-2627

https://www.spanguard.net

https://www.ussafetytrolley.com

2.02 END SUPPORTS

A. Mounting shall be accomplished by properly installing (2) end supports; (1) support on each end of the runway, and in accordance with manufacturer's installation instructions.

B. End supports should be well braced since the conductors will be tensioned at approximately 900lbs-force for each conductor.

C. Recommended support spacing: 2 inches x 2 inches x $^1/_4$ inches angle iron

typical. 2.03 INTERMEDIATE MOUNTING SUPPORTS

A. Mounting shall be accomplished by attaching insulated hangers to a rigid mounting system along the runway that will hold hanger firmly in place such as Welded Angle Iron, Beam Clamp, etc.

B. Intermediate Mounting Supports shall not be closer than 15 feet as a minimum and a maximum of 25 feet of distance. (*Consult the manufacturer for applications that require distances of <15 feet and/or >25 feet)*

2.04 CONDUCTORS

A. Each conductor shall be a continuous solid copper conductor up to 2,000 feet in length, and shall be splice and joint free for its entire length, NO EXCEPTIONS.

B. Conductors shall be solid hard-drawn cooper.

C. Conductors current rating shall be 250A or 520A as specified on approval drawings and rated up to 600VAC or DC.

D. Conductors must be completely enclosed with a flexible self-closing insulated covers.

E. Each conductor must have a minimum of (2) insulated dead-end assemblies and (1) power feed assembly.

F. Conductor bar system that requires splices, pins, and/or screws to join sections together shall not be permitted.

2.05 INSULATED COVERS

A. Each conductor bar shall be completely enclosed with flexible insulated conductor cover.

B. Each cover must be joint free for its entire length.

C. Flexible insulated conductor cover must be fully closed in its dormant state.

D. Flexible insulated conductor cover must open and close as the collector assembly travels over the entire length of the conductor bar.

E. Flexible insulated cover shall have a minimum electrical insulation of 12,000 Volts RMS and shall not support combustion.

F. Flexible insulated cover material must Koroseal® PVC in Orange color, 83A Type, # 28-55-11503-04 or #28-55-11815-04 series.

2.06 COLLECTORS

A. Collectors must be spring loaded type to allow for sag and/or curvatures caused by expansion and contraction of the conductor bar system.

B. Collectors must be constructed to allow misalignment range of up to 2 $^{3}/_{4}$ inches vertical and 3.5 inches horizontal. *(Consult the manufacturer for applications that require larger misalignment ranges)*

C. Collectors must be rated at 100A or 200A (250A Model Systems), and at 400A (520A Model Systems), up to 600V as specified on approval drawings.

D. Collectors must be constructed of aluminum or stainless steel bodies and equipped with weather cuff, porcelain spreaders, and copper-graphite collectors which can be easily replaced in the field.

E. The collector shoe shall provide a minimum of 5,000 miles of wear life usage.

2.07 HANGERS

A. Hangers shall be constructed of insulated material.

B. Hangers shall be equipped with stainless steel or cadmium plated bolts.

2.08 REPAIR SECTIONS

A. System must be designed to allow splice joints only when necessary. E.g. repair a damaged section, extending an existing runway, or creating an isolated maintenance zone.

2.09 ABRASIVE CLIPS

A. Each conductor must be equipped a minimum of (1) abrasive clip hanger per conductor to prevent uneven wear of collector shoes.

B. The abrasive clips shall be installed under the orange flexible insulation conductor cover, and located on the crane runway where the collector most frequently travels, in accordance with manufacturer's installation instructions.

C. Abrasive clips installation/presence must be indicated with a red color insulation hanger to allow quick field identification and inspection.

PART 3 EXECUTION

3.01 INSTALLATION & INSPECTION

A. Inspect trolley system for conformance with reviewed approval drawings

B. Trolley system shall be installed in conformance with manufacturer's instructions and inspected by a manufacturer's representative. Provide all necessary accessories to make system complete, usable, and capable of meeting the operating requirements specified. Test, adjust and clean equipment for acceptance by Owner.

3.02 WARRANTY

A. Limited Warranty. Equipment manufacturer warrants all products sold by it to be free from defects in material or workmanship for a period of (2) years from the date of delivery, and limited to the obligation set forth in the manufacturer's limited warranty provisions herein.

B. Extended warranties shall be allowed as specified herein.

3.03 START-UP SERVICES

A. A factory authorized service representative shall perform all startup and inspection services.

B. Train Owner's maintenance personnel on procedures for servicing and maintaining trolley system equipment per manufacturer's recommendations.

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END OF SECTION