

SECTION 16468000
100 AMPERE PLUG-IN BUSWAYS - DH

PART 1 GENERAL

A. The requirements of the Contract, Division 1, and Division 16 apply to work in this Section.

1.01 SECTION INCLUDES

A. 100 ampere plug-in busway

1.02 RELATED SECTIONS

1.03 REFERENCES

The 100 ampere plug-in busway and protection devices in this specification are designed and manufactured according to latest revision of the following standards (unless otherwise noted).

A. ANSI/NEMA BU 1, Busways

B. ANSI/NEMA KS 1, Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts)

C. ANSI/NFPA 70, National Electrical Code

D. NEMA BU1.1, General Instructions for Proper Handling , Installation, Operation, and Maintenance of Busway Rated 600 Volts or Less

E. NEMA ICS 2, Industrial Control and Systems: Controllers, Contactors and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC

1.04 DEFINITIONS

1.05 SYSTEM DESCRIPTION

A. Plug-in busway shall include all components and fittings necessary to provide a complete system as shown on plans or specifications. All components shall be UL listed and labeled.

B. Busway shall be polarized.

1.06 SUBMITTALS

A. Manufacturer shall provide copies of following documents to owner for review and evaluation in accordance with general requirements of Division 1 and Division 16:

1. Product Data on specified product;
2. Shop Drawings on specified product;
3. Design Data, detailed component data on specified product, such as CT ratios, ratings;
4. Certified trip curves for each specified product;
5. Certified copies of all Type (Design) and Verification Test Reports.

1.07 PROJECT RECORD DOCUMENTS

A. Maintain an up-to-date set of Contract documents. Note any and all revisions and deviations that are made during the course of the project.

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1.08 OPERATION AND MAINTENANCE DATA

A. Manufacturer shall provide copies of installation, operation and maintenance procedures to owner in accordance with general requirements of Division 1 and Division 16.

B. Submit operation and maintenance data based on factory and field testing, operation and maintenance of specified product.

1.09 QUALITY ASSURANCE (QUALIFICATIONS)

A. Manufacturer shall have specialized in the manufacture and assembly of 100 ampere plug-in busways for [50] years.

B. 100 ampere plug-in busways shall be listed and/or classified by Underwriters Laboratories in accordance with standards listed in Article 1.03 of this specification.

C. Manufacturer's Certificate of ISO 9000 Compliance.

D. Installer's Certificate of ISO 9000 Compliance.

E. Installer has specialized in installing 100 ampere plug-in busways with [minimum _ years documented experience].

1.10 REGULATORY REQUIREMENTS

1.11 MOCK-UPS (FIELD SAMPLES)

1.12 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle products in accordance with recommended practices listed in manufacturer's Installation and Maintenance Manuals.

B. Deliver each busway in individual shipping cases.

C. Inspect and report concealed damage to carrier within specified time.

D. Store in a clean, dry space. Maintain factory protection or cover with heavy canvas or plastic to keep out dirt, water, construction debris, and traffic. (Heat enclosures to prevent condensation.)

E. Handle in accordance with NEMA [___] and manufacturer's written instructions to avoid damaging equipment, installed devices, and finish. <Lift only by installed lifting eyes.>

1.13 PROJECT CONDITIONS (SITE ENVIRONMENTAL CONDITIONS)

A. Follow (standards) service conditions before, during and after busway installation.

B. Busway shall be located in well-ventilated areas, free from excess humidity, dust and dirt and away from hazardous materials. Ambient temperature of area will be between minus [30] and plus [40] degrees C. Indoor locations shall be protected to prevent moisture from entering enclosure .

1.14 SEQUENCING AND SCHEDULING

1.15 WARRANTY

A. Manufacturer warrants equipment to be free from defects in materials and workmanship for 1

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year from date of installation or 18 months from date of purchase, whichever occurs first.

1.16 MAINTENANCE SERVICE

A. Furnish complete service and maintenance of 100 ampere plug-in busways for [{1 year}{5 years}] <specify other service contract time period> from date of substantial completion.

B. Include _____.

1.17 EXTRA MATERIALS

A. Provide [{parts}{spares}] as indicated in drawings.

1.18 FIELD MEASUREMENTS

A. Make all necessary field measurements to verify that equipment shall fit in allocated space in full compliance with minimum required clearances specified in National Electrical Code.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. General Electric Company products have been used as the basis for design. Other manufacturers' products of equivalent quality, dimensions and operating features may be acceptable, at the Engineer's discretion, if they comply with all requirements specified or indicated in these Contract documents.

2.02 MANUFACTURED UNITS

A. Furnish 100-ampere plug-in busways, General Electric Type DH Busway (or equal) as indicated in drawings.

2.03 COMPONENTS

Refer to Drawings for: actual layout and location of equipment and components; current ratings of devices, bus bars, and components; voltage ratings of devices, components and assemblies; and other required details.

A. Construction

1. Busway shall be totally enclosed type, consisting of formed sheet-steel housing with external mounting flanges.

2. Bus bars shall be [{aluminum electro-silver plated}{98 percent copper-tin plated}] on insulating supports. Joints between components shall be assembled by placing overlapping parts together and tightening six screws. It shall be possible to remove any component from run without disturbing any other components.

B. Plug-in busway shall be rated as indicated in drawings.

C. Applications: [{Single phase, 3-wire}{Single phase, 3-wire with ground}{3-phase, 3-wire}{3-phase, 3-wire with ground}{3-phase, 4-wire}{3-phase, 4-wire with ground}].

D. Outlets shall be steel knock-out type. With knockout removed, insulator shall provide dead-front construction and polarization. Ten outlets shall be provided per 10-foot length, five per side. All outlets may be used at one time.

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E. Plugs shall be as follows:

1. Unfused type rated 60 amperes. Use wire connected to unfused plug rated minimum of 1/3 of busway rating per NEC Article 240-21.
2. Fusible - externally operated
3. Plug-in circuit breaker type using General Electric Type TQL breakers.
4. Plug-in circuit breaker type using General Electric Type TSQL breakers with space and mounting bracket for [1][2][3] [single][gang][convenience] outlet(s). Include divisible blank cover.
5. Externally operated, with General Electric Type TQL breakers with hookstick operation
6. Bolted-in circuit breaker type using General Electric Type TED-frame breakers with space and mounting bracket for [1][2][3] conventional outlets in cover plus one on each side. Include blank covers to fill unused spaces.
7. Operating switch: quick-make, quick-break, interlocked cover type with releasable interlock.
8. Circuit-breaker type using GE externally operated molded case breaker suitable for end or bottom operation.
9. Provide combination ground detector neutralizer plug unit on each busway run.
10. Provide combination motor starter plugs having [fusible switch][molded-case circuit breaker] disconnects.

F. Furnish an adjustable length in the bus run to accommodate on site field adjustments. Fitting shall be adjustable from 42 to 54 inches. Maximum rating of fitting shall be 10 KA.

2.04 ACCESSORIES N/A

2.05 TESTING

2.06 FINISH

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that busways are ready to install.
- B. Verify field measurements are as [shown on Drawings][instructed by manufacturer].
- C. Verify that required utilities are available, in proper location and ready for use.
- D. Beginning of installation means installer accepts conditions.

3.02 LOCATION

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3.03 INSTALLATION

Additional provisions and editing may be required for this part.

- A. Install per manufacturer's instructions.
- B. Install required safety labels.

3.04 FIELD QUALITY CONTROL

- A. Inspect installed busways for anchoring, alignment, grounding and physical damage.
- B. Check tightness of all accessible mechanical and electrical connections< with calibrated torque wrench>. Minimum acceptable values are specified in manufacturer's instructions.

3.05 ADJUSTING

- A. Adjust all <{circuit breakers}{, }{switches}{, }{access doors}{, }{operating handles}> for free <{mechanical}{ and / or }{electrical}> operation as described in manufacturer's instructions.
- B. Adjust circuit breaker trip and time delay settings to values [{specified}]{determined}] by Architect Engineer.
- C. Return "odd" Kirk keys to Engineer before energizing equipment.

3.06 CLEANING

- A. Clean interiors of <{switchboards}{, }{panels}{, }{separate enclosures}> to remove construction debris, dirt, shipping materials.
- B. Repaint scratched or marred exterior surfaces to match original finish.

END OF SECTION