

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including *MasterFormat*, *SectionFormat*, and *PageFormat*, as described in *The Project Resource Manual—CSI Manual of Practice, Fifth Edition*.

This section must be carefully reviewed and edited by the Architect or Engineer to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings. Delete all "Specifier Notes" after editing this section.

Section numbers are from *MasterFormat 2010 Update*.

**SECTION 26 27 26.12**  
**WIRING DEVICES: NON-METALLIC PIN AND SLEEVE**

Specifier Notes: Delete any information below in Parts 1, 2 or 3 which is not required or relevant for the project.

**PART 1 – GENERAL**

**1.01 SUMMARY**

- A. Section Includes: Non-metallic pin & sleeve, industrial grade, circuit interrupting rated electrical plugs, male inlets, connectors, receptacles, and assorted accessories. Usable in dry, damp, wet, marine and/or industrial locations for electrical power circuits.
- B. Related Sections:
  - 1. Section 26 27 26.11 Wiring Devices: Metallic Pin and Sleeve for Industrial and Marine Applications.
  - 2. Section 26 27 26.13 Wiring Devices: Multi-Circuit Rectangular Connectors

**1.02 REFERENCES**

- A. National Electrical Manufacturers Association (NEMA):
  - 1. NEMA 250: Enclosures for Electrical Equipment
- B. Underwriters Laboratories, Inc. (UL):
  - 1. UL 94: Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances
  - 2. UL 746C: Standard for Polymeric Materials - Use in Electrical Equipment Evaluations
  - 3. UL 840: Safety standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment
  - 4. UL 1682: Safety Standard for Plugs, Receptacles, and Cable Connectors of the Pin and Sleeve Type
  - 5. UL 1686: Pin and Sleeve Configurations
- C. International Electro-Technical Commission (IEC):
  - 1. IEC 60309-1: Plugs, Socket-Outlets and Couplers for Industrial Purposes
- D. American Society for Testing Materials (ASTM):
  - 1. ASTM D570: Standard Test Method for Water Absorption of Plastics

- 2. ASTM D2565: Standard Practice for Xenon Arc Exposure of Plastics Intended for Outdoor Applications
- E Canadian Standard Association (CSA):
  - 1. CSA C22.2-182.1: Industrial Type Special Use Attachment Plugs, Receptacles and Connectors
  - 2. CSA C22.1 Canadian Electrical Code Part I (CEC)
- F. National Fire Protection Association (NFPA)
  - 1. NFPA 70 National Electrical Code (NEC)

### **1.03 SUBMITTALS**

- A. Comply with Section 01 33 00 – Submittal Procedures.
- B. Product Data:
  - 1. Submit manufacturer's descriptive literature and product specifications for each product.
  - 2. Manufacturer's product drawings.

### **1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Products shall be free of defects in material and workmanship.
- B. Furnished products shall be listed or classified by third party agencies suitable for the intended purpose.

### **1.05 WARRANTY**

- A. Product is warranted free of defects in material and workmanship.
- B. Product is warranted to perform the intended function within design limits.

## **PART 2 – PRODUCTS**

### **2.01 GENERAL**

- A. These devices shall be UL Listed, CSA Certified for circuit interrupting at full rated current. TÜV SÜD certification and DENON PSE (Japan) certificates on certain models.
- B. Devices shall be rated 20, 30, and 50 amperes at 600 VAC, and 250 VDC maximum. Devices shall be rated 60 amperes at 250 VAC and VDC.
- C. These devices shall have the following catalog numbering scheme:
  - 1. 9P\_\_U\_ Plugs
  - 2. 9C\_\_U\_ Connectors
  - 3. 9R\_\_U\_ Receptacles
  - 4. 9B\_\_U\_ Inlets
- D. These devices shall provide internal environmental seals for marine and extreme wet applications.
- E. These devices shall be used with hard service cord or junior hard service cord in accordance to the NEC table 400.4.

## 2.02 MANUFACTURERS

- A. Acceptable Manufacturers:  
**ABB Installation Products Inc.**  
860 Ridge Lake Boulevard  
Memphis, Tennessee 38120  
800-816-7809, 901-252-5000  
electrification.us.abb.com
- Product: Russellstoll® DuraGard® Waterproof Connections

## 2.03 DESIGN AND PERFORMANCE REQUIREMENTS

- A. Plugs, receptacles, inlets and connector housings, associated covers and caps, and screw collars shall be made of high impact thermoplastic with the following properties:
1. Shall be listed according to the UL 94 V-0 flammability requirements.
  2. The thermoplastic material shall be UV-stabilized.
- B. All hardware, external and springs, shall be stainless steel. Cable clamps shall be stainless steel or epoxy powder coated copper-free cast aluminum. All cable bushings shall be neoprene material.
- C. All device body insulators shall be molded from glass-reinforced high strength thermoset polyester with a minimum of UL94V0 flammability rated according to IEC 60309-2 standard.
- D. Pin and sleeve contacts base material shall be made of from conductive copper alloy, brass CDA360. Accessory material of the contacts shall be made of a compatible corrosion resistant material.
- E. Environmental gaskets and “O” rings shall be made of nitrile material.
- F. Watertight/flap screw cover on receptacle, O-Rings on all pins and sleeves, interiors and plug shell. Watertight even when not engaged up to 1000 psi. Watertight capability shall be obtained by using a gasketed crew cap. The watertight/flap screw cover shall meet the requirements for NEMA types 4, 4X, and 6 standards.
- G. All devices shall be factory polarized for amperage, voltage, frequency and phase. This shall provide a single voltage rating, single interface system.
- H. The grounding of the device shall be accomplished through a separate integrated safety ground make-first and break-last pole on all devices for complete system grounding. All devices shall accommodate up to three power pins plus a separate integrated ground pin and they shall be integral with the connector bodies (4 pins total).
- I. Interiors shall be male (pin type) or female (sleeve type). Pins and sleeves shall also be self-aligning and self-wiping/self-cleaning.
- J. Pin and sleeve connections shall employ solderless pressure type screw terminals and be sized to accept stranded or solid copper conductors in AWG sizes as follows:
- |    |     |             |
|----|-----|-------------|
| 1. | 20A | 12 Max. AWG |
| 2. | 30A | 8 Max. AWG  |
| 3. | 50A | 6 Max. AWG  |
| 4. | 60A | 6 Max. AWG  |
- The screw terminals shall also have socket heads to insure proper torquing of wires.

- K. Each device shall have an environmental seal or “O” ring sealing system around all interiors and around each pin and sleeve to prevent water and contaminants from entering the wiring compartment per NEMA Type 4 rating.

**PART 3 – EXECUTION**

**3.1 INSTALLATION**

- A. Installation shall be in accordance to the NEC, CEC and manufacturer’s instructions.

**END OF SECTION**