

[PROJECT NUMBER]
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ROCKWELL AUTOMATION

PROCUREMENT SPECIFICATION

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Rotary Disconnect Switches Bulletin 194R

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SECTION XX XX XX
ROTARY DISCONNECT SWITCHES

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes fusible and non-fusible rotary disconnect switches, including those used as standard OFF-ON or emergency stop in main panel disconnect.

1.02 QUALIFICATIONS

A. Manufacturer

- 1. The manufacturer shall have a minimum of 25 years of experience in the manufacture of rotary disconnect switches.
- 2. The approved manufacturers are:
 - a) Rockwell Automation Allen-Bradley
 - b) Substitutions: None permitted

B. Certification

- 1. To ensure all quality and corrective-action procedures are documented and implemented, all manufacturing locations shall be certified to the ISO-9001 Series of Quality Standards.
- 2. Third-party manufacturers and brand labeling shall not be allowed.

1.03 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract apply to this section.
- B. The following sections contain requirements that relate to this section:
 - 1. Section _____, Electrical: Basic Requirements
 - 2. Section _____

1.04 REFERENCES

A. The rotary disconnect switches shall be:

- 1. UL Listed
- 2. CSA Certified
- 3. CE Marked

B. The following standards shall be met:

- 1. UL 98, UL 508
- 2. CSA C22.2, No. 4; CSA C22.2, No. 14
- 3. IEC 60947-3 Low Voltage Switchgear and Controlgear Part 3
- 4. VDE 0660-107

- C. NFPA 79 compliance for opened/closed panel operation shall be available up to 63A for fused and non-fused and 100 to 800A for fused disconnects.

1.05 ENVIRONMENTAL REQUIREMENTS

- A. The supplier shall confirm specified service conditions during and after installation of products.
- B. The supplier shall maintain the area free of dirt and dust during and after installation of products.

1.06 PRE-MANUFACTURE SUBMITTALS

- A. Submittals shall be made in accordance with Section 01 33 00, Submittal Procedures.
- B. Product data shall include:
 - 1. Publications on each type of rotary disconnect switch.
 - 2. Data sheets on options and accessories, when applicable.
- C. Installation instructions shall include a copy of the manufacturer's installation instructions, including receiving, handling, and storage requirements.

1.07 FINAL SUBMITTALS

- A. Supplier certification shall be provided that the rotary disconnect switches have been installed in accordance with the manufacturer's instructions.
- B. Testing shall be performed per manufacturer's standard. A copy of the test reports, if available, shall be provided as part of the final documentation.
- C. Final drawings shall include:
 - 1. Drawings for each rotary disconnect switch of dimensioned plans, elevations, sections, and details, along with clearances and service-space requirements. The drawings shall show tabulations of installed devices, including –
 - a) Current, voltage, horsepower, and short-circuit ratings.
 - b) Fuse type, if applicable.
 - c) Handle type and accessories.
 - d) Identification of equipment served.
 - 2. Diagrams to show power, signal, and control wiring.
- D. Maintenance data shall include:
 - 1. Rotary disconnect switch User Manual.
 - 2. Name and phone number of a local distributor for the spare parts.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Allen-Bradley / Rockwell Automation – Rotary Disconnect Switches, Bulletin 194R
(No substitutions)

2.02 ROTARY DISCONNECT SWITCHES

- A. The rotary disconnect switches shall include: [include applicable devices]
1. UL/CSA Fusible Disconnect Switches.
 2. UL/CSA Non-Fusible Disconnect Switches.
 3. IEC Fusible Disconnect Switches.
 4. IEC Non-Fusible Disconnect Switches.
- B. The rotary disconnect switches shall be interoperable with standard electrical equipment.

2.03 UL/CSA FUSIBLE DISCONNECT SWITCHES

A. RATINGS

1. The fusible rotary disconnect switches shall have UL/CSA ratings in 100, 200, 400, 600, and 800A sizes (at 600 VAC), with power/voltage as indicated on the drawings:
 - a) 30 through 200 HP at 240V.
 - b) 60 through 500 HP at 440-480V.
 - c) 75 through 500 HP at 600V.
2. The fusible rotary disconnect switches shall have DC ratings as indicated on the drawings:
 - a) 7.5 through 20 HP at 125 VDC (2 poles in series).
 - b) 20 through 50 HP at 250 VDC (3 poles in series).
3. The fusible rotary disconnect switches shall have a short circuit rating of 200 kA.
4. The fusible rotary disconnect switches shall use fuse types –
 - a) 100, 200, 400, 600A: Class J/HRCI-J.
 - b) 800A: Class L/HRCI-L.
5. The fusible rotary disconnect switches shall be rated for an ambient temperature of –
 - a) Open: -20 to +60°C (-4 to +140°F).
 - b) Enclosed: -20 to +60°C (-4 to +140°F).
 - c) Storage: -40 to +65°C (-40 to +149°F).
6. The fusible rotary disconnect switches shall have a mechanical life of:
 - a) 10,000 operations for 100A device.
 - b) 8,000 operations for 200A device.
 - c) 6,000 operations for 400A device.
 - d) 5,000 operations for 600A, 800A device.

B. CONSTRUCTION

1. The fusible rotary disconnect switches shall have a compact footprint, a touch-safe switch body with OSHA padlocking capability, and a double-break design for full line and load isolation when in the OFF position.
2. Each fusible version of the rotary disconnect switch shall have a front or side external operator, as indicated on the drawings, with a test-mode switch position up to 63A.

C. OPERATING SHAFTS AND HANDLES

1. The fusible rotary disconnect switches above 63A shall have 300 mm (12 inch) or 550 mm (22 inch) operating shafts as indicated on the drawings.
2. Rotary operating handles shall be, as indicated on the drawings:
 - a) Red/yellow or matte black.
 - b) With or without defeater.
 - c) Ingress rated Type 1 or Type 3, 3R, 12, 4, 4X.
3. NFPA 79 operating shafts and handles shall be provided as indicated on the drawings. **[option]**

D. ACCESSORIES

1. The fusible rotary disconnect switches shall include accessories as indicated on the drawings.
2. The fusible rotary disconnect switches shall accommodate up to 6 standard auxiliary contact blocks.
3. Terminal shields shall offer line and load protection against contact with terminals.
4. Line and load lugs shall be suitable for single- or multiple-conductor applications.
5. Bolt kits shall be supplied for adapting lugs or ring/crimp conductors.

2.04 UL/CSA NON-FUSIBLE DISCONNECT SWITCHES

A. RATINGS

1. The non-fusible rotary disconnect switches shall have UL/CSA ratings in 100, 200, 400, 600, 800, and 1200A sizes (at 600 VAC), with power/voltage as indicated on the drawings:
 - a) 30 through 200 HP at 220-240V.
 - b) 75 through 500 HP at 440-480V.
 - c) 100 through 500 HP at 600V.
2. The non-fusible rotary disconnect switches shall have DC ratings as indicated on the drawings:
 - a) 10 through 20 HP at 125 VDC (2 poles in series).
 - b) 15 through 50 HP at 250 VDC (3 poles in series).

3. The non-fusible rotary disconnect switches shall have a short circuit rating of –
 - a) 100, 200, 400, 600A: 200 kA.
 - b) 800, 1200A: 100 kA.
4. The non-fusible rotary disconnect switches shall be rated for an ambient temperature of –
 - a) Open: -20 to +60°C (-4 to +140°F).
 - b) Enclosed: -20 to +60°C (-4 to +140°F).
 - c) Storage: -40 to +65°C (-40 to +149°F).
5. The non-fusible rotary disconnect switches shall have a mechanical life of:
 - a) 10,000 operations up to 200A.
 - b) 6,000 operations up to 600A.
 - c) 3,500 operations up to 1200A.

B. CONSTRUCTION

1. The non-fusible rotary disconnect switches shall have a compact design and high resistance to humidity.
2. Each non-fusible rotary disconnect switch shall be a 3- or 4-pole version, as indicated on the drawings.

C. OPERATING SHAFTS AND HANDLES

1. The non-fusible rotary disconnect switches shall have 300 mm (12 inch) or 550 mm (22 inch) operating shafts as indicated on the drawings.
2. Rotary operating handles shall be, as indicated on the drawings:
 - a) Red/yellow or matte black.
 - b) With or without defeater.
 - c) Ingress rated Type 1 or Type 3, 3R, 12, 4, 4X.
3. NFPA 79 operating shafts and handles shall be provided as indicated on the drawings for units using up to 60A. **[option]**

D. ACCESSORIES

1. The non-fusible rotary disconnect switches shall include accessories as indicated on the drawings.
2. The non-fusible rotary disconnect switches shall accommodate up to 2 N.O./N.C. Form C contacts.
3. Terminal shields shall offer line and load protection against contact with terminals.
4. Line and load lugs shall be suitable for single- or dual-conductor applications.
5. Bolt kits shall be supplied for adapting lugs or ring/crimp conductors.

2.05 IEC FUSIBLE DISCONNECT SWITCHES

A. RATINGS

1. The fusible rotary disconnect switches shall have IEC ratings in 125, 160, 250, 400, 630, 800, and 1250A sizes (at 690 VAC), with power/voltage as indicated on the drawings:
 - a) 80 through 560 kW at 400V.
 - b) 110 through 475 kW at 690V.
2. The fusible rotary disconnect switches shall have a DC rating of 440 VDC.
3. The fusible rotary disconnect switches shall have a short circuit rating of – 125, 160, 250, 400, 630, 800, 1250A: 100 kA.
4. The fusible rotary disconnect switches shall use BS, DIN, and NFC fuses.
5. The fusible rotary disconnect switches shall be rated for an ambient temperature of –
 - a) Open: -20 to +60°C (-4 to +140°F).
 - b) Enclosed: -20 to +60°C (-4 to +140°F).
 - c) Storage: -40 to +65°C (-40 to +149°F).
6. The fusible rotary disconnect switches shall have a mechanical life of:
 - a) 10,000 operations up to 400A.
 - b) 8,000 operations up to 800A.
 - c) 5,000 operations up to 1250A.

B. CONSTRUCTION

1. The fusible rotary disconnect switches shall have a compact footprint, a protection level of IP20 with terminal shields, and a double-break design for full line and load isolation when in the OFF position.
2. Each fusible version of the rotary disconnect switch shall have a front or side external operator, as indicated on the drawings.

C. OPERATING SHAFTS AND HANDLES

1. The fusible rotary disconnect switches shall have 300 mm (12 inch) or 550 mm (22 inch) operating shafts as indicated on the drawings.
2. Rotary operating handles shall be, as indicated on the drawings:
 - a) Red/yellow or matte black.
 - b) With or without defeater.
 - c) Ingress rated IP42 or IP66.
3. NFPA 79 operating shafts and handles shall be provided as indicated on the drawings. [option]

D. ACCESSORIES

1. The fusible rotary disconnect switches shall include accessories as indicated on the drawings.

2. The fusible rotary disconnect switches shall accommodate up to 6 standard auxiliary contact blocks.
3. Terminal shields shall offer line and load protection against contact with terminals.
4. Line and load lugs shall be suitable for single- or dual-conductor applications.
5. Bolt kits shall be supplied for use with adapting lugs or ring/crimp conductors.

2.06 IEC NON-FUSIBLE DISCONNECT SWITCHES

A. RATINGS

1. The non-fusible rotary disconnect switches shall have IEC ratings in 125, 160, 250, 400, 630, 800, and 1250A sizes (at 690 VAC), with power/voltage as indicated on the drawings:
 - a) 63 through 710 kW at 400V.
 - b) 63 through 710 kW at 500V.
 - c) 55 through 475 kW at 690V.
2. The non-fusible rotary disconnect switches shall have a DC rating of 500 VDC.
3. The non-fusible rotary disconnect switches shall have a short circuit rating of –
 - a) 125, 160, 400, 1250A: 100 kA.
 - b) 250, 800A: 50 kA.
 - c) 630A: 70 kA.
4. The non-fusible rotary disconnect switches shall satisfy severe utilization categories AC-22 and AC-23.
5. The non-fusible rotary disconnect switches shall be rated for an ambient temperature of –
 - a) Open: -20 to +60°C (-4 to +140°F).
 - b) Enclosed: -20 to +60°C (-4 to +140°F).
 - c) Storage: -40 to +65°C (-40 to +149°F).
6. The non-fusible rotary disconnect switches shall have a mechanical life of 10,000 operations.

B. CONSTRUCTION

1. The non-fusible rotary disconnect switches shall have a compact design, universal UL/IEC switch body, and high resistance to humidity.
2. Each non-fusible rotary disconnect switch shall be a 3- or 4-pole version, as indicated on the drawings.

C. OPERATING SHAFTS AND HANDLES

1. The rotary fusible disconnect switches shall have 300 mm (12 inch) or 550 mm (22 inch) operating shafts as indicated on the drawings.
2. Rotary operating handles shall be, as indicated on the drawings:
 - a) Red/yellow or matte black.
 - b) With or without defeater.
 - c) Ingress rated IP42 or IP66.

D. ACCESSORIES

1. The non-fusible rotary disconnect switches shall include accessories as indicated on the drawings.
2. The non-fusible rotary disconnect switches shall accommodate up to 2 N.O./N.C. Form C contacts.
3. Terminal shields shall offer line and load protection against contact with terminals.
4. Line and load lugs shall be suitable for single- or dual-conductor applications.
5. Bolt kits shall be supplied for adapting lugs or ring/crimp conductors.

PART 3 EXECUTION

3.01 DELIVERY, STORAGE, AND HANDLING

- A. The supplier shall coordinate the shipping of equipment.
- B. The supplier shall store the equipment in a clean and dry space.
- C. The supplier shall protect the units from dirt, water, construction debris, and traffic.

3.02 INSTALLATION

- A. The supplier shall verify device assembly.
- B. The supplier shall ensure accessibility to operator. These components shall be free from obstruction at all times.

3.03 SPARE MATERIALS

- A. The supplier shall provide one (1) spare rotary disconnect switch of each size utilized, including options.

3.04 WARRANTY

- A. The manufacturer shall provide their standard parts warranty for eighteen (18) months from the date of shipment or twelve (12) months from the date of being energized, whichever occurs first.
- B. The manufacturer shall confirm this warranty as part of the submittal.

END OF SECTION

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