

S&C Recloser Bypass Disconnects

Outdoor Distribution (14.4 kV through 34.5 kV)

Application

S&C Recloser Bypass Disconnects are station-type devices used to bypass and isolate automatic circuit reclosers for repair or routine maintenance—and are generally applied in combination with a separately mounted S&C Loadbuster Disconnect®. They can also be applied to bypass and isolate other devices such as current transformers.

S&C Recloser Bypass Disconnects consist of a fuse (which provides protection for the circuit during recloser downtime) in series with an integral S&C Loadbuster Disconnect. A choice of fuses, including S&C Power Fuses—Type SMD-20, Type SMD-40, or Type SM-5®, or an S&C Fuse Cutout—Type XS, is offered to allow tailoring to the available fault and continuous current levels of a specific application. (S&C Recloser Bypass Disconnects are available with the power fuse mounted either on the right or on the left to fit the physical requirements of the installation.) Alternately, a second Loadbuster Disconnect is available in place of a fuse for applications where devices other than protective equipment are being bypassed for maintenance or inspection.

S&C Recloser Bypass Disconnects are available in voltage ratings of 14.4 kV, 25 kV, and 34.5 kV and, depending on which S&C Recloser Bypass Disconnect is specified, can be applied on circuits having a continuous current level through 600 amperes. A complete listing of switch and fuse momentary and/or continuous current ratings is provided in the tables on pages 6 through 11.

Construction

S&C Recloser Bypass Disconnects feature an S&C Loadbuster Disconnect in series with a fuse (or a second S&C Loadbuster Disconnect) mounted to a rugged $\frac{3}{16}$ -inch-thick galvanized formed-steel base. Bases are provided with numerous mounting holes and slots for easy attachment to a user's supporting structure. S&C Recloser Bypass Disconnects are offered with a choice of Cypoxy®★ or porcelain station post insulators.

The disconnect blade of the bypass disconnect is of double-member hard-drawn copper construction, formed for extra rigidity; the blade's broad-based hinge attachment augments the stability of the disconnect, thus ensuring positive contact engagement, even when closed from the side. Silver-to-silver contacts at the latch end of the disconnect blade are backed by stainless-steel loading springs to keep contacts under constant pressure (ensuring minimum resistance at current-transfer points) and to provide a smooth, positive wiping action during each opening and closing operation. And the surface structure of the stationary contacts differs from that of the blade contacts, thus preventing sticking, galling, or seizing. Contacts won't weld, burn, or pit on overcurrents.

The S&C Power Fuse or S&C Fuse Cutout mounted in series with the disconnect blade features spring-backed silver-to-silver contacts at all current-transfer points. And the easily accessible trunnion pocket in the rugged cast bronze hinge makes inserting the holder or fuse unit (or fuse tube) an easy operation. Guide surfaces on the inner faces of the hinge casting ensure "on-center" approach of the fuse to the upper live parts upon closing. And a carefully positioned and proportioned bronze pull-ring makes opening with a conventional hookstick a simple operation. For details concerning the operation of S&C Recloser Bypass Disconnects, refer to the section headed "Operation" on page 4.

★ Cypoxy is the S&C trademark for S&C's cycloaliphatic epoxy resin system. Cypoxy is nontracking, self-scouring, nonweathering . . . there's never a compromise of insulation integrity.

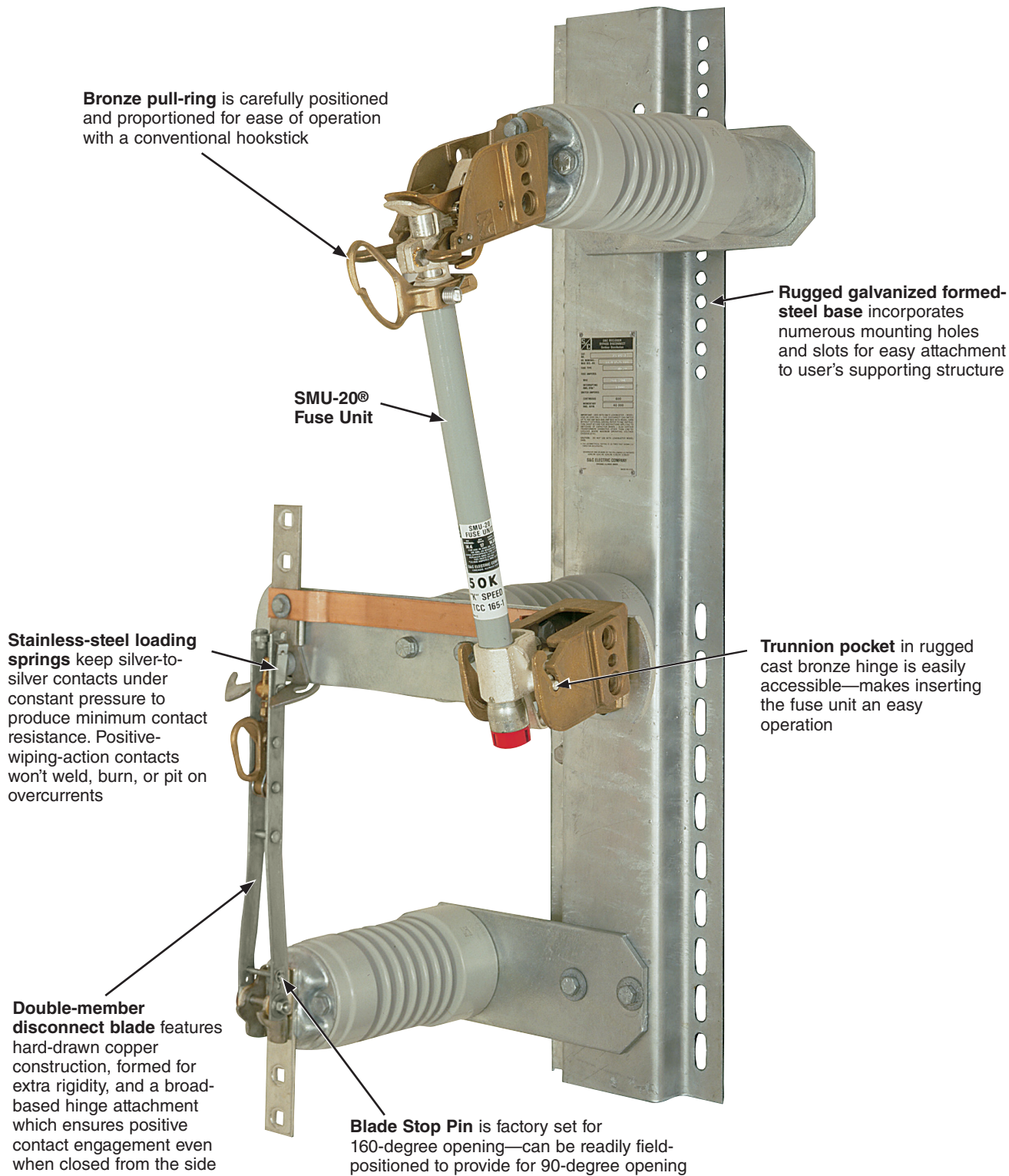


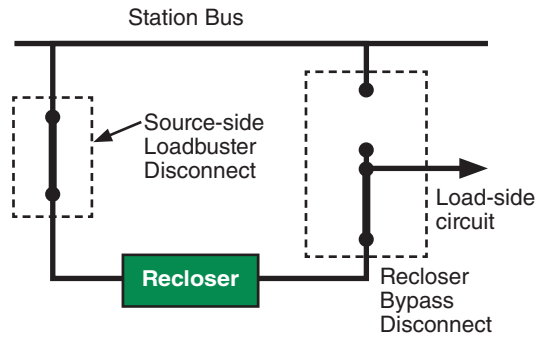
Figure 1. Construction of S&C Recloser Bypass Disconnect with Type SMD-20 Power Fuse.

Operation

S&C Recloser Bypass Disconnects are operated as illustrated in Figure 2. In the normal operating configuration, the fuse is removed from the recloser bypass disconnect, and loads are served through the circuit recloser. To bypass the recloser for repair or inspection, a fuse holder, fuse unit, or cutout fuse tube (as applicable) is installed in the recloser bypass disconnect and closed; the integral disconnect blade is then opened to isolate the recloser from the load-side circuit. Lastly, the source-side S&C Loadbuster Disconnect is opened to de-energize the recloser and to completely isolate it from surrounding circuits.

To restore the recloser to service, the source-side S&C Loadbuster Disconnect and then the disconnect blade on the bypass disconnect are closed in with a conventional hookstick (the recloser should also be closed-in at this time if not already closed). Then the fuse is opened to interrupt the bypass circuit—and the holder, fuse unit, or fuse tube is removed from the fuse mounting. (Outdoor fuses should not be left in the disconnect position for extended periods.) A conventional hookstick can be used to open the fuse.

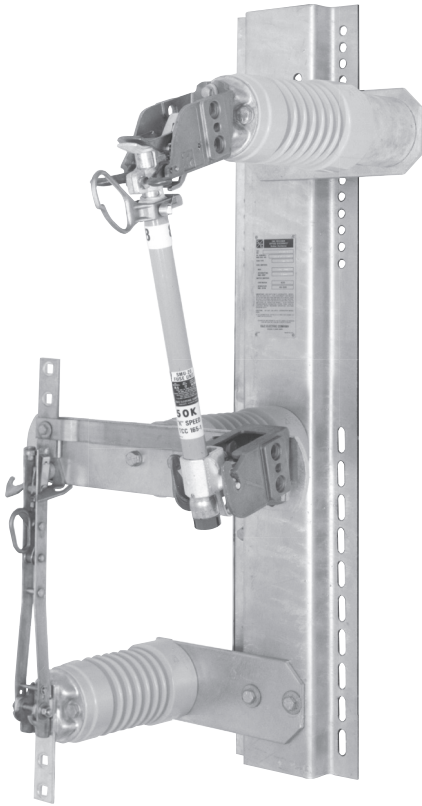
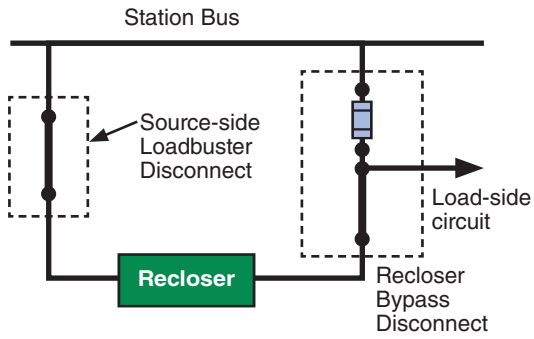
Normal Operating Configuration



Bypass circuit open (fuse removed), with recloser bypass disconnect blade and source-side S&C Loadbuster Disconnect closed.

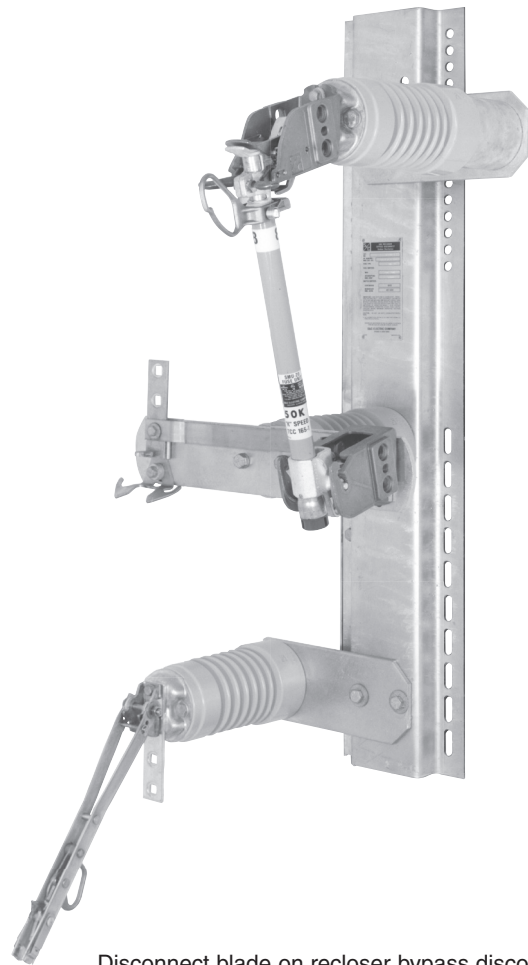
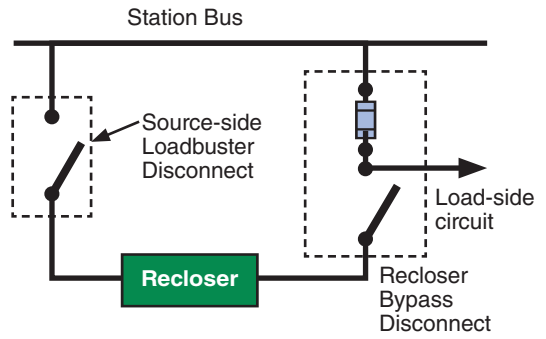
Figure 2. Sequence of operation for S&C Recloser Bypass Disconnects.

Bypassing the Recloser



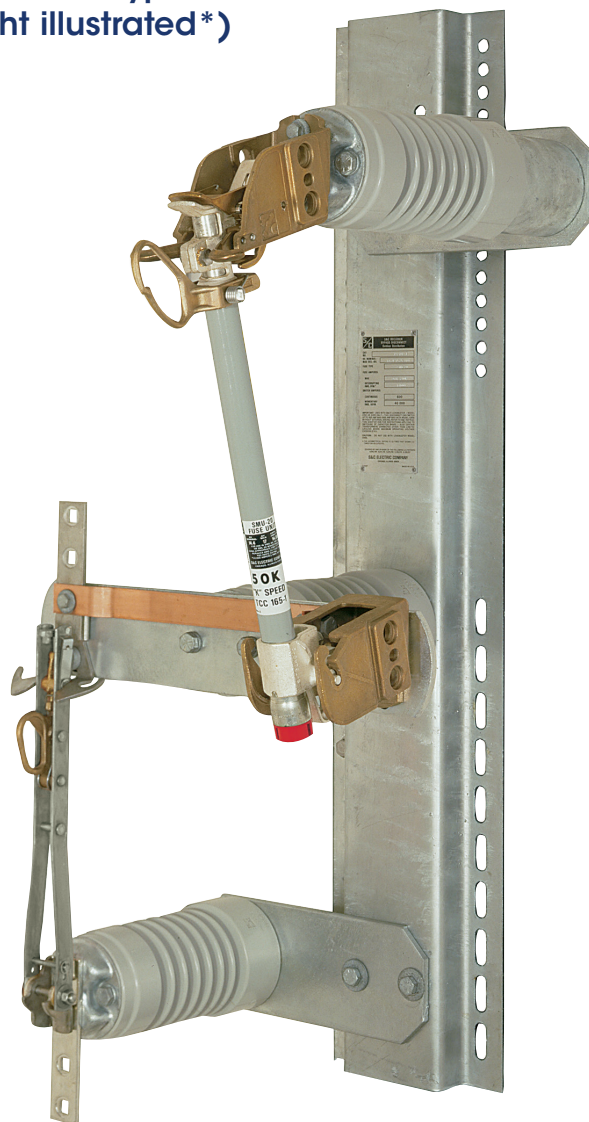
Fuse installed in hinge and closed to, in effect, provide a parallel path around the recloser.

Isolating the Recloser



Disconnect blade on recloser bypass disconnect and also source-side S&C Loadbuster Disconnect opened to de-energize and completely isolate the recloser.

Recloser Bypass Disconnect with Type SMD-20 Power Fuse (fuse on right illustrated*)



*Also available in model with fuse on left.

S&C Recloser Bypass Disconnect with Type SMD-20 Power Fuse, furnished with Cyproxy station post insulators

Rating			Catalog Number ^③							
kV			Amperes, RMS				Cyproxy Station Post Insulators		Porcelain Station Post Insulators	
Nom.	Max	BIL	Switch		Fuse		Fuse on Right	Fuse on Left	Fuse on Right	Fuse on Left
			Cont.	Mom. ^① (Asym.)	Max	Interr. ^② (Sym.)				
14.4	15.5	110	600	40 000	200E▲	14 000	192702-E	192712-E	192702	192712
25	27	150	600	40 000	200E▲	12 500	192703-E	192713-E	192703	192713
34.5	38	200	900	40 000	200E▲	10 000	192704-E	192714-E	192704	192714

① One-second rating: 25,000 amperes RMS symmetrical; three-second rating: 16,000 amperes RMS symmetrical.

② Symmetrical fuse interrupting ratings assigned to Recloser Bypass Disconnects furnished with SMD-20 Power Fuses are based on available short-circuit current at locations where the X/R ratio is 15; the interrupting ratings expressed in amperes RMS asymmetrical are 1.6 times the symmetrical ratings listed.

③ Includes fuse-unit end fittings. SMU-20 Fuse Units are not included.

▲ SMD-20 Power Fuses accommodate SMU-20 Fuse Units in ratings through 200K amperes as well as 200E amperes.

Recloser Bypass Disconnect with Type SMD-40 Power Fuse (fuse on right illustrated*)



*Also available in model with fuse on left.

S&C Recloser Bypass Disconnect with Type SMD-40 Power Fuse, furnished with Cyproxy station post insulators

Rating			Rating				Catalog Number ^③			
kV			Amperes, RMS				Cyproxy Station Post Insulators		Porcelain Station Post Insulators	
Nom.	Max	BIL	Switch		Fuse		Fuse on Right	Fuse on Left	Fuse on Right	Fuse on Left
			Cont.	Mom. ^① (Asym.)	Max	Interr. ^② (Sym.)				
14.4	15.5	110	600	40 000	400E	25 000	192802-E	192812-E	192802	192812
25	27	150	600	40 000	400E	20 000	192803-E	192813-E	192803	192813

① One-second rating: 25,000 amperes RMS symmetrical; three-second rating: 16,000 amperes RMS symmetrical.

② Symmetrical fuse interrupting ratings assigned to Recloser Bypass Disconnects furnished with SMD-40 Power Fuses are based on available short-circuit current at locations where the X/R ratio is 15; the interrupting ratings expressed in amperes RMS asymmetrical are 1.6 times the symmetrical ratings listed.

③ Includes fuse-unit end fittings. SMU-40 Fuse Units are not included.

④ SMD-40 mountings can be equipped with an optional attachment hook to accommodate Loadbuster[®]. Specify by adding suffix "LB" to the catalog number.

Recloser Bypass Disconnect with Type SM-5 Power Fuse (fuse on right illustrated*)



*Also available in model with fuse on left.

S&C Recloser Bypass Disconnect with Type SM-5 Power Fuse, furnished with porcelain station post insulators

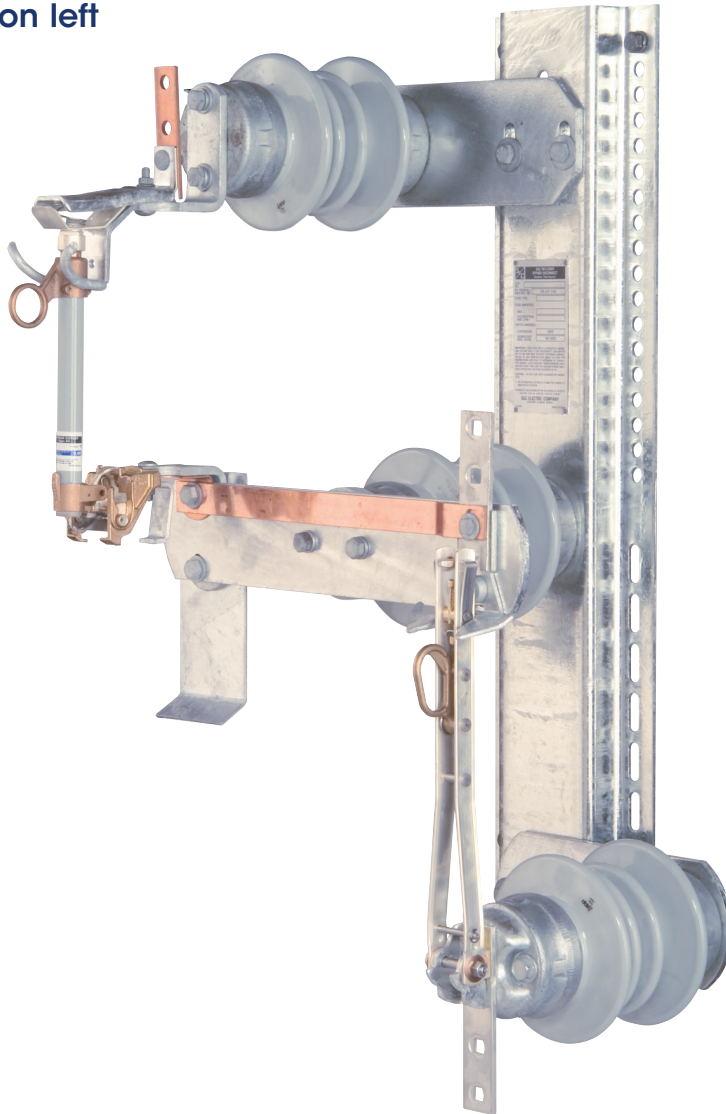
Rating							Catalog Number ^③			
kV			Amperes, RMS				Cyproxy Station Post Insulators		Porcelain Station Post Insulators	
Nom.	Max	BIL	Switch		Fuse		Fuse on Right	Fuse on Left	Fuse on Right	Fuse on Left
			Cont.	Mom. ^① (Asym.)	Max	Interr. ^② (Sym.)				
14.4	15.5	110	600	40 000	400E	34 000	192722-E	192732-E	192722	192732
25	27	150	600	40 000	300E	20 000	192723-E	192733-E	192723	192733

① One-second rating: 25,000 amperes RMS symmetrical; three-second rating: 16,000 amperes RMS symmetrical.

② Symmetrical fuse interrupting ratings assigned to Recloser Bypass Disconnects furnished with SM-5 Power Fuses are based on available short-circuit current at locations where the X/R ratio is 15; the interrupting ratings expressed in amperes RMS asymmetrical are 1.6 times the symmetrical ratings listed.

③ SM-5 Holders and SM-5 Refill Units are not included. Models rated 14.4 kV require SM-5 Holder, Catalog Number 86152R2. Models rated 25 kV require SM-5 Holder, Catalog Number 86153R2.

Recloser Bypass Disconnect with Type XS Fuse Cutout (fuse on left illustrated*)



*Also available in model with fuse on right.

S&C Recloser Bypass Disconnect with Type XS Fuse Cutout, furnished with porcelain station post insulators

Rating							Catalog Number ^③			
kV			Amperes, RMS				Cypoxy Station Post Insulators		Porcelain Station Post Insulators	
Nom.	Max	BIL	Switch		Fuse		Fuse on Right	Fuse on Left	Fuse on Right	Fuse on Left
			Cont.	Mom. ① (Asym.)	Max	Interr. ② (Sym.)				
14.4	15	110	600	40 000	100	7 100	192742R1-E◆	192752R1-E◆	192742R1◆	192752R1◆
14.4	15	110	600	40 000	200	7 100	192762R1-E■	192772R1-E■	192762R1■	192772R1■
25	27	150	600	40 000	100	5 300	192763R1-E●	192773R1-E●	192763R1●	192773R1●
25	27	150	600	40 000	200	5 300	192743R1-E■	192753R1-E■	192743R1■	192753R1■

① One-second rating: 25,000 amperes RMS symmetrical; three-second rating: 16,000 amperes RMS symmetrical.

② Symmetrical fuse interrupting ratings assigned to Recloser Bypass Disconnects furnished with Type XS Fuse Cutouts are based on available short-circuit current at locations where the X/R ratio is 8 for 14.4-kV models, or 12 for 25-kV models; the RMS asymmetrical interrupting ratings are 10,000 amperes for 14.4-kV models, 8,000 amperes for 25-kV models.

③ Fuse links are not included.

◆ Includes fuse tube, Catalog Number 89521R10.

■ Includes fuse tube, Catalog Number 89572R11.

● Includes fuse tube, Catalog Number 89522R10.

Recloser Bypass Disconnect with Second Loadbuster Disconnect in Place of Fuse

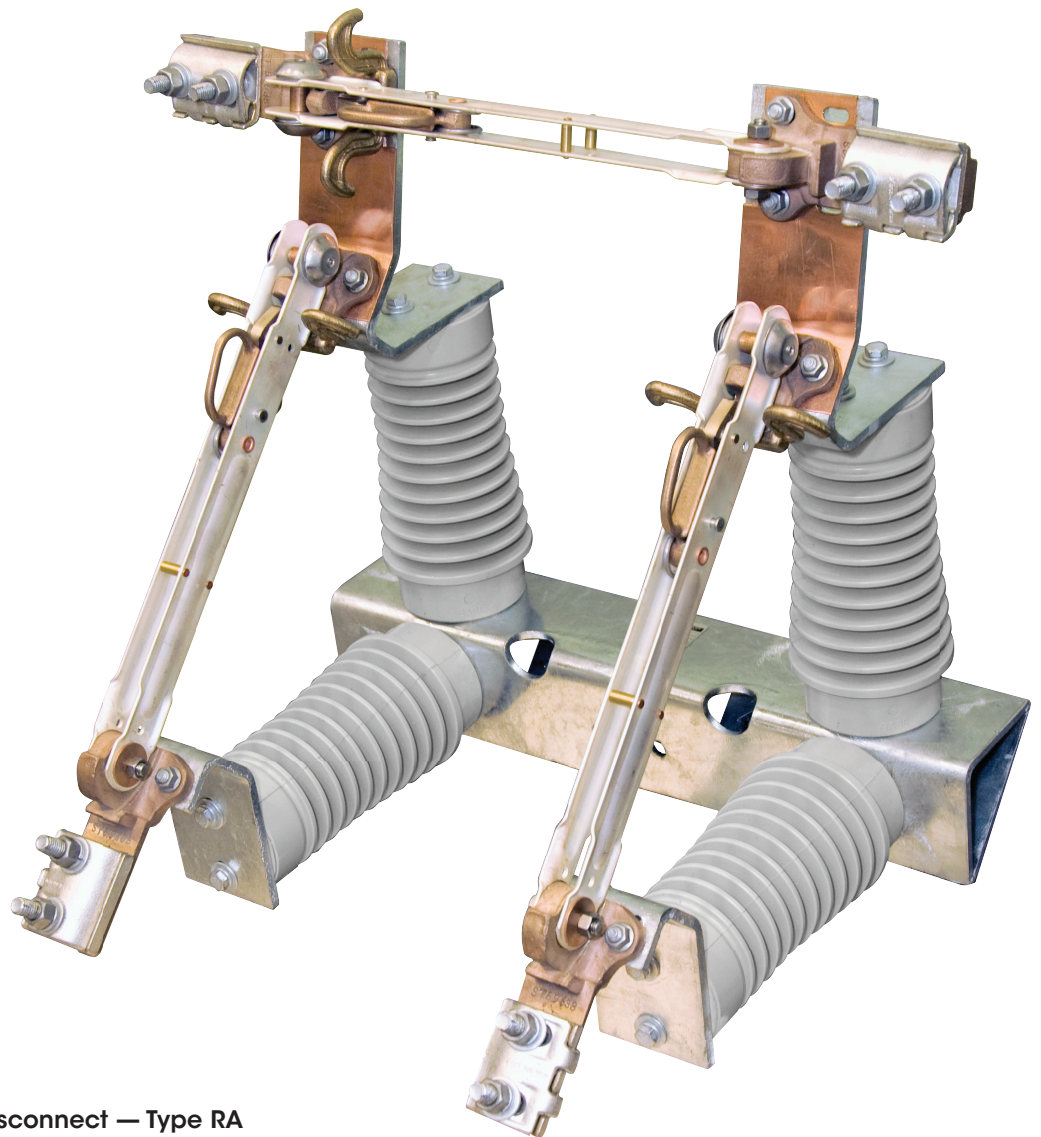


S&C Recloser Bypass Disconnect with Second Loadbuster Disconnect in Place of Fuse, furnished with porcelain station post insulators

Rating					Catalog Number	
kV			Amperes, RMS		Cyproxy Station Post Insulators	Porcelain Station Post Insulators
Nom.	Max	BIL	Switch			
			Cont.	Mom. ① (Asym.)		
14.4	15.5	110	600	40 000	192782-E	192782
25	27	150	600	40 000	192783-E	192783

① One-second rating: 25,000 amperes RMS symmetrical; three-second rating: 16,000 amperes RMS symmetrical.

Recloser Bypass Disconnect — Type RA



S&C Recloser Bypass Disconnect — Type RA

Ratings					Leakage Distance to Ground, Minimum, Inches (mm)	Catalog Number			
kV			Amperes, RMS			Cypoxy Insulators		Porcelain Station Post Insulators	
Nom.	Max	BIL	Cont.	Mom., ^① Asym.		Clockwise Blade Opening	Counter-Clockwise Blade Opening	Clockwise Blade Opening	Counter-Clockwise Blade Opening
14.4	15.5	110	900	40 000	14.2 (361)	192522-E	192532-E	192522	192532
25	27	125▲	900	40 000	24.2 (615)	192523-E	192533-E	192523	192533

① For disconnects rated 900 amperes continuous, the 3-second rating is 25,000 amperes RMS symmetrical.

▲ These disconnects equipped with Cypoxy Insulators meet requirements for 150-kV BIL rating.

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