

S&C Positrol[®] Fuse Links



DESIGN MAKES A DIFFERENCE.

Eliminate unnecessary cutout operations and reduce maintenance and operation costs.

Have you ever had a distribution-fuse cutout operate unnecessarily or for an unknown cause?

On today's power distribution systems, fuse cutouts play an essential role in system and equipment protection. However, a key determinant in any cutout's ability to function properly is the fuse link. The low-current fault-interrupting capabilities essential to a reliable fuse are provided not so much by the cutout, but by the fuse link. A failure of the fuse link to perform as intended can result in nuisance fuse operations (sneakouts), needless outages and miscoordination with other devices. To a utility, that's dollars and cents . . . and it's not limited merely to the cost of a replacement fuse link.

Although use of other manufacturer's fuse links may result in small savings up front, the expense of finding and replacing fuse links that sneak out can cost many times the initial investment. The outages caused by unnecessary operations of cutouts (due to the use of marginally designed fuse links)

affect your maintenance and operations costs. This, in turn, affects your fuse link costs, making a \$5 fuse link in reality a \$13 fuse link or even higher.

The key to eliminating this impact is to remove the unnecessary cutout operations by using reliable fuse links that operate only when required.

Positrol Fuse Links are designed to provide reliable protection, and they operate only when a fault occurs within the cutout's zone of protection. With Positrol Fuse Links, you eliminate unnecessary cutout operations and thereby reduce your maintenance and operation costs.

Learn more about why design makes a difference at sandc.com/positrol.





A Silver Majority Fuse Element—Allows fuse links to carry current close to the minimum melting time without any damage

B Helically Coiled Element—Better design to handle mechanical tension and stresses to avoid damage to fuse element

C Swaging (Solderless) Connection—Creates a secure connection between the fuse element and other components

The following features of S&C Positrol Fuse Links provide benefits unobtainable in any other make of fuse link:

Nondamageability

S&C Standard Speed, S&C "K" Speed, and S&C "T" Speed Positrol Fuse Links rated 6 amperes through 100 amperes and S&C "QR" Speed and S&C "N" Speed Positrol Fuse Links rated 10 amperes through 100 amperes use nickel-chrome or helically coiled silver or silver-copper eutectic fuse elements that are not affected by mechanical shock or vibration or by transient surges that may heat the element nearly to the severing point. Consequently, these fuse links are nondamageable—eliminating nuisance fuse operations and providing the permanently accurate time-current characteristics essential to the integrity of carefully engineered system coordination plans. Also, because S&C Positrol Fuse Links are nondamageable, there is no need to replace companion Positrol Fuse Links on suspicion of damage following an adjacent-fuse operation.

Close Tolerance

S&C Positrol Fuse Links incorporating silver or silver-copper eutectic fusible elements have a total melting current tolerance of 10% within the coordinating range (i.e., melting times less than 10 seconds) compared to the 20% tolerance for tin-element fuse links. The close tolerance is possible because of physical properties inherent to silver and silver-copper eutectic fuse-element materials and because of the meticulous care exercised in the manufacture, handling, and assembly of S&C Positrol Fuse Links. (S&C inspects fuse-element wire using a sophisticated laser micrometer to ensure diametral tolerances as small as 0.0002 inches.) The narrow tolerance band for precision-manufactured S&C Positrol Fuse Links not only permits closer fusing for improved protection, but also more precise series coordination of fuse links with other fuse links or with reclosers for enhanced service reliability.

Superior Fault-Interrupting Performance

The superior fault-interrupting performance of S&C Positrol Fuse Links—particularly with respect to low-current transformer secondary-side faults—has been conclusively demonstrated in extensive testing performed by S&C with Positrol Fuse Links installed in S&C Type XS Fuse Cutouts as well as cutouts of other manufacturers. In all of these tests, S&C Positrol Fuse Links provided superior performance across the full range of secondary-fault current levels and under realistic transient-recovery-voltage conditions. The outstanding fault-interrupting performance of S&C Positrol Fuse Links is attributable to the fuse-link sheath and, with respect to low-current transformer secondary-side faults typically handled by fuse links rated 50 amperes and below, attributable to a special high-strength extruded thermo-plastic sheath. The extruded thermo-plastic sheath is essential in the lower-ampere-rated fuse links because low-current transformer secondary-side faults are not only the most difficult to clear, but also the most frequently experienced. S&C Universal-Style Positrol Fuse Links provide unsurpassed secondary-fault performance for applications 14.4 kV through 24.9 kV and to single-phase-to-neutral applications through 38 kV.

S&C Positrol Fuse Links are available in Universal, Indicating, and Open styles. Typical construction features for the Universal style are illustrated here. For a complete listing of fuse-link styles, speeds, ampere ratings, and catalog numbers, refer to the Ratings table on page 6.

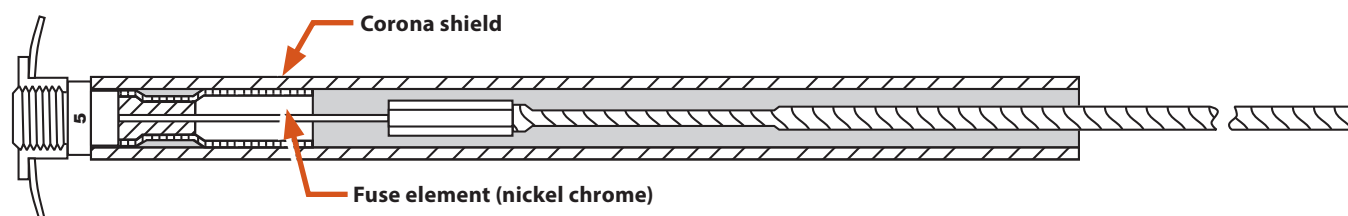


Figure 1. S&C Standard Speed Fuse Links rated less than 6 amperes; S&C "QR" Speed and S&C "N" Speed Fuse Links rated less than 10 amperes.

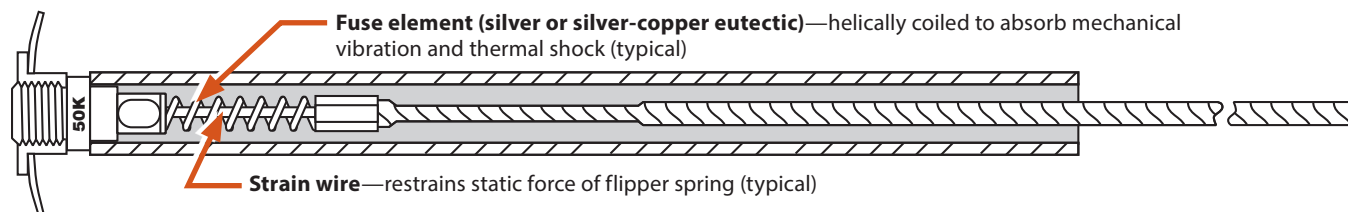


Figure 2. S&C Standard Speed, S&C "K" Speed, and S&C "T" Speed Fuse Links rated 6 amperes through 100 amperes; S&C "QR" Speed, and S&C "N" Speed Fuse Links rated 10 amperes through 100 amperes.

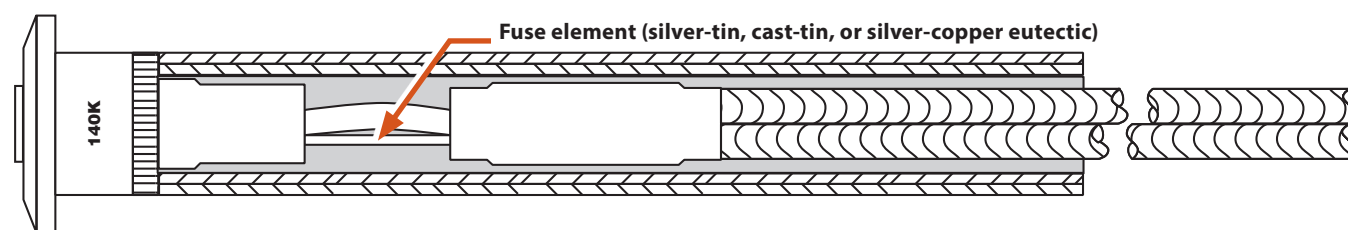

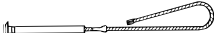
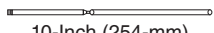



Figure 3. S&C Standard Speed, S&C "K" Speed, S&C "T" Speed, S&C "QR" Speed, S&C "N" Speed, and S&C Coordinating Speed Fuse Links rated greater than 100 amperes.

Ratings

Style	Speed	Rating, Amperes	Catalog Number ^①
Universal (Not Usable in Positrect™ Cutout)  23-Inch (584-mm) Overall Length	S&C Standard	1 through 100 125 through 200	64xxxR1 64xxxR1■
	S&C "K"	6K through 100K● 140K and 200K	265xxxR1 265xxxR1■
	S&C "T"	6T through 200T●	279xxxR1■
	S&C "QR" ^②	1QR through 100QR 125QR through 200QR	338xxxR1 355xxxR1■
	S&C "N" ^③	5N through 200N	267xxxR4■
	S&C Coordinating	101 through 103	179xxxR1▲
Universal (Usable in Positrect™ Cutout)  23-Inch (584-mm) Overall Length	S&C Standard	1 through 100	364xxx
Indicating (Usable in Positrect™ Cutout Only)  10-Inch (254-mm) Overall Length	S&C Standard	3 through 100	115xxx
Open  8-Inch (203-mm) Overall Length	S&C Standard	1 through 25	774xxx

① The ampere rating of the fuse link is represented in the catalog number by "xxx" (e.g., 1-ampere Standard Speed, Universal Style = 64001; 25-ampere Standard Speed, Universal Style = 64025; 100-ampere Standard Speed, Universal Style = 64100).

② These fuse links are interchangeable mechanically—and with respect to time-current characteristics—with Kearney Type "QA" fuse links. For optional cable adapters for use with S&C "QR" Speed Fuse Links, add suffix "-U" to the catalog number of the link. This adaptation of the fuse link is for use with cutouts having bolt-type connections for upper as well as lower fuse-link cables. Overall length of all "QR" Speed Positrol Fuse Links equipped with suffix "-U" cable adapter is 26 inches (660 mm).

③ These fuse links are interchangeable (with respect to time-current characteristics) with discontinued GE Models 9F1C and 9F51AAN series fuse links.

● The 1-, 2-, and 3-ampere S&C Standard Speed Positrol Fuse Links meet requirements for coordination with fuse links rated 6K and 6T amperes as specified in IEEE Standard C37.42, and are recommended for use in "K" and "T" Speed fuse-link coordination schemes.

■ Fuse links rated 125-200 Std., 140K, 200K, 140T, 200T, 125QR-200QR, and 125N-200N are for use in 200-ampere cutouts.

▲ For use in 100-ampere cutouts.