SM REFILL UNITS—S&C COORDINATING SPEED

BASIS—These refill units are tested in accordance with the procedures described in ANSI Standard C37.41-1981. As required by this standard, the minimum melting curves are based on tests starting with the refill unit at an ambient temperature of 25°C and no initial load.

CONSTRUCTION—Fusible elements are silver and of solderless construction.

TOLERANCES—Curves are plotted to minimum test points. Maximum variations expressed in current values are plus 10%.

APPLICATION—These S&C Coordinating Speed refill units should be applied only where the maximum continuous load current does not exceed 1000 amperes and where all fault currents below 3000 amperes for refill units rated 410 amperes, will be cleared by another fuse. They are not subject to damage by aging or transient overcurrents, it is unnecessary to replace un blown refill units in single-phase or three-phase installations when one or more refill units have blown.

Sometimes a selected amperereating will fail to meet the coordination requirements in any available speed. In this case the selection of another amperereating for either the protecting or protected fuse usually will satisfy all requirements.

Do not assume that other fuses that do not employ S&C’s silver, helically coiled fusible element construction can better resolve a coordination problem than the use of another amperereating in one of the S&C speed options. Such other fuses, including “time-lag” speeds, “super-slow” speeds, and “high surge” speeds, require the use of “safety-zone” or setback allowances and, in addition, they have larger construction tolerances (plus 20% in current; plus 40% in terms of time). The application of these two factors will give a time interval between the adjusted minimum melting curve and the total clearing curve greater than in the case of S&C speed options.

COORDINATION—Any preloading reduces melting time. While this phenomenon is especially pronounced in other makes of fuses having minimum melting currents appreciably less than 300% of rating, the effect of preloading must nonetheless be determined for the S&C refill units represented by these curves (see S&C Data Bulletin 240-195) and adjustments to these curves must be made:

1. When close coordination is required;
2. When, regardless of the preciseness of coordination, the refill unit is subjected to temporary overloads.

There are cases where the coordination requirements may be very exacting; for example, in coordinating a transformer-primary fuse with a secondary breaker and a source-side breaker. The time interval between the operating characteristics of the two breakers may be very narrow. Under these circumstances there must be an extremely short time interval between the adjusted minimum melting curve and the total clearing characteristics of the fuse.

The refill units represented by these curves possess this short time interval feature, since—having a nondamageable fusible element of precise construction—they require:

1. At little as 10% tolerance in melting current—compared to the 20% tolerance of many fuses (20% and 40% respectively in terms of time).
2. No “safety zone” or setback allowances.

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Page 1 of 1

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