**TIME IN SECONDS**

<table>
<thead>
<tr>
<th>TIME IN SECONDS</th>
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<tbody>
<tr>
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<tr>
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<tr>
<td>10</td>
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<tr>
<td>100</td>
</tr>
<tr>
<td>1000</td>
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<td>10000</td>
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**TOTAL CLEARING TIME-CURRENT CHARACTERISTIC CURVES**

**SMU FUSE UNITS—S&C VERY SLOW SPEED**

**APPLICATION**—S&C Very Slow Speed fuse units are for application in circuits where additional time margins in the ‘protected’ fuse is necessary for coordination, but where load conditions do not require fuse of a larger ampere rating. Like all high-voltage fuses, these fuse units are intended to accommodate overloads, not to interrupt them. Accordingly, they feature fusible elements which are designed with a minimum melting current of 200% of the fuse-unit ampere rating (for fuse units rated 100 amperes or less) or 240% of the fuse-unit ampere rating (for fuse units rated over 100 amperes). As a result, these fuse units have considerable peak-load capabilities; however, they should never be exposed to loading in excess of the peak-load capabilities listed in S&C Data Bulletin 210-190.

Since these fuse units have silver element construction which is not subject to damage by aging or transient overcurrents, it is unnecessary to replace unblown fuse units in single-phase or three-phase installations when one or more fuse units have blown. Sometimes a selected ampere rating will fail to meet the coordination requirements in any available speed. In this case the selection of another ampere rating for either the protecting or protected fuse usually will satisfy all requirements.

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**COORDINATION**—These curves represent the total time required for a fuse unit to melt and interrupt a fault current, and should be followed in coordination problems where fuses are applied as ‘protecting’ devices.

Any preloading reduces melting time. With respect to the ‘protected’ fuse, the effect of preloading must be determined and adjustments made to its minimum melting curve:

1. When close coordination is required.
2. When, regardless of the precision of coordination, the protected fuse 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 curve greater than in the case of 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.

**FUSE UNITS AVAILABLE—**

- **Type**
- **Kv Num. Ratings**
- **Ampere Ratings**

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**TCC NUMBER** 176-2-2

**S&C ELECTRIC CANADA LTD. • Toronto**