BASIS—These fuse units are tested in accordance with the procedures
described in IEEE Standard C37.41, and they are rated to comply with
IEEE Standard C37.46. As required by these standards, the minimum
melting current is not less than 200% of fuse-unit ampere rating, and the
minimum melting curves are based on tests starting with the fuse unit at
an ambient temperature of 25°C (77°F) and no initial load.

CONSTRUCTION—Fusible elements are silver, helically coiled, and of
solderless construction.

TOLERANCES—Curves are plotted to maximum test points. All variations
are minus.

APPLICATION—Like all high-voltage fuses, these fuse units are intended
to accommodate overloads, not to interrupt them. Accordingly, they feature
fusible elements designed with a minimum melting current of 200% of
the fuse-unit ampere rating (for fuse units rated 100 amperes or less)
or 220% 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 Information Bulletin 210-190.

Because these fuse units have a silver element construction
that is not subject to damage by aging or transient overcurrents, it is
unnecessary to replace unfused fuse units in single-phase or three-
phase installations when one or more fuse units has blown.

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:

• When close coordination is required

• When, regardless of the preciseness of coordination, the fuse
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 these operating characteristics of the two breakers may be
very narrow. Under these circumstances, there must be an extremely
short time interval between the minimum melting and the total clearing
characteristics of the fuse.

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

• As little as 10% total tolerance in melting current—compared to
the 20% tolerance of many fuses (20% and 40% respectively
in terms of time)

• No “safety-zone” or setback allowances

This narrow time band normally will provide the desired
coordination. If the selected S&C Slow Speed fuse unit does not meet
the coordination requirements, check to see whether the same ampere
rating in the S&C Standard Speed will satisfy.

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.

Do not assume other fuses that do not use S&C’s silver, helically
coiled fusible element construction can better resolve a coordination
impasse than the use of another ampere rating 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 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

<table>
<thead>
<tr>
<th>Type</th>
<th>Nom. Ratings (kV)</th>
<th>Ampere Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMD-2A</td>
<td>60</td>
<td>15E through 300E</td>
</tr>
<tr>
<td>SMD-3®</td>
<td>60</td>
<td>15E through 500E</td>
</tr>
</tbody>
</table>

* These curves are also applicable to previous designs rated 12 kV through
69 kV, designated SMD-2, SMD-3A.