

## Guidelines for selection of Fuses

### Fast Acting or Slow Blow

When an equipment or a circuit (especially Power Supply circuit) is switched on, there may be “in-rush” current for a short duration depending upon the type of load. This “in-rush” current versus time should be measured and matched with the time-current characteristics of fuses to select Fast Acting or Slow Blow types. In general, the thumb rule given below can be applied :

#### Fast Acting Fuses

These fuses are used for protection of circuits where little or no current surges are encountered or where high over current or high short-circuit must be interrupted quickly.

#### Slow Blow Fuses

These fuses can withstand heavy “in-rush” currents. They are used in circuits having high reactive transients and circuits with large starting currents such as motor and lamp circuits.

### Nominal Current (In)

The nominal current rating of a fuse can be decided based on peak “in-rush” current, the duration of “in-rush” current and “steady-state” current in a circuit.

It is recommended that the “steady state” current through the fuse should not exceed 80% of current rating for Fast Acting fuses and 95% for Slow Blow fuses to prevent false operation.

Please note that the nominal current of fuse is the current, which is carried continuously without blowing of fuse.

Ex: 1.6A current rating fuse will carry 1.6A current continuously .

### Fusing Characteristics

The fuse time current characteristic should be compatible with the time-current characteristic of the load and the time current characteristic of the circuit components to be protected.

- ◆ Select a NORMAL BLOW fuse for resistive loads or other loads where no transients or surges are encountered. Where only protection against short circuit hazard is required, for maximum economy, a NORMAL BLOW fuse rather than a SLOW BLOW fuse can be used. Select the highest amperage rating possible to prevent normal switching surges, transient spikes, etc., from causing premature fuse failure.
- ◆ Select a SLOW BLOW fuse where protection against a sustained overload current greater than 50% of normal load is required and high “in-rush” or starting loads are present, as in reactive or motor circuits.
- ◆ Test selected fuse in the intended circuit under all normal circuit conditions that may include transient, “in-rush”, or any other non-steady-state currents.

### Voltage Rating

For general circuit protection, the voltage rating on the fuse should be equal to, or greater than, the circuit voltage. A fuse-link may operate at any voltage less than its rated voltage without affecting its fusing characteristics. At very low voltages, however, the fuse-link’s natural resistance should be taken into consideration.

## Guidelines for selection of Fuses

### Breaking Capacity (Interrupting Rating)

The maximum prospective current which can occur under fault conditions should not exceed the rated breaking capacity of the fuse.

Fuses with ceramic body have higher breaking capacity (interrupting rating) than fuse with glass body.

### General Recommendations

Fuse holders which have contact resistance less than 10 mΩ between fuse holder termination and fuse end cap should be used to preserve the time current characteristics of fuses.

Allow for environmental influence on the fuse-link. The higher the ambient temperature, the hotter the fuse will operate and the shorter its life. Chart given below indicates the ambient temperature influence on the current carrying capacity. In general, curve 'A' applies to SLOW BLOW and curve 'B' to Fast Acting types.

### Material & Marking Data

- End Caps: Brass, Ni Plated  
(Silver Plated brass available on request)
- Body: Glass/Ceramic
- Marking: The Fuses are marked with
  - Our logo/name
  - Type
    - **F** for fast acting
    - **T** for time delay
  - Breaking capacity
    - **L** for low breaking capacity
    - **H** for high breaking capacity
  - Current rating in **A** or **mA**
  - Voltage rating in **V**

Temperature shift of rated current

