



Indian Technological Products Pvt. Ltd

....since 1967

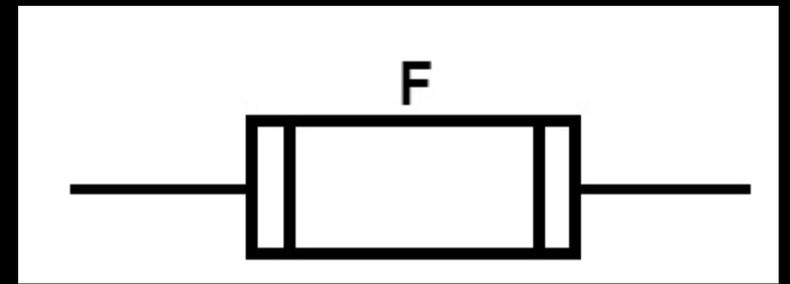
**Trusted source for electronic & wound components, wire harness**

# Thermal Fuses

*Application notes by ITP.....*



# Ordinary Fuse

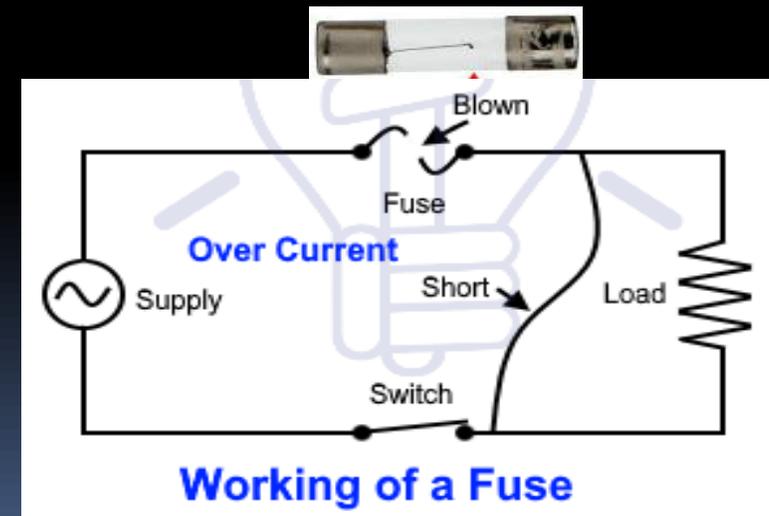
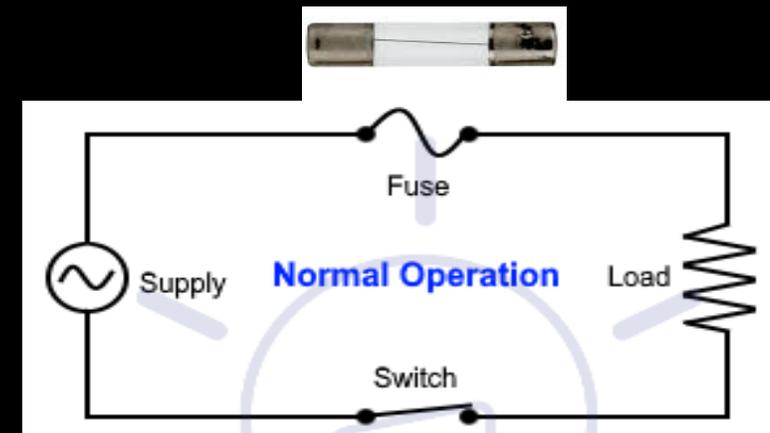


- An electrical **fuse** is a **simple** device used to interrupt an electrical circuit during over current condition due to **short circuit** or overload. An electrical **fuse** operates on the principle that when higher current flows through it, the wire inside the fuse heats up and melts, thereby disconnecting the circuit in which the fuse is put.



# Working of the ordinary fuse...contd..

- Whenever a short circuit or more current than the rating of the fuse, flows, then the wire inside the fuse melts. This is because of the heat generated by the heavy current flowing through it, with the result it disconnects the power supply to the circuit from the connected system.



# How a Thermal cut off fuse works

Unlike, ordinary fuse which blows when more current than the rating of the fuse flows through it . For example, if the rating of the fuse is 5 Amps and 10 Amps flows through it , it will blow, thereby disconnecting the circuit from the supply.

The thermal cut off does not operate on how much current is flowing through it but it blows up at a particular temperature around the fuse. For example : if the rating of the thermal cut off fuse shows 150 ° C and the load is 5 Amps, it will blow and disconnect the circuit when the temperature around the fuse exceeds 150 ° C.

As you can see the thermal cut off fuses are temperature sensitive.



# Types of Thermal Cut off Fuses

## Thermal Cut Off Fuses

### One Time cut off



Once such a fuse blows, it can not be repaired or replaced .

### Resettable



When resettable fuse disconnects the circuit , it reconnects when the it cools down .



# Examples

An example,

A thermal fuse is embedded inside the windings of an electric motor.

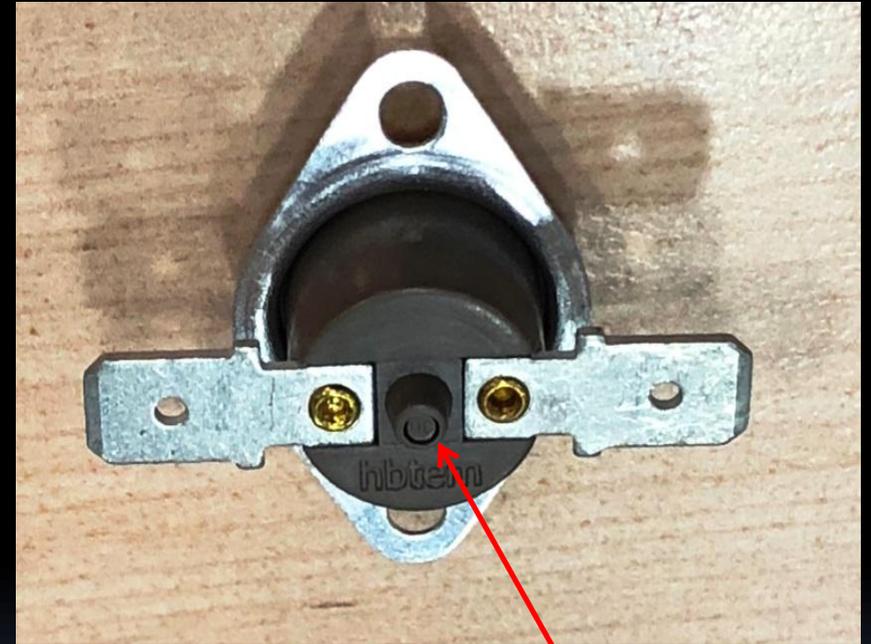
If there is a short circuit or an electrical fault, the fuse will blow. If the fuse is of non-resettable type, the motor can not be repaired and therefore it will have to be scrapped.

On the other hand if the fuse is of resettable type it will reconnect the motor to the supply when the temperature comes down.



# Resettable thermal fuse with a Manual reset button

- These are same as the other resettable thermal fuses but when the temperature returns to normal, a small lever has to be pushed down to reset the fuse.



Reset button





# Applications

- Home Appliances
- Motors
- Exhaust Fans
- Vending Machines
- Transformers in
  - Public Address Systems
  - Power Supplies and circuits with large heat dissipation
- Magnetics/ SMPS Transformers





# How to select Thermal Fuses

1. Choose the device or circuit you wish to protect against overheating.
2. Find out what is the maximum current it is drawing. (It could be AC or DC)
3. Decide whether you want non resettable which is cheaper or resettable type of fuse which is more expensive.
4. Decide at what temperature you want the fuse to disconnect which could be any standard ratings between say  $100^{\circ}\text{C}$  to  $150^{\circ}\text{C}$ .
5. Contact ITP to help you select the right fuse and give you a quote. You may contact them on [sales@itpindia.in](mailto:sales@itpindia.in) or call them +91-124-4013646 /47





Indian Technological Products Private Limited . Plot No. 27, Electronic City, Sector-18, Gurgaon-122016

Landlines : 0124-4013646/ 47 , Email support: sales@itpindia.in

[www.itpindia.com](http://www.itpindia.com) ; [www.itpelectronics.in](http://www.itpelectronics.in) ( For Wire products & magnetics)