

Fuses for Forklifts

Forklift Fuse - A fuse consists of a metal strip or a wire fuse element of small cross-section compared to the circuit conductors, and is commonly mounted between a couple of electrical terminals. Normally, the fuse is enclosed by a non-conducting and non-combustible housing. The fuse is arranged in series capable of carrying all the current passing throughout the protected circuit. The resistance of the element produces heat due to the current flow. The construction and the size of the element is empirically determined to be able to make certain that the heat produced for a standard current does not cause the element to reach a high temperature. In instances where too high of a current flows, the element either melts directly or it rises to a higher temperature and melts a soldered joint inside the fuse that opens the circuit.

An electric arc forms between the un-melted ends of the element when the metal conductor parts. The arc grows in length until the voltage required to be able to sustain the arc becomes higher as opposed to the available voltage inside the circuit. This is what really causes the current flow to become terminated. Where alternating current circuits are concerned, the current naturally reverses course on each cycle. This particular method greatly enhances the fuse interruption speed. When it comes to current-limiting fuses, the voltage required in order to sustain the arc builds up fast enough to be able to essentially stop the fault current prior to the first peak of the AC waveform. This particular effect greatly limits damage to downstream protected units.

The fuse is normally made out of copper, alloys, silver, aluminum or zinc as these allow for stable and predictable characteristics. The fuse ideally, would carry its current for an indefinite period and melt rapidly on a small excess. It is vital that the element must not become damaged by minor harmless surges of current, and should not change or oxidize its behavior following potentially years of service.

In order to increase heating effect, the fuse elements could be shaped. In large fuses, currents can be divided between multiple metal strips. A dual-element fuse may have a metal strip which melts at once on a short circuit. This type of fuse could also contain a low-melting solder joint that responds to long-term overload of low values compared to a short circuit. Fuse elements could be supported by steel or nichrome wires. This ensures that no strain is placed on the element however a spring could be incorporated to increase the speed of parting the element fragments.

The fuse element is normally surrounded by materials which function to be able to speed up the quenching of the arc. A few examples consist of air, non-conducting liquids and silica sand.