



Ferraz Medium Voltage Fuse-links up to 200A - 3.6 to 36kV

Ferraz Shawmut LIMITOR range of MV fuse links are the ideal fuse for the protection of distribution transformers as well as MV distribution networks. LIMITOR fuse-links comply with requirements of IEC60282-1 for technical performance and are manufactured to ISO 9001:2000 International Standards for Quality Management Systems.

Ferraz Shawmut MV fuse links have parallel connected pure silver elements. The design and method of production of the elements ensures narrow tolerances of time-current characteristics. The fuse link elements are wound on a ceramic support and are attached to contact carriers by means of spot-welding. The contact carriers are fitted inside the silver plated copper end caps by spot-welding as well. The copper end caps are fitted into the porcelain tube which is glazed inside and out. The fuse caps are furthermore mechanically fixed to the porcelain tube in a way that tightness against ingress of humidity is guaranteed. The tightness of each single Ferraz Shawmut MV fuse link is assured by low pressure test in a water bath.

Ferraz LIMITOR fuse links have a low arc voltage as a result of strategically placed notches along each of the fuse elements. This means the sum of the arcs generated along the element during operation produces the recovery voltage. The recovery voltage is the ability of the fuse to limit the current under short circuit. In practice by designing our fuse elements with low arcing voltage:-

- Fuses can be used down to half their rated voltage
- Resulting in reduced stress on Switchgear during short circuits, thereby prolonging switchgear life
- Stock can be reduced, same fuse can be used on two different network voltages eg; 24kV fuse can be used on 12kV network.

The LIMITOR range comprises three different fuse types:-

- Back-up MV fuses for indoor and outdoor applications 3.6kV to 36kV up to 200A
- Back-up fuses with Controlled Power Dissipation strikers for reduced temperature in switchgear
- General Purpose fuse links with strikers

Definitions

Back-Up fuse links have a “rated minimum breaking current” from which the fuse-links are able to interrupt current. Backup fuse-links are not supposed to operate below their “minimum breaking current” (below the I_3 value). Their operating range is from I_3 to the maximum rated breaking current.

When applying back-up fuse-links, it is important to note that the lowest short circuit current be greater than I_3 value ($I_{Kmin} > I_3$). If the short circuit current is lower than the minimum breaking current, additional protection must be provided.

Back-Up fuses with Controlled Power Dissipation are the same as standard back up fuses but with the addition of a special striker. The CPD striker controls the power dissipation of the fuse according to Ohm's Law. The striker pin is released depending on the voltage drop across the fuse and is dependant on the power dissipated. In this way the fuse link is able to keep temperature generated in the fuse compartment to a minimum thereby expending switchgear life.

General Purpose fuses have a much lower “rated minimum breaking current” than a back-up fuse link, $1.7 \times I_n$ or the 1 hour rating. General Purpose fuse links can therefore be used for applications where lower short circuit currents are required.

