ABB Service High Voltage Products

Retrofit solutions for rupture disks
SF6-gas-insulated switchgear EBK-0 and ELK-0

In order to receive the necessary dielectric consistency, gas-insulated switchgear, depending on design and manufacturer, are filled with SF$_6$-gas under a pressure of about 300-700 Pa. An increase in pressure is possible if an electric arc appears in case of a fault.

In order to avoid an uncontrollable bursting of the enclosure, the switchgear is equipped with so-called rupture disks. These serve as a pressure release and limit the pressure within a certain level which is harm-less for the enclosure.

In the 70s, the rupture disks were implemented as graphite-rupture disks according to the current state-of-the-art and independent of manufacturers. If the switchgear reaches its initial response pressure, the disks will burst before the actual enclosure is deformed or damaged. The fragments of the destroyed rupture disk are an unpleasant side effect, which can possibly result in a hazard for the operating personal that might be close to the switchgear. And in the course of the time, it proved that the long-term behavior of the materials used were not always faultless with regard to pressure tightness, which increasingly resulted in, and still could result in gas leaks.

Because of the disadvantages mentioned above, switchgear of later production years were generally equipped with metal-rupture disks, which consist of nickel, instead of graphite-rupture disks. The metal disks are long-term tight, thus, they are no longer a serious threat for the operating personal due to flying fragments.

Hence, ABB has developed so-called retrofit kits, which are used as a replacement measure of the graphite-rupture disk from all older series. They adapt the metal-rupture disks, which are used for new switchgear, for the installation in old plant. In addition, these retrofit-kits are equipped with moisture filters, which ensure long-term moisture of the SF$_6$-gas within the ideal range.

Customer benefits
- Long-term guarantee of the gas quality
- Increased operator protection
- Reduced SF$_6$-emission
- Positive contribution to environmental protection