ABB offers the ultimate protection for dry-type transformers. The internal fault protection medium voltage transformer minimizes human injury and damage to surrounding property during an internal arc fault event.

**Safety for people and property**
An arcing fault that occurs inside a transformer enclosure can result in a significant explosion that puts all surrounding equipment and nearby workers in direct danger. Individuals unfortunate enough to be present during such an event can be seriously injured and, in extreme cases, even killed from injuries sustained from the explosion. The personal injury, damage to equipment, and downtime can amount to millions of company dollars per event.

ABB has developed a technology that protects nearby people and property during an arc flash event. ABB’s new internal fault protection dry-type transformer is the first of its kind to have active features that channel an arc explosion away to safer, contained areas where gases and smoke can be dissipated. This technology gives workers a second chance from an internal fault failure where before they had none.

**Arc protection features**
Much of the protection for the internal fault protection dry-type transformer lies in its enclosure. Exhaust ducts placed on the roof of the enclosure channel any explosion away from human contact and vent into customer supplied ducting or the surrounding room.

These ducts may be replaced with roof flaps that remain closed until an arc event occurs; at which time they open instantaneously to vent gases and smoke into the room above. This option may only be used if there is a 10 foot minimum clearance from the top of the transformer to the ceiling. Proprietary seam panels and fast-acting louver dampers direct explosion gases and smoke away from human contact and through the exhaust ducts. The louver dampers close off under just 5 psi of pressure within milliseconds to prevent horizontal flame exposure.

**Applications**
Internal arc faults can occur anywhere voltage and current levels are present with magnitudes high enough to create a fault; transformers are only one example of this. ABB’s internal fault protection dry-type transformer is best utilized where the protection from human injury is of the utmost importance. This transformer technology is the ideal companion to lineups that already utilize internal fault protection switchgear to protect operators. Other applications include generator/exciter to transformer combinations that do not have the additional protection from switchgear lineups.
Technology feature considerations
The internal fault protection dry-type transformer technology is compatible with the entire existing scope of ABB’s ANSI/IEEE and IEC dry transformers.

This technology is available for NEMA 1 or NEMA 2 indoor applications. The added protection increases the weight of the total transformer assembly by an average of five percent. The internal fault protection dry-type transformer technology has minimal impact on enclosure dimensions; roof ducting adds 24” to the height.

Tested for reliability
The transformer design was successfully tested to ANSI/IEEE C37.20.7 “Guide for Testing MV Metal-Enclosed Switchgear for Internal Arcing Faults.” A 15 kV test unit was tested to 40 kA for 6 full cycles.

ABB leadership and experience
ABB continues to be the world leader in dry-type transformer production and technologies. The internal fault protection dry-type transformer is the latest addition to ABB’s line of safe technologies utilized in all of their dry-type transformers.

ABB offers a fully integrated, US located manufacturing facility that includes enclosure assemblies and bus working. These manufacturing abilities allow for complete tailored solutions for new and retrofit installations, particularly where space is limited. ABB’s scale, experience, in house testing and research and development capabilities make us the ideal provider for long term partnerships.

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