

GAUGES ARE AN IMPORTANT PART OF YOUR TRANSFORMER'S OPERATIONS

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TEMPERATURE GAUGES

A Temperature Gauge is a common safety device installed on transformers, regulators and other electrical equipment when filled with liquid insulating fluid(s) for dielectric insulation and cooling.

Normal equipment operation and the environmental temperature cause changes in the oil temperature. The warmer oil will usually rise to the top of the tank. A temperature gauge well is normally mounted slightly below the 25 degree centigrade oil level. This submerges the well in the top of the oil where the warm oil accumulates. A temperature gauge is installed in the well to measure the changes in the temperature of the liquid insulating fluid(s). Temperature gauges and wells provide a positive system to measure and indicate the insulating fluid(s) temperature in transformers, regulators and other electrical equipment.

Various ANSI, IEEE and industry standards specify temperature gauges and wells to measure and indicate the insulating fluid(s) temperature in transformers, regulators and other electrical equipment.

PRESSURE-VACUUM GAUGES

Pressure-Vacuum Gauges are commonly installed as safety devices on liquid insulating fluid(s) filled transformers, regulators and other electrical equipment that provides a gas space above the oil.

After the tank is filled with liquid insulating fluid(s) to the 25 degree centigrade level, the liquid insulating fluid(s) are blanketed with a positive inert gas (nitrogen) pressure. The positive inert gas blanket provides a moisture barrier and room for the liquid insulating fluid(s) to expand.

Normal equipment operation and changes in the environmental temperature cause changes in the liquid insulating fluid(s) and gas volume. The liquid insulating fluid(s) and gas expand when heated and contract when cooled. The expansion causes an increase in the gas

pressure and the contraction causes a decrease in the gas pressure. Pressure/vacuum gauges measure and indicate the gas space pressure or vacuum in transformers, regulators and other electrical equipment.

When transformers operate, they generate normal gases, but can also develop internal faults that will generate abnormal gassing rates. Most high voltage electrical equipment (especially transformers) are completely sealed, and if left unmonitored, these gases can build up and cause ruptures and possible equipment failures. Pressure-Vacuum Gauges are the front-line defense in monitoring possible problems.

Various ANSI, IEEE and other industry standards specify pressure/vacuum gauges to measure and indicate the gas pressure in liquid insulating fluid(s) filled transformers, regulators and other electrical equipment.

LIQUID LEVEL GAUGES

This type of gauge is a common safety device installed on transformers, regulators and other electrical equipment when filled with liquid insulating fluid(s) for dielectric insulation and cooling. The tank is normally filled with liquid insulating fluid(s) to the 25 degree centigrade level, which is marked on the tank wall. Normal equipment operation and changes in the environmental temperature cause changes in the liquid insulating fluid(s) volume. The liquid insulating fluid(s) expands when heated and contracts when cooled. The liquid insulating fluid(s) is usually colorless and difficult to see without the aid of a liquid level gauge.

Liquid level gauges provide a positive indication of the oil level in transformers, regulators and other electrical equipment. Low fluid levels can lead to overheating, premature loss of electrical equipment life, or even failure of the equipment.

PRESSURE RELIEF VALVES

A common safety device installed on

liquid insulating fluid(s) filled transformers, regulators and other electrical equipment provides a gas space above the oil. After the tank is filled with oil to the 25 degree centigrade level, the oil is blanketed with a positive inert gas pressure. The positive inert gas blanket provides a moisture barrier and room for the oil to expand. Normal equipment operation and increases in the environmental temperature cause increases in the gas pressure.

When transformers operate, they generate normal gases, but can also develop internal faults that will generate abnormal gassing rates. Most high voltage electrical equipment (especially transformers) is completely sealed and if there is no way to vent the buildup of these gasses, over pressure can cause ruptures and possible equipment failures. Pressure relief valves are the front-line defense in protecting your investment.

Electrical equipment tanks are usually designed to withstand the pressures created during rated operating and temperature conditions. The tanks are normally equipped with a pressure relief valve to relieve excess pressure. The valve opens and closes automatically with a provision for manual operation. Our pressure relief valves automatically and manually relieve excessive gas pressure in transformers, regulators and other electrical equipment. Various ANSI, IEEE, REA and industry standards specify pressure relief valves to relieve excessive gas pressure in electrical equipment.

PRESSURE RELIEF DEVICE

The pressure relief device (PRD) is designed to open and close automatically when the pressure reaches the operating pressure of the PRD.

The pressure relief device will open and remain open until the pressure falls to the reseal pressure. The pressure relief device reseals at a positive pressure. Pressure relief devices are available with an optional alarm switch and semaphore (indicating flag).