



Transformer cooling

A transformer is a static electrical device that transfers energy by inductive coupling between its winding circuits. A varying current in the primary winding creates a varying magnetic flux in the transformer's ferromagnetic core and thus a varying magnetic flux through the secondary winding. This varying magnetic flux induces a varying electromotive force, or voltage, in the secondary winding.

Transformers range in size from thumbnail-sized units hidden in microphones to units weighing hundreds of tons used in the power grid. They are essential for the transmission, distribution, and utilization of electric power.

The transformer core and windings are insulated in transformer oil, a highly refined, low-viscosity mineral oil, which is stable at high temperatures. The

purpose of this oil is to insulate and cool the transformer core and windings.

The oil is cooled either by natural convection or by forced air or water. The cooling abbreviations OFAF (Oil Forced Air Forced) or OFWF (Oil Forced Water Forced) in particular indicate a need for heat exchangers. By maintaining the oil at a low temperature, a higher electro load is allowed in the transformer on a constant basis or during periods of peak demand.

Intermixing of oil and water can be devastating for the transformer. For that reason, double-wall heat exchangers are used as a safety precaution in OFWF-cooling.

Alfa Laval offers a complete range of high-quality solutions for cooling transformer oil by forced air (OFAF) or



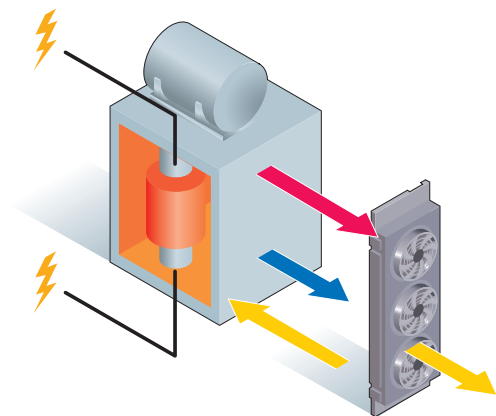
by forced water (OFWF). The offering includes:

- Air heat exchangers – AlfaBlue transformer oil coolers
- Gasketed plate heat exchangers – double wall.

Alfa Laval can also supply efficient, maintenance-free transformer oil pumps.

A rectifier converts alternating current

Transformer cooling with air



Transformer cooling with water

