GEAFOL
cast-resin transformers
in protective housings with ADWF cooling system
Forced air and water cooling
Siemens offers a protective housing with forced air and water cooling for special requirements. In terms of technology, the housing comes with two separate cooling circuits and is provided together with the transformer as a permanently assembled unit. The first cooling circuit uses a forced, directed air flow through the transformer’s main windings within the housing. The second cooling circuit cools the heated air via a cold-water heat exchanger and thus feeds cold air back to the transformer. This cooling method is known as air-directed – water forced (ADWF) cooling. This type of cooling enables implementation of protection class IP 44 or 54 for a power range of up to approximately 25 MVA. A new, unique design made it possible to fully integrate the fans needed for cooling as well as the air/water heat exchanger into the housing. This gives the user a highly compact, space-saving unit.

The heated air is drawn in at the top of the housing and guided to the cold-water heat exchanger

Cooling air is supplied at the bottom of the ADWF housing

Integrated control cabinet for monitoring temperature and controlling the fan

The control cabinet for temperature monitoring and control was also positioned within the housing to save additional space.

Reduced design rating, thanks to efficient cooling
The optimized, highly efficient cooling circuits help reduce the transformer design rating by as much as 50 percent. The fans can vary their speed depending on the temperature of the cooling air. This makes it possible to increase the transformer efficiency in the partial load range and while significantly lowering fan energy costs.

Safe and reliable operation
The standard equipment includes a leak detector for the cooler as well as an additional system for monitoring the cooling air and cooling water temperature, along with the standard measurement of transformer temperature. Versions for high mechanical stress, such as extreme shock loads, are also available on request. The system is also available in compliance with marine certifications, such as ABS, DNV-GL, LR, etc., specifically for installation in ships.