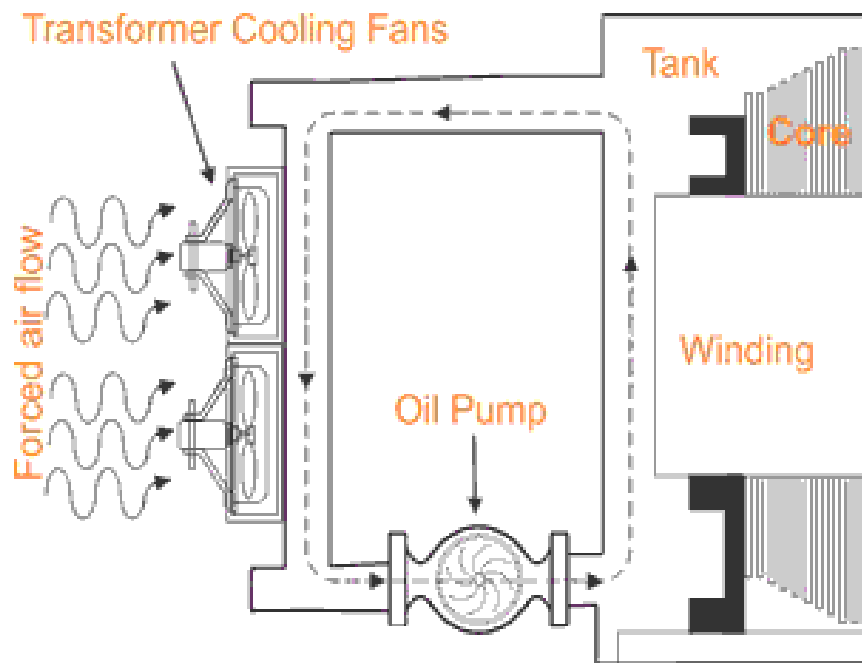


Oil to air cooled transformers



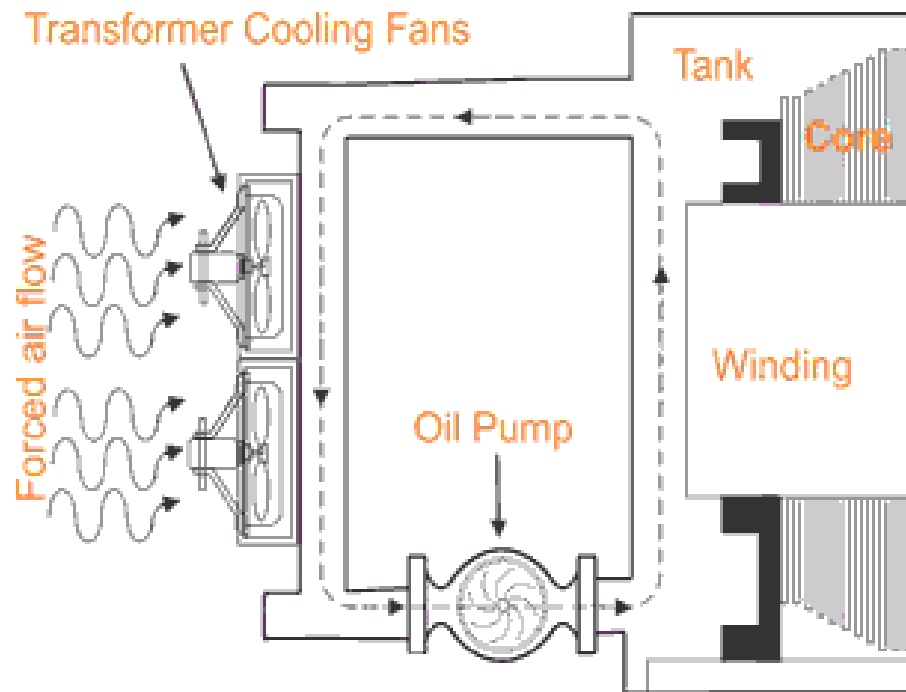
Oil Forced Air Forced or OFAF Cooling of Transformer

● Product Description

– Definition

OFAF is a oil type transformer (**Distribution or Power**) system which can **stand alone as self-cooled** with only supply of fan power.

– Design figures



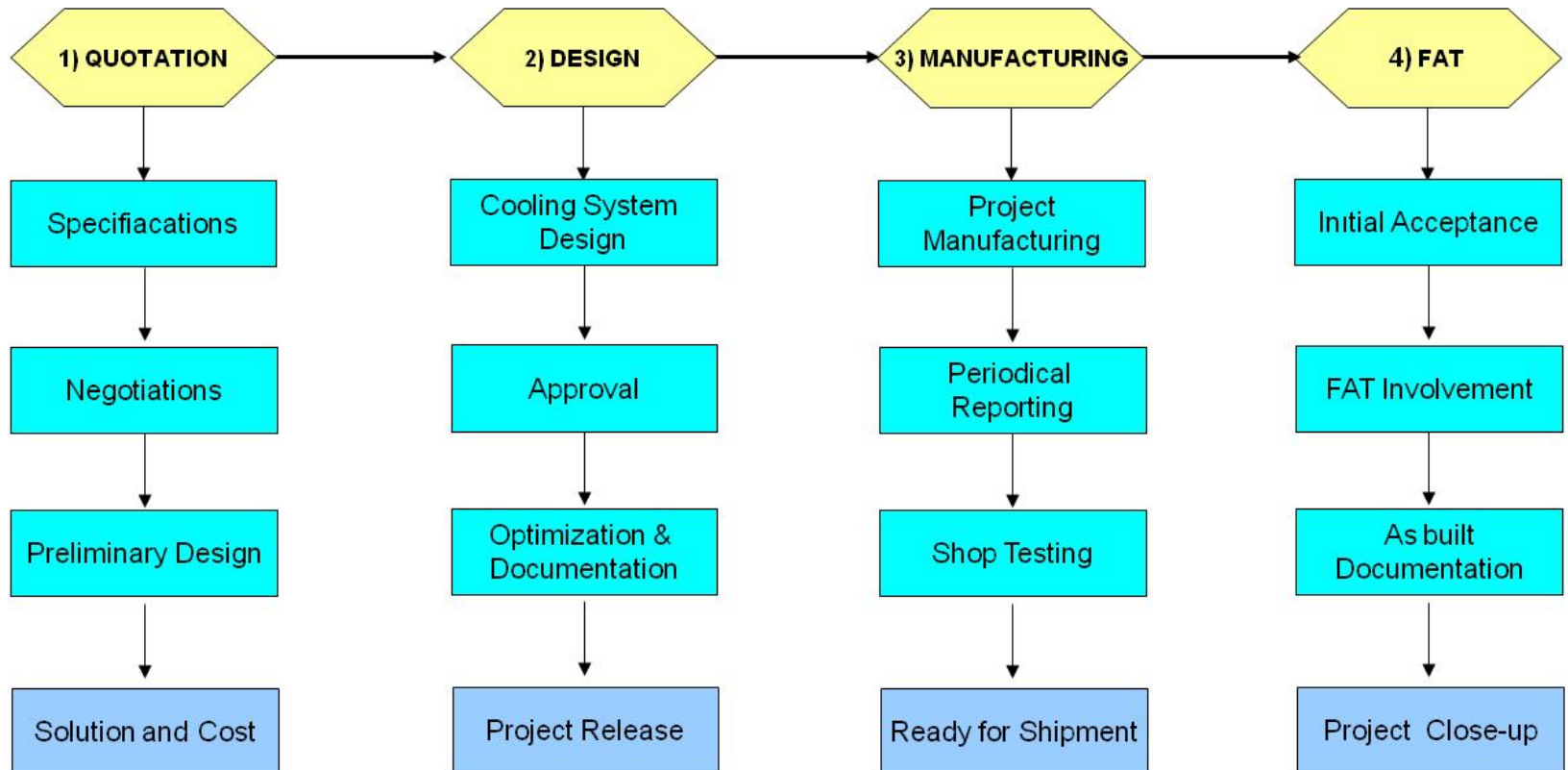
Oil Forced Air Forced or OFAF Cooling of Transformer

● Project Flow

– How to design?

As STE Technic, we support you from quotation to FAT. We support all the design, manufacturing, testing, customer negotiations.

– Flow Chart



● Type of cooling system

– Design details

Transformer **radiators can be removed** and **tank size can be reduced**. Also oil and tank cost can be decreased. By doing so it is possible to put the exchangers far from the transformer.

Also it is possible to **decrease the temperature rise** of the transformer which causes **less amount of conductor** usage.

Another advantage is to operate the transformer in an environment **regardless of the ambient temperature**.

– Statements

System can be optimized with the information of environment **temperature and transformer design temperature**. With those inputs, **pump capacity and fans can be verified**. Also other sensors can check system status provide information.

● Main parts of OFAF OTT

– Main Parts list

- Heat exchanger
- Axial Fans
- Oil pump
- Cooling Control System

– Part Details

- Heat Exchanger → To dissipate heat of transformer to air with a closed loop of oil circulation. Made of oxidation-proof coated Aluminum/Copper fins and copper piping.
- Axial fans → To circulate air through the exchanger for heat transfer.
- Oil pump → To circulate oil. Can be provided up to IP66.
- Cooling control system → To control all system and give feedback to control room

● Main parts of OFAF OTT

– Part Details

- Sensors → Cooling system control devices;

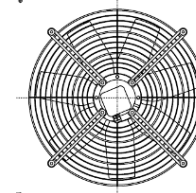
1) Oil flow-rate meter (Optional)

Used to check oil flow-rate supplied to heat exchanger. If below the limits gives warning.



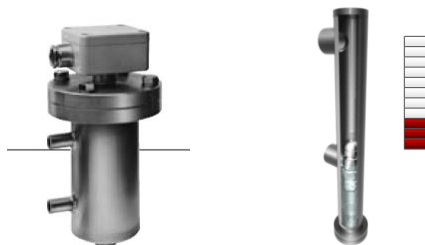
2) Fan operational control (Optional)

Fans can be turned-on all the time or the times when the oil temperature reaches to a predefined value and an indication of fan fault and alarm can be prepared.



3) Leakage detector (Optional)

Used to check oil-in and oil-out status. If there is a leakage problem in the heat exchanger gives warning.



4) Temperature control (Optional)

Oil-in and oil-out temperature can be monitored if above limits gives warning.



● Customer Benefits

– Application areas

OFAF OTT is designed specially for indoor and outdoor operation where there is need of **decreased overall dimensions** and **optimum cooling requirement**.

– Requirements

Design is compact which **can be shipped as ready to be installed**.

The technical requirements for the design are as follows;

- **Transformer ambient** temperature (Design temp °C)
- Working **conditions** (Marine, Indoor, Outdoor, Tropical, etc..)
- Transformer **temperature rise**