AFWF Transformer Enclosures

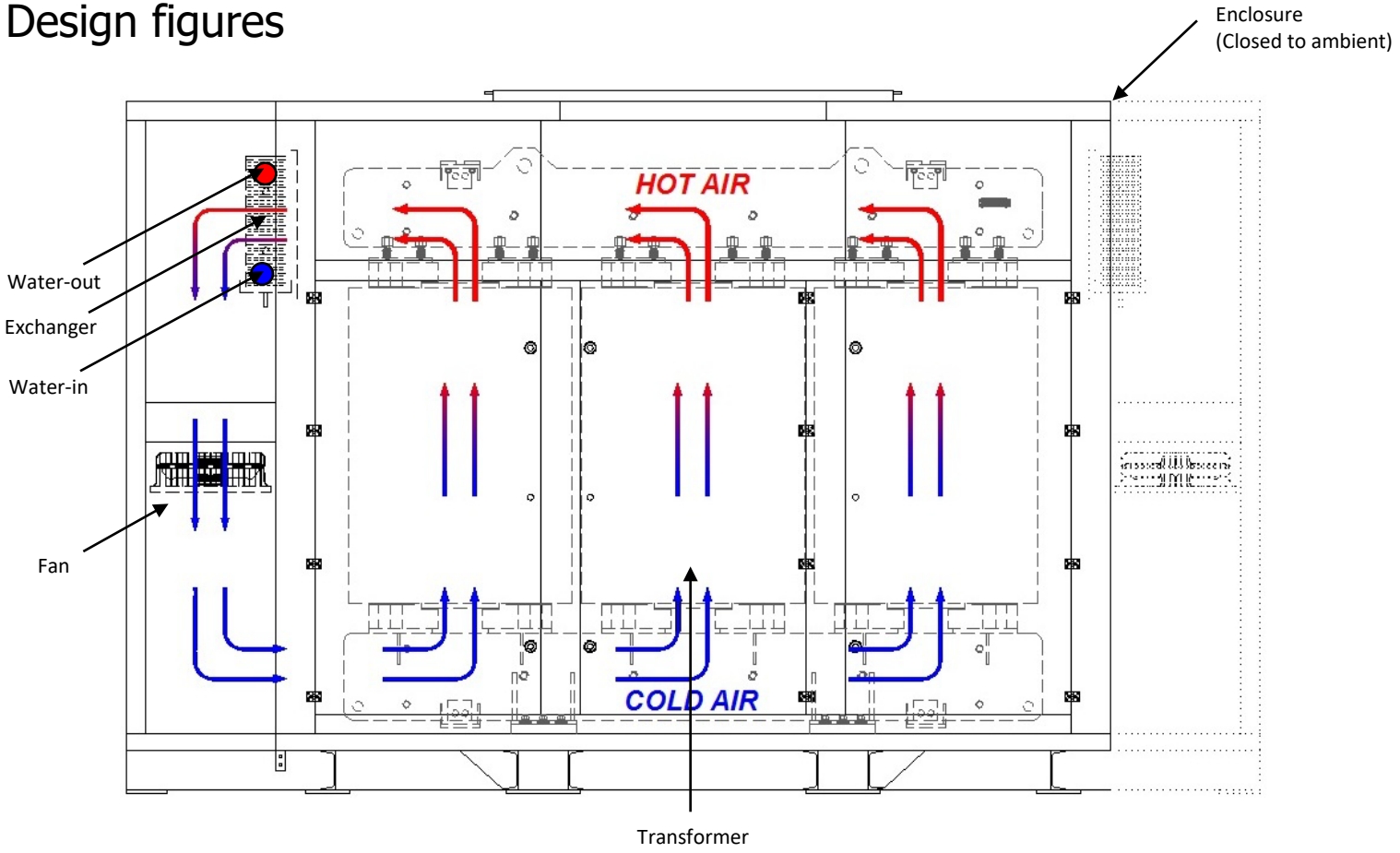
Water cooled transformers

Product Description

– Definition

AFWF is a dry type transformer cooling system which can stand alone as self-cooled with only supply of cold water and fan power.

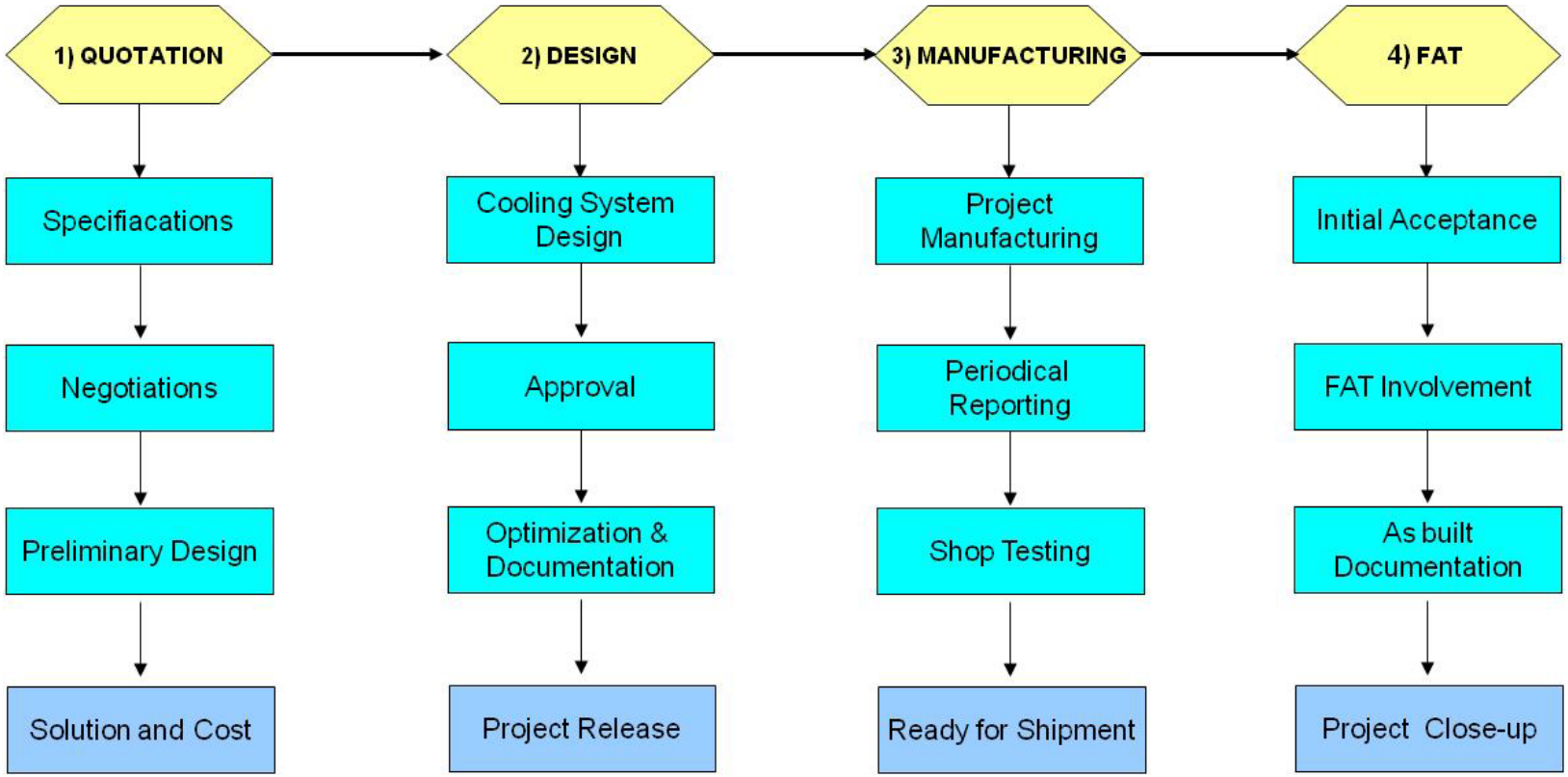
– Design figures



- Project Flow
  - How to design?

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

  - Flow Chart



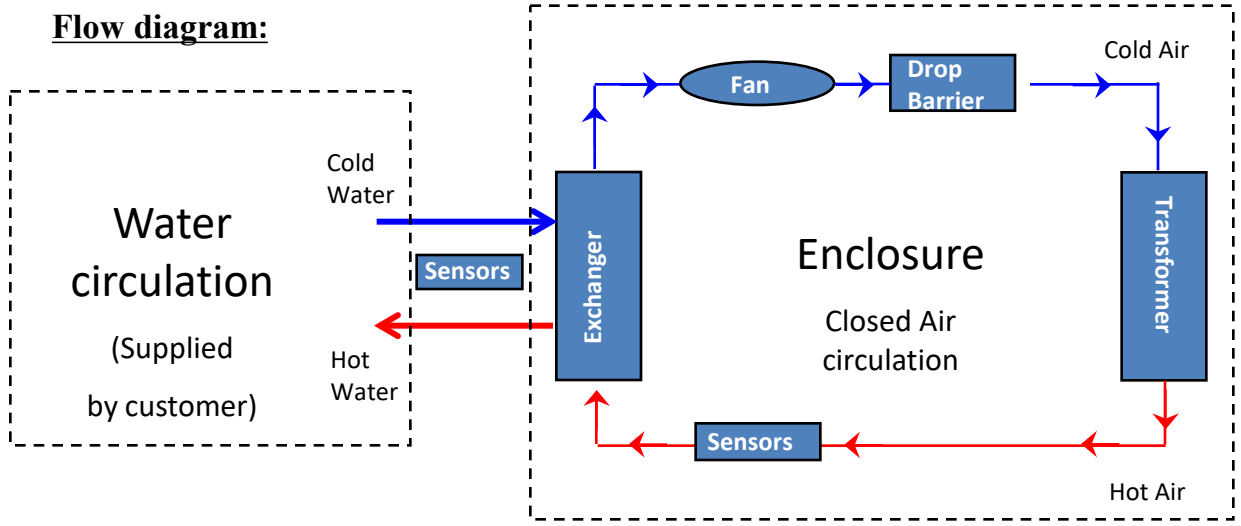
Type of cooling system

– Design details

Transformer enclosure is closed to air transfer from ambient and reverse. By doing so, most of heat dissipation is being done by the heat exchanger to the water, which is being supplied.

– Statements

System can be optimized with the information of supplied water flow rate and its temperature. With those inputs, heat exchanger capacity and fans can be verified. Also other sensors can check system status to avoid any unexpected problem.



Main parts of AFWF DDT

– Main Parts list

- Heat Exchanger
- Axial Fans
- Enclosure
- Cooling Control System

– Part Details

- Heat Exchanger → To dissipate heat of transformer to water with a closed loop circulation of air and water inside the enclosure. Made of oxidation-proof coated Aluminum/Copper fins and copper piping.
- Axial fans → To circulate air inside of the enclosure.
- Enclosure → Fully closed to ambient. Made of galvanized painted steel with air insulation.
- Cooling control system → To control all system and give feedbacks to control room.

Main parts of AFWF DTT

– Part Details

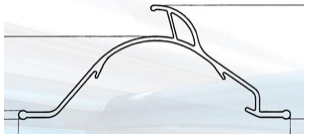
- Sensors→ Cooling system control devices;

1) Water flow-rate meter (Optional)

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

2) Water drop barrier (Optional)

Used to block water drops to be poured on to the transformer. Drain pan can collect drops.



3) Leakage detector (Optional)

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

4) Drop Sensor (Optional)

Used to sense the water drops before reaching to transformer when a leakage occurs

Customer Benefits

– Application areas

AFWF system is designed specially for indoor and outdoor operation where there is no natural or forced air cooling option provided by site or customer. Also if there is a requirement of high IP class it is the best option. Up to IP55 is can be achieved.

– Requirements

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

The technical requirements for the design are as follows;

- Water-in supply quantity (m^3/h)
- Water-in supply temperature (°C)
- Water-in type (Pure water, water with glycol additive)
- Water-in maximum pressure (Bar)
- Transformer ambient temperature (Design temp °C)
- Enclosure ambient temperature (Space temp °C)
- Working conditions (Marine, Indoor, Outdoor, Tropical, etc..)
- Size of the enclosure

Figures

Design and appearance can vary according to requirements and restrictions

● Figures

* Design and appearance can vary according to requirements and restrictions

- References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