

**Francis Xavier S**

Electrical Design Engineer - Hitachi Energy

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## **PROFILE SNAPSHOT**

Dedicated and Innovative Electrical Design Engineer with 5.5+ years of experience, passionate about new developments in all type of Transformers. Strong backgrounds in electrical transformer design and implementation, adept at collaborating with multidisciplinary teams to deliver projects on time and within budget. Excellent problem solving skills and a commitment to staying abreast of industry advancements.

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## **EXPERIENCE**

### **Electrical Design Engineer (Design & Optimization) - July 2025 to Present**

#### **Hitachi Energy, Chennai**

- Design and optimization Tool development for Transformers considering all manufacturing constraints of eight different Hitachi factories.
- Knowledge about HVDC Transformer & its Design Review
- Contributed for the design review of 765/400 KV single phase ICT with the new Technology of windings in the centre main limbs as well as in the return limbs.
- Strategizing optimization by considering Brute-Force Algorithm/Genetic Algorithm for Power Transformers.
- Optimising Transformers material cost upto 7 to 10% and ensuring its thermal and shortcircuit behaviour.
- Worked for building the various tools like shortcircuit tool, High altitude temp rise tool, Tank pressure Tool, Rabins impedance Tool, Smart Optimal Retrieval Tool, PTO/DTO Tool.
- Developing strategy for optimizing the Transformer across all voltage Ranges from 3.3KV to 765 KV.,
- Studying and collecting information about various transformer Winding construction, clearances, Core parameters, Physical parameter calculation irrespective of voltage ranges and applications.

- Design Review for all Hitachi factories across the globe such as Lodz(Poland), Hefei(China), Hanoi(Vietnam), Pereira(Colombia), Blumenau(Brazil), Cairo(Egypt) , SouthBoston(NAM), Dudullu (Turkey)

## **Electrical Design Engineer (Transformers and Reactors) – April 2022 to July 2025**

### **Shree Abirami Engineering Works Private Limited, Chennai**

- Design and manufacturing of Transformers starts from 25 KVA 11KV Class upto 100 MVA which includes the voltage class of 220 KV.
- Design and manufacturing of 132 KV and 220 KV Scott connected Transformer for RDSO. Also 21.6/30.24 MVA Single phase and 8 MVA Auto Transformer for Railways.
- Handled the Root cause analysis of 400KV/230KV ICT, 765/22KV GT, 400/15.75KV GT, 420/21 KV GT, 220/110 AUTO, 220/33KV PT, 33KV/200V Furnace (booster type), several UAT transformers etc.,
- Acquired wide range of Transformer design knowledge that includes the scott connected Traction, V-connected, Furnace, converter duty, Interconnected Auto transformers (315 MVA – 400 KV), Generator Transformers(Upto 270 MVA - 765 KV), Traction 132 KV & 220 KV, 220 KV Class Station Transformer, Single phase mid point Auto (55 KV)
- Collecting details of Various transformer design like Schneider Electric, EMCO, BHEL, CG, KANOHAR, TELK etc., during rewinding and rootcause analysis of sick Transformers.
- Retrofitting (Windings & Gapped-core) and Testing knowledge about 400 KV Shunt Reactors
- Root cause analysis of various transformers and re-modification executed on those transformer by rectifying the technical flaws which may run for over a long period of time thereafter.
- Assembly Drawings making of Transformers upto 765 KV.
- Identify potential vendors for testing equipments for reactors like 7010C Bridge, RSO kits for Transformers (SAMGOR), Impulse Kit, DVDF Mot-Gen set, Short circuit generator procurement for dynamic SC testing upto 750 KVA Transformers and sometimes materials procurement also required for the project and technically evaluate supplier offers to check match with specifications.
- Additionally worked as an assembly cum quality Engineer for various Transformers at floor (to ensure whether the execution is in line with the design or not).

- Manual Short circuit, Impedance & all sort of Design Calculations for all type of Transformers.
- Tender document preparation.
- Submission of Bill of materials for the Tender Team.
- Making of design documents like GTP, Drawings etc.,
- Coordinating with the design team, getting approvals and manufacturing clearance & getting approval from end users.
- Coordinating with the tender team and making sure they quote appropriate rates in the tender
- Arranging in-house presentations and conducting demonstrations to customers.
- Sending revised BOM and technical details based on the customer requirements.
- Responsible for collecting all information needed to prepare the proposal, including both technical and cost elements.
- Support Bid team for coordination with Engineering, Project Management & Procurement team for any Clarification during Bid stage.
- Follow up with customers, attend technical meetings and close the deal.
- BIS Audit document preparation for Distribution Transformers and NABL audit document preparation and attending audits.
- Coordinate with the design team and act as a bridge between the Manufacturing team and customer.
- Also Handling customer inspections and getting transformer dispatch clearance. (if required).

**GRADUATE APPRENTICE TRAINEE (2018-2019) - NEYVELI LIGNITE CORPORATION**

- Worked in Electrical department, Transformer - Overhauling and Repair in Mines- 1
- Worked in Electrical department, Transformer Division (400 KV / 15.75 KV Switch yard) in TPS – 1 Expansion.
- Contributed for the 400 KV Transformer Repair at TPS-1 Expansion for the replacement of spare coils.

## **ACCOMPLISHMENTS (OVERALL)**

- Design and Manufacturing of short circuit tested 21.6 MVA and 100 MVA- 132 KV Scott connected Transformer including Procurement.
- Design and manufacturing of short circuit tested 25 MVA 132 KV Class, 10 MVA 220KV Class, Also 25 KVA to 2500 KVA Rated Transformers.
- Design and implementation of 220 KV Scott connected Transformer, 132KV V-connected for RDSO, 8 & 12.5 MVA Midpoint Auto
- Re-modification and rewinding of 765/22 KV Generator Transformer
  
- 400 KV Shunt reactors Retrofitting/RCA & Testing as per IEC/IS standard with various equipments like loss measurements (7010C Automatic capacitance bridge, Stress/Strain measurement etc.,
  
- Rootcause analysis and Re-design of various transformers upto 320 MVA 420KV Class, 2 Nos of 315 MVA 400/220/33 KV ICT etc.,
  
- Received award for cost savings in Lodz factory production
  
- Developed SORT Tool for getting best reference designs for all factories in terms of Cost Rankings & Worked in the development of DTO/PTO Tool
  
- Design Review for liquid filled Transformer & Optimization(savings) for various transformer Ratings such as BESS for Tesla which is manufactured at Hefei, Hanoi & Dudullu Factories.

## **EDUCATION**

### **Bachelor of Engineering – June 2011 to April 2015**

NPR College of Engineering and Technology, Dindigul - Electrical and Electronics Engineering.

### **TECHNICAL SKILL SET**

- Tendering, Designing, Problem solving skills, Manual Design Calculations of Transformers, Pre-Sales Support, Costing, Negotiations, Procurement Operations, and Vendor Management.
- Proficient in use of MS Application & Basics in AUTOCAD.

### **GENERAL SKILL SET**

- Multitasking and Ability to work on tight deadlines and resolve unexpected issues.
- Flexibility with working hours.
- Strong Leadership and Team Management Skill.
- Coordinating with the HO and execution team and getting approvals from customers.

### **LANGUAGES KNOWN**

Can Read, Write & Speak - English, and

Tamil Can Read & Write - Hindi

### **RESPONSIBILITY**

- GTP, Drawings Preparation
- New testing Equipments/Equipments Vendor
- Vendor Approvals and Technical meetings
- Strong design Calculations
- BOM Preparation
- Project Coordination
- Railway Approvals
- Incorporating spec.,

### **PERSONAL DETAILS**

- Date of Birth : 21<sup>st</sup> – March – 1994
- Spouse Name : SATHYAVATHI
- Father Name : STEPHEN
- Mother Name : AROCKIAMMAL
- Marital Status : Married

### **DECLARATION**

I hereby declare that the above furnished details are true and correct to the best of my knowledge.

Date:

FRANCIS XAVIER.S