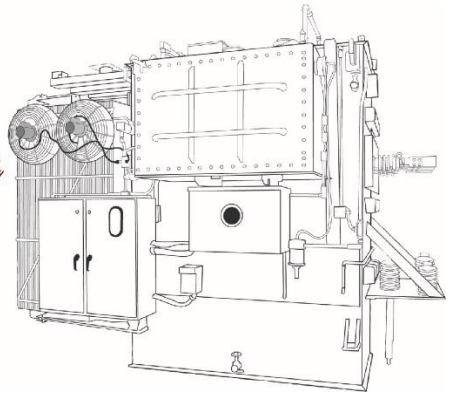
Legacy of Excellence in Power Transformers



CEO, PRABHAT K. JAIN Communication #2, 8/20/2019

FLAWLESS EXECUTION

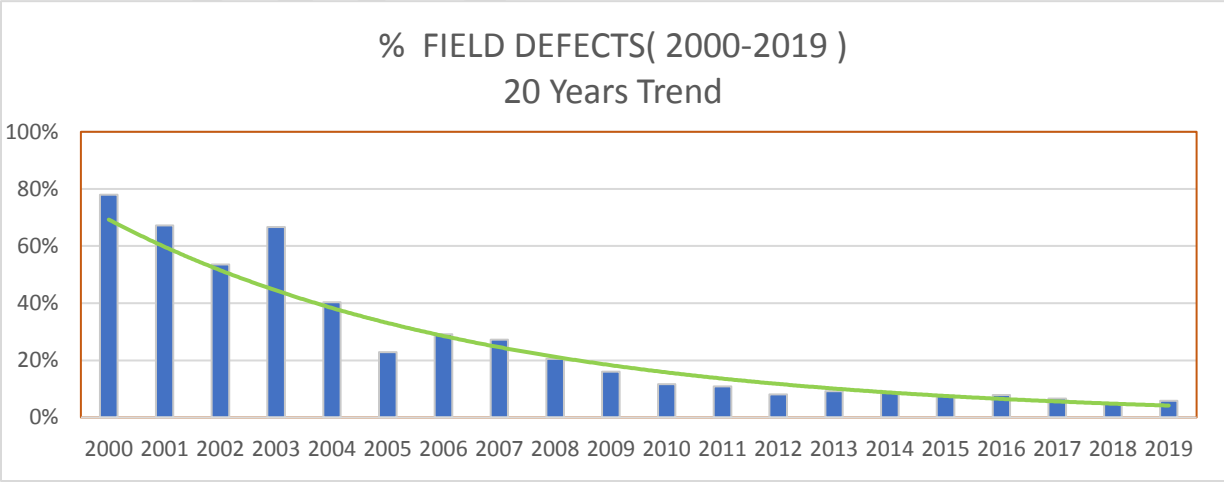
We have grown at an average rate of 15% per year since 1982 and we are continuously adding people at all plants.

By year 1990 we were little over 100 employees. Shop leadership was hands-on interacting directly with engineering under my personal supervision. We then produced units up to 10 MVA. In the 90's we grew to over 300 people. We started a training shop in early 90s which we called **BAT** – Build A Transformer. A Transformer Circa was assembled and disassembled to give hands-on training to operators.

Circa 1991. early quality inspection

Circa 1990's

In the early 2000's, we initiated on-boarding & training programs where operators were trained in five (5) basic skills of crimping, brazing, sealing, torqueing and painting. In the same decade a **Fit and Finish** (FF) function was established to reduce the defects on the product.



By the year 2010, we were building up to 100 MVA / 230 kV size units. We realized that a reliable product requires Six-Sigma process control. We started assigning the experts in each department. These experts were called **Technicians**, their focus was on training and product quality thru process

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assurance. A unique idea of **All Technician work forces** was born out of necessity in order to raise the process assurance.

Did you know that our FPY (First Pass Yield) is > 98% and RTS (Ready to Ship on time) is > 95%! What is our secret?

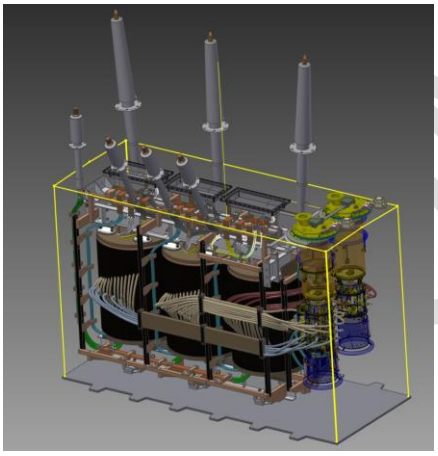
Let me share how we do it:

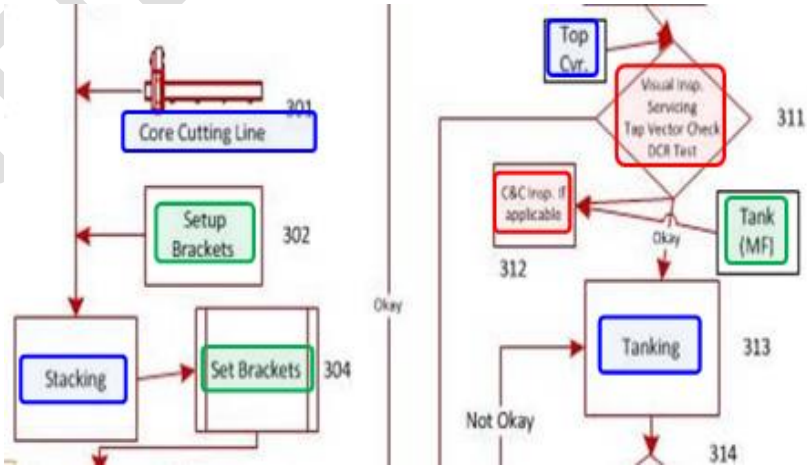
Process control sheets are completed by the operator and verified by the technician. The technicians sign-off on CTQ s, and on the product to transfer to the next department while the Quality Engineer verifies the product quality with PCC.

A Technician is 10 to 20 years experienced in their skill: winding, assembly, processing, etc. Their job is to **observe** the work being performed. Their observation of defects results in process improvement, design improvement and more training. They learn the engineering design of each project and execute this on the floor. They guide and coach the teams in new and difficult areas of a project. They are trained in the WHAT's & WHY's: what is the role of the insulation – angle rings, cap rings, HV lead metallizing, the technology of crimping, why the windings must be tight …. They do not work hands-on; they just observe. Also, each design is categorized from A to F, F being the one needing highest technical oversight. New process is written when needed. This critical area such as crimps or core ground are checked by the technicians while certain other steps are checked by the quality engineer. Complex features are checked by technical managers depending upon the category of the design.

Circa 2003

Circa 2003





We train all new operators in basic skills for 30 days. Additionally, the operators are trained by technician in their job and work instructions. The supervisor **Owns** the operator and is responsible for retention. Operators are also assigned a **Big Buddy** to help them settle within the department team.

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A	Proficient	OWNER - FREDDY RAKES
B	Requires limited supervisiion, need	
C	Not fully trained, Needs assistance	
NT	Not Trained	
NA	Not Applicable	

					BASIC				TIER 1								
NAMES	Date of Hire	Shif	Department	Crimping	Torque	Brazing	Gasket & Pip	basic wirin	basic prints	hand tools	measurements & weigh	stickers / tags / name es	pressure detectio	plating	powe
VONG C. NGO	1/10/2000	2	FINAL ASSEMBLY LEAD	A	A	NA	A	A	A	A	A	A	A	A	
VU H. NGO	3/21/2005	1	FINAL ASSEMBLER LEAD	A	A	NA	A	A	A	A	A	A	A	A	
ADAM TRAN	4/18/2005	2	FINAL ASSEMBLER	A	A	NA	NA	NA	A	A	A	A	A	NA	N
TOAN D. PHAN	3/13/2006	1	FINAL ASSEMBLER	A	A	NA	A	A	A	A	A	A	A	A	
HOA VAN NGUYEN	10/2/2006	1	FINAL ASSEMBLER	A	A	NA	A	A	A	A	A	A	A	A	
REGINALD CARDWEL	3/10/2008	1	FINAL ASSEMBLER	NA	NA	NA	A	NA	A	A	A	NA	A	NA	
NGHIA LE	8/30/2010	1	FINAL ASSEMBLER	A	A	NA	A	A	A	A	A	A	A	A	
DU THANH VO	8/6/2012	2	FINAL ASSEMBLER	A	A	NA	NA	NA	A	A	A	A	NA	NA	N
TRUNG NGUYEN	4/9/2013	2	FINAL ASSEMBLER	A	A	NA	A	A	A	A	A	A	A	A	
HON NGUYEN	3/3/2014	2	FINAL ASSEMBLER	A	A	NA	A	A	A	A	A	A	A	A	
PHILLIP H. HUYNH	9/22/2014	2	FINAL ASSEMBLER	NA	NA	NA	NA	NA	A	A	NA	A	NA	NA	
ABDULHADI AL LAMI	3/30/2015	1	FINAL ASSEMBLER	A	A	NA	A	A	A	A	A	NA	NA	NA	
KHANH D. TRAN	3/30/2015	1	FINAL ASSEMBLER	A	A	NA	A	A	A	A	A	A	A	A	
MICHAEL DOUGLASS	3/30/2015	2	FINAL ASSEMBLER	A	A	NA	A	A	A	A	A	NA	A	A	
SHAWN DIEN	3/30/2015	1	FINAL ASSEMBLER	A	A	NA	A	NA	A	A	A	A	NA	A	
TRUNG CHI NGUYEN	3/30/2015	2	FINAL ASSEMBLER	A	A	NA	A	A	A	A	A	A	A	A	
THY A. NGUYEN	5/20/2015	1	FINAL ASSEMBLER	A	A	NA	A	A	A	A	A	NA	NA	A	
DUNG T. NGUYEN	7/27/2015	1	FINAL ASSEMBLER	A	A	NA	A	A	A	A	A	A	A	A	
Justin Alls	1/9/2018	2	FINAL ASSEMBLER	NA	NA	NA	NA	NA	NA	NA	A	A	NA	NA	N
Pau Suan	5/19/2018	2	Paint	NA	NA	NA	NA	NA	B	A	A	NA	NA	NA	
Scott Stewart	7/31/2018	1	FINAL ASSEMBLER	A	A	A	B	A	B	B	A	A	B	A	
Chris Brown	11/26/2018	1	FINAL ASSEMBLER	NA	NA	NA	A	NA	B	A	A	NA	NA	NA	

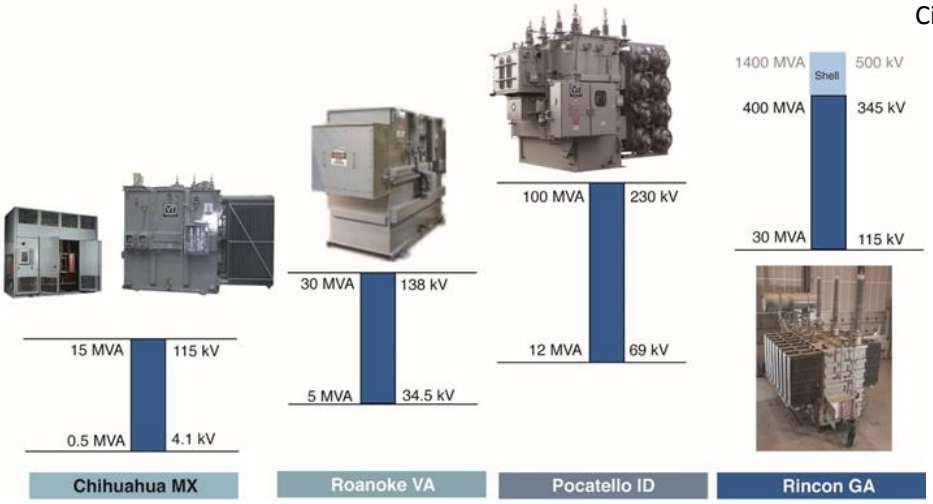
HVA + Core | **Final Assembly** | Junction Box | Metal Fab | Quality | Winding | Materials | Painters | ...

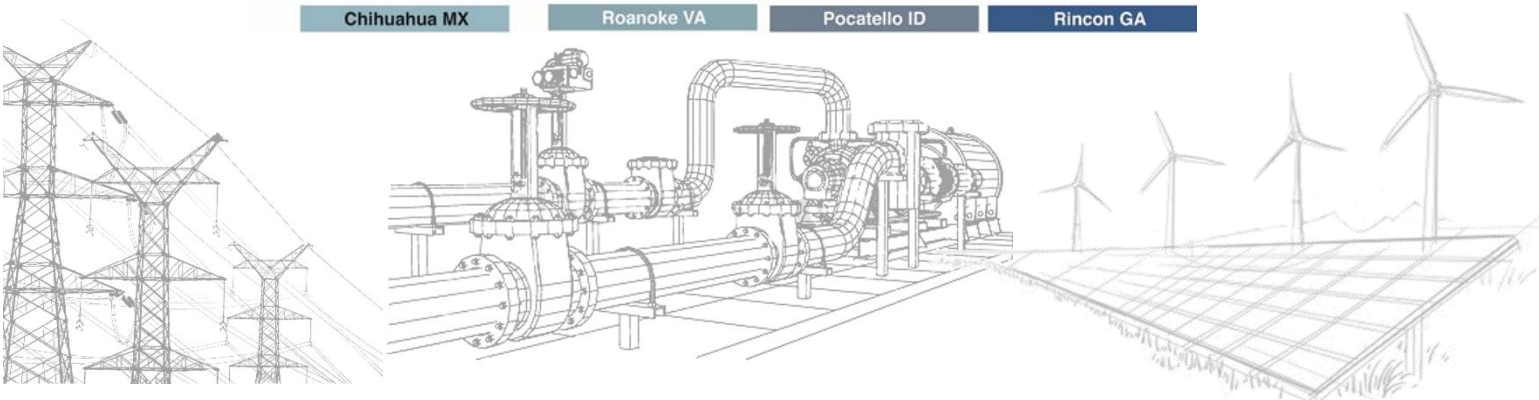
Smart Scheduling system accounts for the special feature such as 2 DETC and Smart Quality system adds special check points for the features.

Circa 2019

Development of technical work force: Selected operators are trained in the technology of transformer for 30 days to launch on their path to become technician. These graduate of L3 program are trained in all departments, and while training are given the knowledge of shop technology to deliver the intent of the design……. Flawless execution is the key to our success!

Circa 2017





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