



VIRGINIA TRANSFORMER CORP

The Commitment Company



Providing power to a world of applications





VIRGINIA TRANSFORMER CORP

The Commitment Company

Virginia Transformer						Georgia Transformer
Office Park 1936 Blue Hills Drive Roanoke, VA 24012 Phone: 540.345.9892	VTOR 220 Glade View Drive Roanoke, VA 24012 540.345.9892	VTCT 100 Smorgon Way Troutville, VA 24175 Phone:540.345.9892	VTCU 3770 Poleline Road Pocatello, ID 83201 Phone:208.238.0720	VTCW-P1 Complejo Industrial Chihuahua Ave. Homero #3307, Chihuahua, MX Phone: 52.614.483.0000	VCW-P2 Avenida de las Industria 6899 Nombre de Dios, Chihuahua, Chih. Phone: 52.614.483.0000	GTC 2789 Highway 21 South Rincon, GA 31326 Phone:

MESSAGE FROM THE CEO



VIRGINIA TRANSFORMER CORP
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PRABHAT JAIN, CEO/CTO

Over the past five decades, Virginia Transformer Corp. (VTC) has become the largest U.S.-owned manufacturer of power transformers in North America. The company was established in 1971 in Roanoke, VA, and started by manufacturing specialty transformers for the mining and steel industries, which required a high level of engineering expertise. The business has grown on this foundation of strong engineering talent. Current management took over leadership of the business in 1982, and the product range and markets served have expanded rapidly ever since to cover all of North America and countries around the globe.

Increasing to 15 MVA, 115 kV oil-insulated transformers and dry-type transformers up to 10 MVA, 35 kV at the Roanoke plant in 1989 allowed the company to serve heavy industry and utility power applications. Currently, the company has six (6) plants in North America and has the capability to manufacture up to 500 MVA, 525 kV class units. Virginia Transformer offers solutions for transformer design across a broad spectrum of utility, industrial, renewable energy, and commercial applications. This gives us the widest product range and the broadest application experience in all markets.

Today, VTC is the leading designer and manufacturer of power transformers in North America.

In our continued commitment to excellence, we are applying our engineering skills to build a transformer that will last for 60 years to improve the reliability and resiliency of the North American electrical grid. With our well-equipped plants and overlap of range between them, VTC is the most reliable in the industry — the one-stop shop for transformers.

Our rapid growth in the last 50 years comes from technical strength and a focus on quality and customer service in all areas of our business. To ensure quality and on-time shipping, you need people; that is why our company has more than 5,628 employees – more than 400 of those are engineers, with graduate, post-graduate, and Ph.D. degrees in all disciplines of business. Continuous improvement in design and manufacturing processes has reduced our defect rate to less than one percent of transformers shipped, with efforts underway to reduce that even further. Our staff has more than 300 years of combined transformer design experience, and there are more than 20,000 designs on file in our archives, which provide an extensive resource for selecting the optimum solution for any power transformer application. Our customers tell us that our technology, processes, people, and performance are the best in the industry.

THE FUTURE

As the largest U.S.-owned transformer manufacturer in North America, we have many goals for the future. We will continue to train our workforce at all locations and further reduce our lead times. We will pursue growth for all employees as we grow in new markets to boost our economy and create more jobs for American workers. Most importantly, we will do all of this with a specific focus to improve customer experience and overall customer service.

We are taking decisive actions to achieve these goals. We have invested in safety upgrades to all manufacturing facilities, developed and implemented ongoing training programs for employees, and substantially increased our presence in the renewable power generation, heavy industry, electric utilities, and data center markets, to name a few.

The drive and commitment to excellence of everyone in our company is unmatched anywhere else – which explains why our business has grown faster in the past than any other power transformer manufacturer in North America. We make countless innovations and improvements in every aspect of our operations, and we will continue to do so. Our commitment to excellence is our culture.

U.S. power demand continues to grow, and we will grow with it. Together, we are the best in the industry, and we take great pride in the work we do each day to create reliable transformers, ensure the resiliency of the electrical grid, and enable U.S. manufacturing.

A Fifty-Year Legacy Transforming Power



The 50-Year Journey

The 1970s were our formative years, where our product offering was primarily specialty harmonic load transformers. In the '80s, we invested in industrial solutions for mills, transit, and rail. We diversified to utility generation, transmission, and distribution by the '90s. Since then, we have added large power transformer capability to our portfolio to support the renewable energy generation sector. We hold the largest market share in this sector today. We take pride as a U.S.-based power transformer OEM to single-handedly reduce U.S. power transformer imports and bring power transformer manufacturing jobs back to the US. This was accomplished through building American manufacturing capability by adding five additional plants in 1995, 2003, 2013, 2014, and 2022, and adding management and technical resources in the U.S., Mexico, and India. We have also established strategic sourcing partnerships with vendors in the U.S., India, and China to ensure a robust supply chain.

Our Place in History: Manufacturing Power Transformers in the U.S.

In the early part of the 20th century, U.S. OEMs such as General Electric (GE), Westinghouse, and McGraw Edison built the transmission grid. However, many of these large electrical OEMs could not evolve to sustain the business. With no long-term vision, they eventually closed down. VTC took the lead domestically in expanding power transformer technology and processes, leading in physical science applications such as thermal, electromagnetic, materials, and drying, and improved productivity and accuracy through automation. We are moving forward to keep more business at home as overseas-based competitors close and cut back their U.S. transformer operations, while we continue to offer our customers a superior option of great value and American engineering.

Vision for the Future

VTC will continue to build on — and share with employees, customers, and vendors — our Legacy of Excellence. We lead the industry in designing transformers with a 60-year lifespan. Coupled with our VCM monitoring technology, our units can provide reliable power for decades to come. This means uninterrupted power to homes, industries, and infrastructure. We offer our VCM technology for free as part of our initiative to digitize power transformers for increased reliability and cybersecurity. Our continued improvements to production processes eliminate the possibility of errors or defects in our transformers. Our focus on quality ensures zero interruption to operations such as steel mills and renewable power generation. Our extensive training program develops highly skilled technicians through classroom and hands-on assessments, continuous professional development, team engagement, and box training of all critical-to-quality (CTQ) elements of production — for each and every employee. Our online customer support and 24/7 live technical support to customers (and non-customers) enable robust power to the grid and infrastructure. VTC will continue to build our organizational capability by promoting from within to build legacy knowledge among technicians, engineers, and managers.





VIRGINIA TRANSFORMER CORP

The Commitment Company

The secret to making the most resilient power transformer...

Robust Design

It's more than just a "good design." We have years of experience and creativity in providing the best designs, optimized for the most reliable performance in the industry. We are backed by a library of more than 20,000 case studies along with premium design tools and the latest software to create the optimal design for each specification.

Flawless Execution

Flawless execution is the standard at Virginia Transformer. Through meticulous processes, benchmark standards, advanced automation, and experienced team members, we achieve just that. Every unit is fully customized to meet each customer's requirements and rigorously tested to exceed industry standards. Our process guarantees flawless execution.

Continuous Monitoring

Striving for perfection doesn't end with robust design and flawless execution — we've taken it a step further by implementing continuous monitoring. Using our patented module, we can identify areas to further extend the lifespan of a transformer. Whether it's on-site or remote, we can analyze and diagnose the condition of the transformer to eliminate potential risk factors before they become a problem.

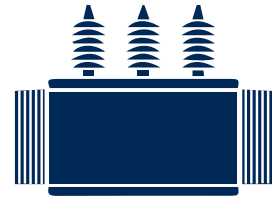
OUR QUALITY STATEMENT

TO BE AN INTERNATIONALLY RECOGNIZED
MANUFACTURER AND SUPPLIER OF HIGH QUALITY,
SPECIALIZED POWER
TRANSFORMERS, ASSOCIATED EQUIPMENT AND
SERVICES BY FULFILLING OUR
COMMITMENTS TO THE CUSTOMER AND OUR
EMPLOYEES THROUGH
CONTINUED GROWTH AND IMPROVEMENT.





VIRGINIA TRANSFORMER CORP
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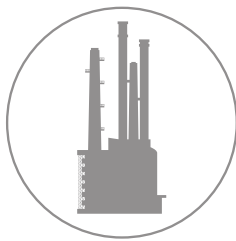
WHAT WE OFFER

OUR VALUES

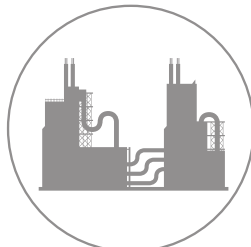
To build the most reliable power transformer, designed and manufactured by engineers and technicians using time-tested processes; to train and develop our employees to provide a premium product, ensuring defect-free performance on time to every customer.



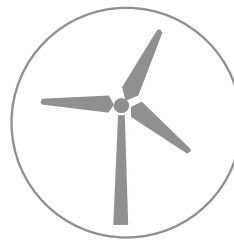
UTILITIES



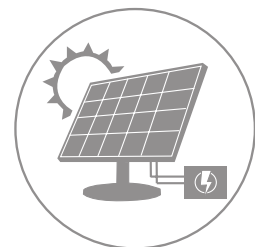
INDUSTRIAL



OIL & GAS



WIND

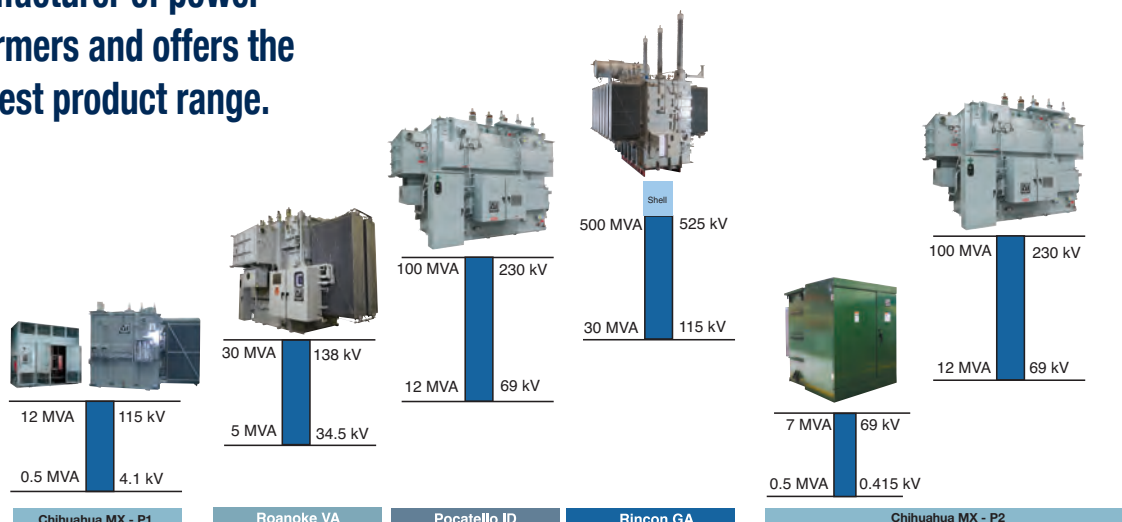


SOLAR

BROADEST PRODUCT RANGE

With six (6) manufacturing plants in North America, Virginia-Georgia Transformer is the largest U.S.-owned manufacturer of power transformers and offers the broadest product range.

#1 
US-Owned Power Transformer Manufacturer.



OUR FACILITIES

SIX (6) MANUFACTURING PLANTS IN NORTH AMERICA



VTCR - Roanoke, Virginia

Our corporate headquarters was designed and constructed specifically to produce power transformers. This 145,000-square-foot manufacturing facility is absolutely state-of-the-art. **ISO 9001:2015**



VTC - Troutville, Virginia

An extension of the Roanoke facility, the tank fabrication, sand blasting, and paint process were relocated to this 125,000-square-foot building in December 2013. The tank fab plant is equipped with a welding robot that delivers leak-free welds. **ISO 9001:2015**



VTCW / P1 - Chihuahua, Mexico

The 82,000-square-foot plant is a modern facility equipped to produce small power and liquid-filled transformers. They have achieved 100% First Pass Yield and 100% on-time Ready to Ship ratings. **ISO 9001:2015**



VTCW / P2 - Chihuahua, Mexico

In operation since late 2022, our newest facility features four production lines that quadruple capacity for E2X pad-mounted transformers. P2 also manufactures distribution transformers up to 35 kVA, 7.5 MV; Integrated Power Modules; and dry-type transformers up to 35 kVA, 150 BIL, up to 7.5 MVA. The facility is more than 300,000 square feet.



VTCU - Pocatello, Idaho

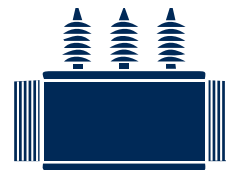
We acquired this 180,000-square-foot plant in 2003 from UST West when it was a repair facility. After investing in upgrades at the plant, it is the best-equipped medium power transformer plant in America. **ISO 9001:2015**



Georgia Transformer Corp. - Rincon, Georgia

Acquired in 2015, this 250,000-square-foot facility is a state-of-the-art temperature-controlled environment. World-class practices and technology allow the plant to produce our largest transformers with a 60-year service life. **ISO 9001:2015**





ROANOKE, VA

Our Roanoke facility is located a few miles away from the picturesque Blue Ridge Parkway. Designed and constructed specifically to produce power transformers, this 145,000-square-foot manufacturing facility is absolutely state-of the art.

- A vapor-phase drying (VPD) system executes optimum insulation dryness to achieve a 60-year life. The automated VPD system is computer controlled; technicians can download the process parameters to their cell phones and two transformers can be processed simultaneously. The chamber maintains a vacuum level of .25 torr.
- A second core-cutting machine was installed to increase capacity and eliminate a critical single point of failure. The machine cuts a 26-inch-wide core. The edge burr level on this Soenen core-cutting machine is measured with a laser and is typically less than 20 microns. The burr-free edges deliver the lowest losses and the transformer sound level is reduced by 2 dB.
- Our instrumented, fully equipped test room with complete diagnostic capabilities has the ability to produce test reports automatically.
- All floors of the plant are sealed to eliminate floor dust.
- Four winding machines were added to increase the capacity to build larger coils. The plant is equipped to manufacture 50 MVA, 138 kV, 650 kV BIL as well as manufacturing dry type to 10 MVA, 35 kV, 150 kV BIL.
- The flow of data to our Soenen core-cutting machine is seamless; it reduces human intervention and works virtually error-free. The Soenen software generates a file with cutting data that uploads the file onto a server. When the operators are ready to cut a particular job, they simply pull up the file with the assigned job number using the machine interface, no modifications needed.

TROUTVILLE, VA

- In December 2013, an extension of the Roanoke facility was developed 11 miles from the main plant; tank fabrication, sand blasting and the paint process were relocated there. We strive for the highest quality and efficiency in production through increased computer-aided automation, our automatic paint system, robotic welder, and the barcoding of materials.
- The tank fabrication facility is equipped with a welding robot that delivers leak-free welds, a downdraft sandblasting booth for personnel safety, and an SP-10 finish per SSPC standards for premium paint adhesion.
- The paint system is an epoxy primer on an activated surface and a top coat of polyurethane baked to a hard finish to prevent rusting.
- The plasma table has been fitted with an etching gun to mark the location of all accessories, thus eliminating missed parts.
- Machines and work stations are laid out in close proximity to material storage that feeds particular machines and workstations. This process-influenced layout reduces material movement, forklift traffic, and efficiently utilizes overhead cranes.

OUR FACILITIES

ROANOKE, VA



Roanoke VA shop floor



Worker in the Finishing department in Roanoke



UNIClad transformer in Roanoke



Roanoke test area



Soenen core-cutting machine in VTCR



Stack table in Roanoke

TROUTVILLE, VA



Troutville, VA



Metal fab



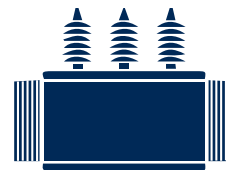
Sandblasting booth



Welding

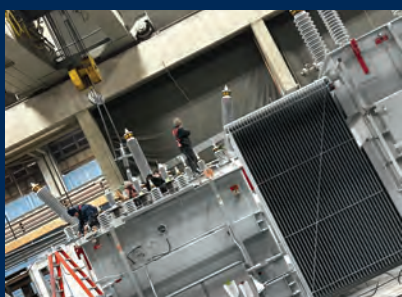


Paint booth

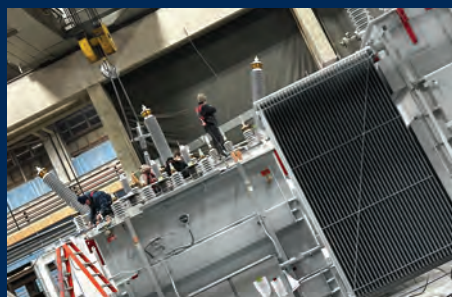


POCATELLO, ID

- VTCU is located 150 miles from Salt Lake City in Southeastern Idaho. Acquired in 2003, it is strategically located to serve customers throughout the USA and Canada. Virginia Transformer has invested heavily in the plant over the years, making it the best equipped 230 kV, 150 MVA plant in North America.
- The plant features five 35,000-square-foot bays. One bay is dedicated for winding and insulation. Assembly floors are sealed to ensure a dust-free environment.
- The Soenen core-cutting machine is capable of cutting up to 37-inch-wide step lap cores and produces a burr level of less than 20 microns. The machine meets the industry-standard lowest-sound level of 55 dB, and produces losses of less than .25 percent of the MVA.
- The plant has its own tank shop, completely isolated from the assembly shop, which limits contamination. Our paint system is polyurethane over epoxy, making it suitable for the most aggressive environments in our country. Coal-tar-coated bottom tanks offer extended protection against rust.
- The plant routinely achieves less than 100 pc partial discharge compared to the 500 allowed by IEEE. A lower partial discharge can mean doubling the life of a transformer.
- The winding shop is under positive pressure to eliminate dust, which is key to achieving a longer life. Coils are dried in a vapor-phase oven under vacuum pressure. This ensures optimum dryness of the insulation for maximum life. Proper drying is an art that we have mastered.
- The plant has its own rail spur, allowing it to ship over 100-ton transformers securely to anywhere in the country.



Pocatello plant floor



Pocatello test area



Winding room



Soenen core-cutting machine

The most modern facility (226,000 square feet of manufacturing power)
in North America with all manufacturing areas environmentally
controlled (temperature, humidity, and particles)

RINCON, GA

- This state-of-the-art transformer manufacturing facility was built in 2009 by Efacec Energia using the best engineering and design concepts available. GTC specializes in core- and shell-form transformers: core form up to 500 MVA, 525 kV with a total capacity of 24,000 MVA. Shell form up to 1,400 MVA, 500 kV. The facility also has the capability to perform shell transformer repairs.
- Since acquiring the Rincon facility in January 2015, Georgia Transformer has been focused on strengthening the business and operations while keeping the foundations established by Efacec intact.
- The 250,000-square-foot facility is state of the art, with a controlled environment throughout in order to ensure optimal pressure, humidity, and temperature for insulation materials and other critical parts used in the transformer manufacturing process.
- The plant is ISO 9001:2015 certified.



Vertical winding



Astronics core cutting machine

Plant Features:

- Astronics core-cutting machine with fully automated e-stacking system
- Comprehensive insulation/support structure fabrication area
- Vertical and horizontal winding machines to enhance winding efficiencies and winding reliability
- Modern winding calibration stations to hydraulically press windings to the required design heights
- Phase-assembly calibration stations to control design height
- Phase-assembly drying utilizing fully automated vapor-phase drying process
- Hydraulic assembly platforms to assemble the core and coils
- Adjustable mounting systems to support major components simulating the completed internal unit for testing prior to vapor phase
- Handling of transformer and transformer parts by means of sophisticated air-cushion system
- Semi-automatic oil drying and transformer filling
- Welding and painting operations segregated from main assembly area
- Computer-assisted testing facility up to 1675 kV BIL, segregated from the main assembly area
- Shipping area for truck and rail equipped with special gantry crane
- Rail spur in shipping area accessible by air-cushion system

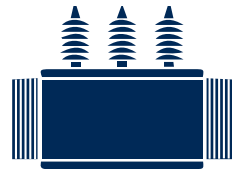


Core stacking area



Rincon test area

OUR FACILITIES



P1 – CHIHUAHUA, MX

Located in Chihuahua, Mexico, this 82,000-square-foot plant is a modern facility. Here, we custom design and manufacture small power transformers, dry-type transformers, VPI, UNIDIP, and UNIClad from 300 kVA up to 7.5 MVA, 35 kV class, and liquid-filled transformers from 500 kVA up to 15 MVA, 115 kV class. We ship three product lines: dry-type, renewable pad-mounted, and substation transformers to the utilities and industrial markets in North and Central America.

Providing reliable, on-time, ready-to-ship small power transformers is part of our DNA at our Chihuahua, Mexico facility. It is a state-of-the-art transformer manufacturing facility that satisfies the most rigorous requirements in the industry. The entire facility includes three buildings designed and laid out for the best material and production flow.

The first building is where we manufacture the transformers using time-tested, optimized processes and quality checks in all manufacturing areas. These

checks at each stage, together with virtually nonexistent rework, make for higher product reliability and keep our manufacturing time to a minimum.

The second building is a completely segregated metal fabrication facility — a seamless bridge from engineering design to manufacturing.

The third building is our receiving area, where incoming inspection and storing of necessary components used in manufacturing take place. By inspecting all incoming material and storing key components, we can produce reliable small power transformers while ensuring on-time shipments.

This combination of innovative technology, manufacturing process improvements, experienced employees, and the addition of key leadership from various high-tech industries have enabled us to achieve 100% First-Pass-Yield and 100% Ready-to-Ship on-time ratings.



Chihuahua shop floor



Renewable pad-mounted transformers



Liquid-filled transformer



Dry-type transformer

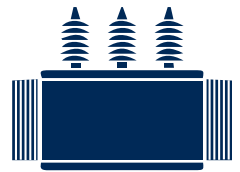


Technician checking dashboard



Test department

OUR NEWEST MANUFACTURING PLANT IN CHIHUAHUA, MX



P2 – CHIHUAHUA, MX

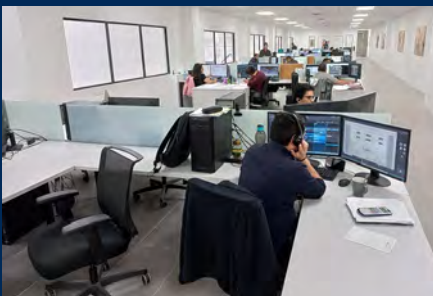
The new plant (P2) is situated on 300,000 square feet with room for expansion. It joins Virginia Transformer's original Chihuahua plant (P1), which opened in 1995. The new facility employs more than 450 people, including more than 100 engineers.

The plant has enormous capabilities and was designed for flexibility. It includes an in-house advanced design center, vapor-phase drying ovens, and an automated test lab. The new facility is fully temperature- and humidity-controlled and features:

- Four production lines for E2X oil-filled transformers up to 7 MVA.
- Dry-type transformers up to 7 MVA, 35 kV, 150 BIL.
- Integrated Power Module (IPM) production.
- Heavy-duty robotic carts for material delivery to shop floor, coil and core landing, and transformer transport through to final assembly (no forklifts).
- A class-7 clean room for the winding and assembly process.

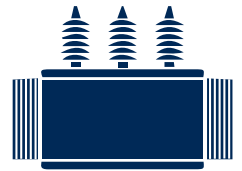
The new Chihuahua P2 capability is up to 100 MVA, 950 BIL for utility, industrial and renewable markets.

VTCW - P2, second plant built in 2022



P2, second plant built in 2022





Generators:

- 2.4 MV Impulse Generator
G1: 30 MVA / 10 kV / 3000 kW / 50-60 Hz
G2: 6 MVA / 5 - 10 kV / 1000 kW / 100 - 200 Hz
- 1 Capacitors bank: 144 MVAR / 145 kV
- 500 kV AC Resonant Test System (applied)
- Step-up transformer: 40 MVA / 10 - 20 kV
- Reactors (3-phase or 1-phase): 9.6 MVAR - 200 Hz
- Voltage: current- and power-integrated measurement system: 4,000A / 200 kV ($<1\%$ losses with measurement uncertainty @ 0.005pf)
- Partial discharges measurement:
LDIC LDS-6: pC and micro V digital detector power diagnostics ICM-8: pC and microV digital detector with ultrasonic detection
- Capability to perform all power transformer tests according to standards (IEC 60076, ANSI C57) except short-circuit test at full power

Maximum BIL 1675 kV:

- Capacitance and power factor @ 10 kV
- SFRA
- Insulation resistance
- Winding resistance
- Turns ratio
- CT amplitude and phase error
- CT excitation curves
- No-load losses and impedance voltage
- Zero-sequence impedance
- Temperature rise
- Noise level
- Switching impulse
- Lightning impulse
- Separate source-induced voltage with partial discharges



ENGINEERING



AN ENGINEERING COMPANY MANUFACTURING TRANSFORMERS

Virginia Transformer got its start in the mining industry of Virginia and West Virginia, providing units for coal mines that needed low-profile, rugged construction for the underground coal mines.

The next challenge came in supporting rectifier transformer requirements for a drive system manufacturer in Virginia. These started from a 6-pulse SCR VFD, and grew over the years to VFD and then up to 36-pulse units. Today we lead this technology. We have successfully produced designs to 30,000 HP and 36-pulse power conversion for large compressors used in LNG liquefaction.

In recent years, Virginia Transformer has integrated the use of computer-aided design programs such as Maxwell, Volna, Seitlinger, and Ansys. They are used for mechanical stress and temperature analysis, creating a failsafe and durable design. The design and analysis processes are bridged with software to provide speed and accuracy.

With these programs and technical talent, we have developed a design to offer a 20 dB noise level. Perfecting the insulation systems and shop processes combined with our patented life-monitoring system offer a potential 60-year life for your transformer versus our competitors.

Virginia Transformer can design high-impedance units to provide lower stray losses and lower short-circuit current limitation up to 20 percent. Use of nonferrous material and hardware is practiced with the knowledge of material properties to achieve lower eddy and stray losses when needed. Winding can be designed by choosing the proper conductor geometry cross section to yield a stray factor of 10 percent. Using proven experience, we can provide extremely efficient designs with very low no-load and load losses.

Virginia Transformer uses automation such as 3D CAD designs and tank welding to manufacture our tanks. This automated process also drives plasma cutters and robotic welding machines used in tank manufacturing. These tools allow us to create a tank that is free of leaks with the highest-quality welds available.

Virginia Transformer takes pride in our highly trained and senior engineers with extensive experience in transformers up to 500 MVA, 1,400 MVA range. We currently have more than 400 engineers and designers with BS, MS, and PhD degrees in mechanical, industrial, and electrical engineering.

Many of our engineers have over 30 years of experience in their related fields.

All six plants have dedicated design teams of electrical, mechanical, and controls engineers. All plants are supported by a corporate design team that harmonizes the engineering practices and technical continuity throughout the company. The engineering team members are a vital part of the plant design team and provide integrated solutions for production issues and quick resolutions of any concerns to ensure maximum efficiency.

All of the plants are connected through modern audio, video, and data links. Regular inter-plant discussions and meetings are held for disseminating knowledge among each facility.

The ability to design power transformers that have a lifespan of 60 years directly depends on the expertise of our design engineers. At Virginia Transformer's Rincon, Georgia, location, we have the skills and the engineers to further increase our design experience.

Our investment in our engineering department allows us to produce top-quality, long-lasting transformers. Our engineering design process is a methodical series of steps used in creating functional products and processes. The process is highly iterative; parts often need to be repeated many times before the production phase can be entered, though the parts that get iterated and the number of such cycles in any given project can be highly variable.

We are improving electrical and mechanical design processes by incorporating design automation, which will not only reduce design cycle time but reduce human errors. In addition to the traditional design tools typical for transformer design, we also use validation tools such as Seitlinger, Coulomb, Anderson, and Volna.

ELECTRICAL DESIGN TEAM – a team of seven professional engineers and designers. Key members are active at the IEEE organization. The Electrical Design team's core competencies are detailed high-voltage design analysis and failure rate analysis, which are contributors to the reliability of our electrical designs in general.

MECHANICAL DESIGN TEAM – a team of fifteen professional engineers and designers. Key members are active at the IEEE organization.

MANUFACTURING



Our value proposition is to provide the most reliable transformer that is shipped and installed in a timely and flawless manner to the site and monitored and serviced to last for more than 60 years.

A reliable transformer requires a robust design and flawless execution based on our manufacturing pyramid: At the core are people, supported by modern equipment, factories, a proven process, flawless shipping, and installation.

Professional oversight and receiving tools and materials in a timely manner allow our trained and certified technicians to perform at their best. Our technicians are essential and their training must be continuous and up to date. Experienced supervisors are continuously overseeing and analyzing the finished work as well as the process from start to finish to make sure everything makes sense and fits together. Without tools and materials, nothing will move forward; therefore, a team within VTC ensures that the process doesn't stop as a result of tools and materials not showing up on time.

Many steps in the assembly have checks and balances built in to minimize errors. We have narrowed these steps down to 11 major hold points (HP), where production will not move forward without approvals. There are two major control points where the team leader will analyze and review the finished work from different angles. A traveling binder will document all the inspection work for any kind of root cause to be analyzed for later use.

We use a three-pronged approach for flawless shipping. Our shipping expert visualizes the journey of the unit through various highways and bridges. The shipping preparation and packing is very secure, with the unit monitored through GPS throughout the journey. Our shipping team assesses the transformer upon arrival, making sure all the parts are accounted for and instructions are in place. We have our own service and installation crew with oil rigs and other test equipment. This attention to every detail during the shipping and installation process is an example of how we put our value proposition to work.



Project Administration Office (PAO)

The Project Administration Office (PAO) is a major component of our world-class support. They are the customer's voice within the company. The PAO has their fingers on the pulse of every project and job that is built; they know the status of each job at every stage of production from start to finish, and they are the point of contact once an order is entered until it is shipped. Throughout the project's execution the Project Administration team is responsible for the scope of job execution in any given time frame, ensuring customer satisfaction and managing the risk to an acceptable level for the customer and for the company.

Continuous Improvement is our Culture

The culture at Virginia-Georgia Transformer is one of continuous development.

Engineering Quality Assurance

- Customer order reviews and design control plan for each order
- Design validation plan with failure mode effect analysis (FMEA) for new designs, new components and new technology
- Engineering Process Audit (EPA) and inspection plan for engineering process assurance

Vendor Quality Assurance

- AQL quality control plan for incoming material inspection
- New component evaluation and testing plan
- New vendor evaluation and vendor performance score card
- Vendor quality surveillance audits and vendor rating system

Process Assurance in Manufacturing

- Training and skill certification programs for operators
- Statistical Process Controls (SPC) for critical processes of transformer manufacturing
- Three-tier quality control plan for process adherence to ensure product quality

Final Quality Assurance

- Transformer tests per IEEE standards/customer specification requirements
- “Fit, form, function” verification and customer specification compliance
- Shipment tracking and delivery coordination with customer•Installation, oil processing, and field testing
- Installation, oil processing, and field testing
- Customer feedback surveys to ensure service quality

Employee Training

We stay current with industry standards and requirements and strive to continuously improve with comprehensive training programs across the entire organization.

The drive and commitment to excellence at Virginia Transformer is unmatched anywhere else, which explains why our company has grown substantially faster over the past decade than any other power transformer manufacturer.

We have made countless innovations and improvements in every aspect of our corporate operations, and we will continue to do so. v vOur commitment to both growth and improvement is unshakable.



VIRGINIA TRANSFORMER CORP

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PRODUCT SCOPE

LIQUID TYPE TRANSFORMERS	DRY TYPE TRANSFORMERS	SPECIALTY TRANSFORMERS
Ratings - 500kVA to 500MVA - Up to 500kV Class	VPI (Vacuum Pressure Impregnated) - 300 kVA to 20 MVA - Up to 35kV Class - 220° Class Insulation	- Neutral Grounding Transformers - Drive Isolation Transformers (18/24/36 Pulse Available) - Rectifier Duty Transformers - Furnace Transformers - Zig Zag Transformers - Three Phase Voltage Regulators (Up to 69 kV, 50,000 kVA Throughput) - Air Core Reactors - Scott T Transformers - Single Phase Transformers - Phase Changers - Auto Transformers - Inter-Phase Transformers - Dual Voltage Transformers - Reconnectable Transformers - Other applications available
Cooling Fluids - Mineral Oil, Envirotemp (FR3), Beta, Silicone	UN/Clad® Encapsulated Coils - 300kVA to 15MVA - Up to 35kV Class - 220° Class Insulation	
Fluid Preservation - Sealed Tank (Standard) - Automatic Nitrogen System - Conservator	Totally Enclosed Non-Ventilated (TENV) - Up to 5,000kVA - Up to 35kV Class	
LTC - Up to 500MVA		

MARKETS / APPLICATIONS

INDUSTRIAL - Rectifier Duty - Paper & Cement Mills - Steel Mills - Motor Start - Fan, Pump & Compressor Operation - Hoists - Mining - Drive Isolation - AC, DC - Chemical Plants/Ethanol - Oil & Gas; Refineries, Pipelines, Storage, etc. - Grounding Transformer - Cycloconverter Application - Dynamic Voltage Regulator - Unit Substation - Special Fluid Transformers - Silicone, Envirotemp (FR3), Beta Fluid - Chemical/Hazardous Environment - Class I, Division II, Group C & D - Coastal Environment/Offshore	UTILITY - Substation - Voltage Regulator - Auto Transformer - Grounding Transformer - Transmission	COMMERCIAL/INSTITUTIONAL - Hospitals - Universities - Hotels - Offices - Airports - Unit Substations
	POWER GENERATION - Generator Step Up (GSU) - Unit Auxiliary Transformer (UAT) - Station Service Transformer (SST) - Excitation - Generator Start Up - Reverse Auxiliary Transformer - Wind Power - Geo Thermal - Solar	TRANSIT & LARGE DRIVE - Extra Heavy Duty Traction (RI9) - ANSI Circuit 25, 26, 25 & 26, 31, 41 - Up to 5,000 KW Rectifier - Up to 20,000 HP AC, DC - Liquid Filled - 55 or 65° C rise - Dry Type - 80/115/150° C rise
	SWITCHGEAR MATCH-UP - General Electric - Cutler Hammer - Siemens - Square D - Others	FIELD SERVICE OPTIONS - Field Installation - Crane Service/ Offloading - Assembly On Site - Field Testing - Hot Oil Vacuum Processing - On Site Training

QUALIFICATIONS - Six ISO-Certified Manufacturing Plants - UL-Listed Dry Types up to 500 kVA, 35 kV - Class 220° Insulation System, NEMA 1 or 3R - UL Listed Liquid Filled up to 100MVA, 69kV Class - NC, IEEE, CSA, IEC, UI
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International
Organization for
Standardization



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FIELD SERVICE



Our field service division offers a full range of aftermarket services for our transformers as well as competitors' transformers. These services include:

- Assembly, Oil Filling, Pre-Commissioning Testing
- Repair Services
- Replacement Parts
- Oil Handling and Oil Testing Services
- Transformer Testing Services
- Periodic Inspection Services
- Technical Support

We also provide lifetime extension programs of new and existing transformer assets to keep your transformer running at peak efficiency. Our Field Service is rated the best in the industry by our customers.

Available services and capabilities:

Installation Services

- Unit assembly to enable electrical operation
- Vacuum processing, oil handling, oil filling
- Pre-commissioning testing, standard de-energized electrical acceptance testing, and special customer request testing

Repair and Maintenance Services

- Physical external servicing of the transformer and associated components
- Internal inspection and troubleshooting
- Preventative maintenance to ensure long life

Oil Handling and Oil Testing

- Transformer vacuum processing and oil filling
- Hot oil processing (dehydration, filtering, de-gasification)
- Oil integrity testing (dielectric strength, dissolved gas analysis, moisture content, physical properties)

Emergency Service Available

24/7/365

1-800-882-3994

Replacement Parts

- Complete parts and component support for equipment manufactured by Virginia-Georgia Transformer
- Next-day shipment for common parts

Transformer Testing Services

- Ratio
- Insulation Resistance
- Core Meggar
- Power Factor
- Resistance
- Oil Dielectric
- DGA Sampling
- DC Resistance
- Thermal Imaging
- Bushing Test (Hot Collar, Bushing Power Factor)
- Control Wiring Verification
- Double Power Factor
- Double SFRA
- Infrared Imaging
- Leakage Reactance
- Excitation
- TTR
- Arrestor Testing
- CT Testing

Inspection Services

- Pre-commissioning
- Operational conditioning and status

Technical Support

- Full engineering support
- Advisory capacity at any level before and during electrical operation
- Operational problem and trouble resolution
- Test data analysis and recommendation

Virginia-Georgia Transformer also offers repair and refurbishment.

VTC incorporates redesigns utilizing our latest developments in electrical standards and design technologies, materials, and manufacturing processes.

Your transformer can be refurbished to like-new condition.



Transformer Accessories

Radiator Mounted Fans



Potential Transformer



Load Tap Changer



Liquid Level Gauge



Control Cabinet



LTC Controls



Electronic Temperature Monitor



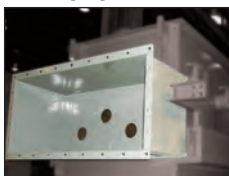
Side-Mounted LV Bushings



HV Bushings & Arrestors (Shipped demounted)



Throat for Non-Segregated Bus



CT's (Bushing mounted internally)



Dual Voltage Switch



Nitrogen Preservation System



Lightning Arrestors



COMMUNITY STEWARD

Virginia Transformer has an extensive history of making a positive impact on the lives of our neighbors.

Virginia Transformer Corporation has an extensive history of making a positive impact on the lives of our neighbors. Our commitment to our communities is evident in our support of local educational initiatives, fundraising campaigns, and sustainability efforts throughout the United States, Mexico, and India.

In Roanoke, VA, we sponsored a STEM camp in collaboration with Goodwill Industries of the Valleys. Students had the opportunity to tour our manufacturing facility and learn about power transformers; this experience gave them a glimpse into how STEM knowledge can be applied in real-world settings. We believe that investing in education is critical to building a skilled workforce for the future.

In India, we partnered with the Advit Foundation to fund a water recharge structure to ensure villagers have access to clean water. We also funded upgrades to an elementary school in a rural community to improve the education and learning environment for local children. Additionally, we supported a solar street light installation project and an indigenous tree plantation drive, which contributed to environmental sustainability while creating a safer, more enjoyable community.

We host a United Way campaign in Roanoke each year to raise money for organizations in our area. Virginia Transformer matches the amount that our employees contribute, which doubles the positive impact we have in the region.

We are also committed to supporting our employees' families through our company scholarship program, which provides financial assistance to employees' children who are attending college. We are proud to support their education and give back to our employees in a meaningful way.

Virginia Transformer Corporation is committed to making a difference in our communities. We look forward to continuing our efforts and creating a brighter future for all.





Virginia Transformer Corp
Office Park (Headquarters)
 1936 Blue Hills Drive
 Roanoke, VA 24012
 Ph: 540.345.9892

Roanoke
 220 Glade View Drive
 Roanoke, VA 24012
 Ph: 540.345.9892

Troutville
 100 Smorgon Way
 Troutville, VA 24175
 Ph: 540.345.9892

Pocatello, ID
 3770 Poleline Road
 Pocatello, ID 83201
 Ph: 208.238.0720

Rincon, GA
 2789 Highway 21 South
 Rincon, GA 31326
 Ph: 912.754.5300

P1 - Chihuahua, MX
 Complejo Industrial Chihuahua, Ave.
 Homero #3307 Chihuahua, MX
 Ph: 52.614.483.0000

P2 - Chihuahua, MX
 Avenida de las Industria 6899
 Nombre de Dios, Chihuahua, Chih.
 Ph: 52.614.483.0000



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