An Engineering Company
Manufacturing Transformers
Virginia Transformer Corp has been manufacturing custom designed power transformers since 1971. VTC got its start providing power transformers for the underground mining industry in the Appalachian Mountains. These liquid and dry type units were custom designed to meet a low profile construction in a high temperature environment.

VTC evolved into a customer solution provider to drive isolation for steel and mining and subway traction applications. In addition to industrial and commercial applications, VTC provided units designed for underground nuclear testing and particle accelerator and wind tunnels for NASA.

From its beginning VTC has been an engineering based company providing solutions for power transformers. In the 80’s, the available oil designs were perfected, the design process was automated, dry type transformer cooling and insulation systems were perfected. In the late 80’s, the LTC designs were developed. Air core and iron core reactors were developed to add to the DC and AC drives offerings.

The company became the leading supplier to switch gear OEM’s such as Siemens, Cutler Hammer and GE. This was also when VTC’s UNIClad® transformer was developed. A premium-duty, air-cooled, resin encapsulated transformer with a flexible insulation system. Product range steadily increased in kVA size and voltage capability to 10 MVA, 69 kV class. The utility market was added with the sale of the company’s first LTC transformer in the late 1980’s.

In the 90’s, product range continued to grow to 30 MVA 69 kV class. Continued growth for VTC, not only in product range but facility space as well. VTC moved into a new 120,000 sq. ft. facility in Roanoke, the Chihuahua, Mexico facility was built and the lower end of the product range was moved here. The Roanoke facility provides both dry type and liquid filled transformers.

In 2003, VTC acquired the assets of U.S. Transformer West in Pocatello, ID. This was a repair facility, handling units up to 300 MVA, 230 kV class. The plant has been converted to a new transformer manufacturing facility with VPD processing, new test equipment and environment controlled winding and assembly.

Over the last 3 decades VTC has become one of the leading transformer suppliers in the industry, serving the industrial, utility, commercial and specialty markets as well as wind, solar, hydro and geothermal markets world wide. Virginia Transformer’s new generation of Wind/Solar GSU Pad Mounted transformers are designed to outlast the life of the wind turbine – up to a 30 year life without replacement, VTC has developed special methods to eliminate potential problems.

Today, with a product range from 300kVA to 100MVA, dry and oil, the resources of three (3) ISO certified plants in North America, it’s strength in design, engineering, automation, and customer driven service and quality, VTC is the 4th largest manufacturer of power transformers in the USA.
Engineering/Design

VTC is an engineering company that manufactures transformers for power and specialty applications. For over 40 years, VTC has steadily built its engineering strength in all aspects of transformer engineering, such as electrical, mechanical, thermal, materials, etc. All of our manufacturing plants specialize in specific size ranges, and have a local engineering group, supported by the corporate engineering group. By locating the corresponding engineering group within the manufacturing location, we build expertise and ensure quick resolution of problems, maximum efficiency and short lead times. The Corporate engineering department controls and harmonizes the engineering practices and technical continuity throughout the corporation, and also directs the development work.

VTC prides itself on the large number of very experienced engineers and senior engineers with a cumulative transformer related experience of several hundreds of years designing up to 400 KV / 500 MVA range. They are supported by a team of well-trained junior engineers. All engineers are equipped with a variety of special purpose software such as Optimized core and coil design, no-load and load-loss optimization, Impulse Voltage calculation, Short circuit calculation and magnetic field calculation using Andersen's FLD 12. Finite element programs like ANSYS for mechanical and thermal calculations including overloads, hot-spot temperature calculation for windings and core, clamping force and structure strength calculation, etc.

Under our ISO certified process, every design undergoes a thorough quality assurance process. VTC maintains a library of over 12,000 designs and test data in our archives, which are referred to while preparing new designs. The design manual is the repository of the knowledge base and a major vehicle of technical continuity and is updated in line with our technological progress. Our engineers participate in professional/industry meetings and seminars to keep themselves abreast of the latest developments.

Engineering at VTC maintains its customer focus with timely submission of drawings, prepared in 3-D, to provide a better visualization of the product. We supply transformers complying with a large number of national and international standards such as ANSI/IEEE, IEC, CSA, UL, CUL, CE, ABS, etc. VTC continues its on-going initiative to build reliable, more efficient, environmentally friendly transformers, including offering FR3, a biodegradable fluid, as an alternative to mineral oil.

Virginia Transformer Corp 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, our employees and stockholders through continued growth and improvement.”
Products And Processes

VTC offers a full product range up to 100 MVA in 230 kV class. With this range VTC offers power transformers for every industrial and utility market. VTC has been serving the needs of the Utility markets for more than 25 years. This includes IOU’s, Rural Electric Co-ops and municipalities. For more than 35 years VTC has been supplying the industrial, transit, drives rectifier market. We offer Liquid Filled transformers from 300 kVA to 100 MVA including furnace transformers for the metals industry. VTC is a leading manufacturer of Dry Type transformers. We provide Dry Type transformers for indoor and outdoor applications from 300 kVA to 20,000 kVA up to 35 kV class. VTC’s UNIClad construction dry type performs in humid and contaminated environments. Specialty transformers for rectifier, grounding and GSU and others are included in our product range. Each transformer design is optimized to achieve the required performance at minimum cost. VTC exceeds world class quality and customer service through its continuous improvement process ‘TAKE IT TO THE PEOPLE’. VTC’s shop employees are certified in their skills building transformers. Our professional staff is trained in all areas within 90 days to contribute independently. Using integrated custom software in engineering, the plant is optimized to deliver each transformer on time. Through our manufacturing process assurance system each transformer will deliver the longest life and smooth installation. All designs are custom made to client specifications. Through automation, experience and intelligence, VTC is able to develop the best design for each need, looking at all details of the transformer design to assure electrical and magnetic performance to optimize every phase of production. VTC’s value proposition is a one stop shop engineering company making transformers, offering technical solutions and custom products for all applications. Continuous improvement for better quality, the best lead times, on time shipment and outstanding customer service.
## Product Scope

<table>
<thead>
<tr>
<th>LIQUID TYPE TRANSFORMERS</th>
<th>DRY TYPE TRANSFORMERS</th>
<th>SPECIALTY TRANSFORMERS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ratings</strong></td>
<td>VPI (Vacuum Pressure Impregnated)</td>
<td>- Neutral Deriving Transformers</td>
</tr>
<tr>
<td>- 300 kVA to 500 MVA</td>
<td>- 300 kVA to 15 MVA</td>
<td>- Drive Isolation Transformers</td>
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<tr>
<td>- Up to 230 kV Class</td>
<td>- Up to 35 kV Class</td>
<td>(18/24/36 Pulse Available)</td>
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<tr>
<td><strong>Cooling Fluids</strong></td>
<td>- 220º Class Insulation</td>
<td>- Rectifier Duty Transformers</td>
</tr>
<tr>
<td>- Mineral Oil, Envirotrend (FR3),</td>
<td></td>
<td>- Furnace Transformers</td>
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<tr>
<td>Beta, Silicone</td>
<td></td>
<td>- Zig Zag Transformers</td>
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<tr>
<td><strong>Fluid Preservation</strong></td>
<td><strong>UNIClad® Encapsulated Coils</strong></td>
<td>- Three Phase Voltage Regulators</td>
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<tr>
<td>- Sealed Tank (Standard)</td>
<td>- 300 kVA to 15 MVA</td>
<td>(Up to 69 kV, 50 MVA Throughput)</td>
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<tr>
<td>- Automatic Nitrogen System</td>
<td>- Up to 35 kV Class</td>
<td>- Air Core Reactors</td>
</tr>
<tr>
<td>- Conservator</td>
<td>- 220º Class Insulation</td>
<td>- Scott T Transformers</td>
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<tr>
<td><strong>LTC</strong></td>
<td><strong>Totally Enclosed Non-Ventilated</strong></td>
<td>- Single Phase Transformers</td>
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<tr>
<td>- Up to 500 MVA</td>
<td><em>(TENV)</em></td>
<td>- Phase Changers</td>
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<td>- Auto Transformers</td>
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<td>- Inter-Phase Transformers</td>
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<td>- Dual Voltage Transformers</td>
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<td>- Reconnectable Transformers</td>
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<td>- Other applications available</td>
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</tbody>
</table>

### 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, Envirotrend (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

#### 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

#### COMMERCIAL/INSTITUTIONAL
- Hospitals
- Offices
- Universities
- Airports
- Hotels
- Unit Substations

#### TRANSIT & LARGE DRIVE
- Extra Heavy Duty Traction (RI9)
- ANSI Circuit 25, 26, 25 & 26, 31, 41
- Up to 5000 KW Rectifier
- Up to 20,000 HP AC, DC
- Liquid Filled - 55 or 65º C rise
- Dry Type - 80/115/150º C rise

#### FIELD SERVICE OPTIONS
- Field Installation
- Crane Service/ Offloading
- Assembly On Site
- Field Testing
- Hot Oil Vacuum Processing
- On Site Training

### QUALIFICATIONS
- Three ISO 9001-2008 Certified Manufacturing Plants
- UL Listed Dry Type up to 3000 kVA, 35 kV Class 220º Insulation System, NEMA 1 or 3R
- UL Listed Liquid Filled up to 100 MVA, 69 kV Class
- NC, IEEE Standards CSA, IEC, UL, CUL, CE, ABS

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[ISO logo]

International Organization for Standardization
Virginia Transformer Corp designs and manufactures custom built power transformers in a range of sizes. From 300 kVA up to 100 MVA. With 3 plants in North America, we service a global market. Over the last 4 decades VTC has grown into one of the leading transformer suppliers in the industry. VTC services the industrial, utility, commercial and government markets as well as wind, solar, hydro, geothermal, government facilities and transit markets.