



# Drive & Rectifier Transformers

utility | industrial | commercial

Individual solutions | from a global perspective.



VIRGINIA TRANSFORMER CORP

[www.vatransformer.com](http://www.vatransformer.com)



## Customized solutions

What you need. Where you need it. When you need it.

For thirty years, Virginia Transformer Corp has lead the industry as the best choice for customized transformers for business, government and industry. From early in our business, a mainstay of our product line has been drive, rectifier and exciter transformers. We've developed our reputation because of our total commitment to a simple idea: what each customer needs to get the job done is different. That's why nothing is standard at VTC. There simply aren't any pre-determined molds, designs or specifications. Instead, we design and build the very best system for each customer's unique application and environment.

### HERE ARE EIGHT REASONS TO GET YOU STARTED

In the rigorous field of Drive-duty applications, VTC understands what is required to satisfy our customer. It's our commitment to total individual solutions. And they also know we're just as demanding when it comes to exceptional product

design. Our engineers are always searching for better construction techniques, materials, and design configurations. We've developed better winding designs and improved dielectric insulation systems. We've created stronger coil bracing for short circuit forces, advanced coil processing systems for severe environments, and superior core designs for high V/Hz and voltage spikes. We even manufacture up to a 16 MVA transformer, the largest in the industry. Dry Type, UNICLAD or Oil Filled, one will work for you. Need more? Here are eight specific design advantages that ensure a transformer from VTC will be the most reliable and efficient you'll find anywhere:

1. **Increased thermal margin** means heating from overload and harmonics won't decrease the life of a VTC transformer.
2. **Magnetically balanced winding designs** handle common faults and impact loads and are metal applications. Multiple secondary windings are wound very precisely to maintain the magnetic balance.

### DISNEY MGM TOWER OF TERROR

*VTC takes on ultimate thrill ride.*

When an OEM customer asked for our help in providing an extremely reliable drive isolation transformer to power their drives for this high-profile, ultimate thrill ride, Virginia Transformer Corp was ready for the challenge. Two 2,500 KVA, 15KV class, copper wound, liquid filled, specially braced transformers were provided, which were able to withstand the high g-force ride, incredible impact loads and high heat resulting from the harmonics of non-sinusoidal loading. • Additional reliability features included a winding temperature simulation package, surge arresters and surge shield. Finally, the tanks were painted green to blend with the surrounding landscaping. The result? Since 1995, when this popular attraction started up at Disney MGM, VTC transformers have been unobtrusively and reliably doing their job: eliminating thrills behind the scenes.



3. **Surge shields** designed into VTC windings evenly distribute voltage surges from controlled rectifier action and switching of incoming breakers.
4. **Superior core construction** handles excessive heating and forces from higher frequency voltage wave forms.
5. **Lower insulation stresses** withstand voltage surges and ensure the design life of the transformer.
6. **Multiple Vacuum Pressure Impregnation (VPI)** of dry type coils provides corona-free operation and increased mechanical strength.
7. **Higher BIL-rated transformers** handle switching surges in Pulse Width-Modulation (PWM) and other demanding power electrical circuits.
8. **Lower current density** means high radial short circuit strength in the winding.

### A TEAM READY FOR EVERY CHALLENGE

VTC's approach is especially important to our customers that need drive and rectifier isolation transformers. The industrial and commercial applications that require such systems are so varied that only a customized unit can truly do the job efficiently and reliably.

Design engineers begin by examining in detail the application and environment where the transformer will be used. Our staff works in a collaborative partnership with each customer, selecting the best materials, construction techniques, and accessories to ensure efficient and reliable operation and provide hassle-free field service.

During the manufacturing process, VTC's production experts adhere to rigorous process control and continuous improvement standards, including our zero-defect goal. All of our global operations are ISO 9001 certified. VTC transformers undergo testing to multiple engineering standards, including ANSI, IEC, IEEE, and NEMA. We offer other testing as well.

VTC constructs all transformer cores from the highest-grade silicon steel, stacked for mechanical strength and low losses. We can cut these laminations for step-lap mitered joints. Our coil winding areas are kept within strict temperature and humidity standards.

Customers can choose from a wide range of optional accessories. We offer conservators for oil preservation, CTs for relays and meters, and electrostatic shields. For cooling we offer several self-ventilation or fan-cooling packages. For temperature monitoring, VTC offers digital or analog gauges, with SCADA interface if desired. Surge arresters, demountable galvanized radiators, and high-voltage isophase bus duct and flanges are also available. And we supply it all for dry type and oil filled transformers.



### TOTAL SERVICE FROM START TO FINISH

VTC's delivery times are unparalleled in the industry. Dry type units typically ship in 8 weeks, and liquid filled systems in as few as 10. Larger transformers can be at your site in less than 16 weeks. No one in the industry does it faster than VTC.

Our commitment to world-class service continues once your unit is ready for shipping and installation. VTC's staff takes great care in meeting each and every customer requirement. We offer total commissioning and testing services, from unloading and installation, to oil filling and processing. And once your unit is in operation, our maintenance and service staff is available 24 hours a day, 7 days a week with a simple phone call.

## SPECIFICATION DATA

	Dry Type	Liquid Filled	UNICLAD®
<b>KVA*</b>	Up to 7,500 KVA in 3-phase units	Up to 15,000 KVA (OA rating) up to two-stage fan cooling, max KVA=28,000	Up to 10,000 KVA in 3 single-phase units
<b>Primary Voltage</b>	2.4 to 35 kV	2.4 to 35 kV	2.4 to 35 kV
<b>Secondary Voltage</b>	Up to 5 kV	Up to 15 kV	Up to 5 kV
<b>BIL</b>	Up to 150 kV	Up to 250 kV	Up to 150 kV
<b>Frequency</b>	25 Hz to 60 Hz	25 Hz to 60 Hz	25 Hz to 60 Hz
<b>Impedance</b>	4% to 18%**	4% to 18%**	4% to 18%**
<b>Winding Material</b>	copper or aluminum	copper or aluminum	copper or aluminum
<b>Insulation System</b>	220°C	120°C	220°C
<b>Minimum Winding Temperature Rise</b>	65°C	45°C	65°C
<b>Ambient Temperature</b>	-40°C up to 55°C	-40°C up to 55°C	-40°C up to 55°C
<b>Elevation</b>	up to 14,000 ft.	up to 14,000 ft.	up to 14,000 ft.
<p>* Secondary KVA may be higher than primary KVA  ** Based on primary KVA  UNICLAD®—VTC registered trademark. It is encapsulated coil dry type.  Number of secondaries up to 4. K factor up to 13 if UL needed (dry type only), or up to 20 if UL not needed.</p>			



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