Dry Type Transformers

VIRGINIA TRANSFORMER CORP

www.vatransformer.com

TRANSFORMER FEATURES

Range – Up to 15 MVA, 35 KV voltage class, 150 kV BIL

Loading – Designed to deliver rated current and MVA in all tap positions

Service – Indoor

Basic Impulse Level (BIL) – Per ANSI standard

Impedance – See chart on back

Coils – Aluminum or copper conductor, circular or rectangular construction, disc or barrel wound

Coil Sealing – Vacuum Pressure Impregnated (VPI)

Enclosure – NEMA 1, Complete breakdown

Crowned roof for water shedding

Base suitable for lifting, jacking and skidding

Paint – ANSI 61 enamel on phosphate cleansed surface

Nameplate – Engraved stainless steel for outdoor, metalized mylar adhesive for indoor application

Stainless steel ground pads

12/18 month standard warranty

OPTIONAL FEATURES

- Reconnectable windings
- Non-standard impedance
- Epoxy paint in your choice of color
- Terminal throats and chambers
- Shock indicator
- Customer-specific controls and relays
- Fan rating for 33% additional kVA
- Winding temperature monitor
- VPI + epoxy endcap

DRY TYPE BENEFITS

- Weigh less than comparable liquid-filled transformers
- Can be located next to electrical load
- Require no drainage areas or retaining walls
- Minimum maintenance downtime
- UL listed up to 3,000 KVA, 15 KV class
- 220˚C insulation, UL listed
- 100% solid varnish for lower corona level
- Wide variety of termination arrangements
- Shipments in as little as 8 weeks

ADDITIONAL FEATURES AVAILABLE

- Self-cooling or automatic fan cooling options
- Arresters and tamper-resistant hardware
- Flanged throats, air terminal chambers and flexible connectors to external bus
- SCADA interface
- Provisions for parallel operation
- Potential transformer for voltage signal
- Loss evaluated designs
- Seismic zone applications
- Reduced vibration and vibration isolation for hospitals and laboratories
- Disk windings up to 200 kV BIL
- Optional enclosures – NEMA 3R or TENV

OVERLOADING OF VTC TRANSFORMERS

Average Temp. Rise at AA rating	Overload rating without fans	Overload rating with fans
150˚C	100%	133%
115˚C	115%	150%
80˚C	135%	180%

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TYPICAL DIMENSIONS FOR DRY TYPE TRANSFORMERS

Ventilated Enclosed

KVA	FA	Height (inches)	Width (inches)	Depth (inches)
300	400	90	84	54
500	667	90	84	54
750	1,000	90	84	54
1,000	1,333	90	90	60
1,500	2,000	90	90	60
2,000	2,667	90	96	60
2,500	3,333	102	110	60
3,000	4,000	102	110	60
3,750	5,000	120	124	60
5,000	6,667	108	144	66
7,500	10,000	124	148	72
10,000	13,333	130	148	72

Totally Enclosed Non Ventilated (TENV)

KVA	Height (inches)	Width (inches)	Depth (inches)
300	90	72	54
500	90	90	54
750	108	90	54
1,000	108	96	60
1,500	124	110	60
2,000	124	124	60

Data is for estimating purposes only and should never be used for construction. Contact factory for actual dimensions, weights and oil volume.

APPLICABLE STANDARDS

ANSI – American National Standards Institute
IEEE – Institute of Electrical and Electronic Engineers

C57.12.01 – General Requirements for Dry Type Transformers.

C57.12.51 – Requirements for Ventilated Dry Type Power Transformers 501 kVA and Larger, Three Phase, with High Voltage 601 to 34,500 Volts, Low Voltage 208Y/120 to 4160 Volts.

C57.12.52 – Requirements for Sealed Dry Type Power Transformers 501 kVA and Larger, Three Phase, with High Voltage 601 to 34,500 Volts, Low Voltage 208Y/120 to 4160 Volts.

C57.12.91 – Test Code for Dry Type Distribution and Power Transformers.

C57.94 – Practice for Installation, Application, Operation and Maintenance of Dry Type General Purpose Distribution and Power Transformers.

C57.96 – Guide for Loading Dry Type Distribution and Power Transformers.

PRODUCTION TESTS

Routine in-house tests per ANSI C57.12.91 include:

- Ratio
- Polarity & Phase Relation
- Resistance Measurement
- Excitation Current & No-Load Loss
- Impedance & Load Loss
- Applied Potential
- Induced Potential

Witness testing is offered and arranged according to your schedule

TYPICAL APPLICATIONS

- Subway & rapid transit
- Hospitals, hotels & schools
- Utilities & power plants
- Chemical plants
- Mining operations
- Paper & steel mills
- Oil & gas refineries
- Office & shopping complexes
- Manufacturing plants
- Airport terminals
- Water treatment plants
- Research facilities

BASIC IMPULSE LEVELS

Transformer Type	KV Class	Standard BIL (kV)	Standard AC Hipot Level	Special BIL Options (kV)	Impedance*
Ventilated Dry Indoor, Outdoor or Sealed TENV	1.2	10	4	20, 30	5.75
	2.5	20	10	30, 45	5.75
	5	30	12	45, 60, 75	5.75
	8.7	45	19	60, 75, 95	5.75
	15	60	31	95, 110	5.75
	25	110	37	125, 150	6.25
	34.5	150	50	175	6.25

*VTC standard (other impedance are optional)

SELECTED CUSTOMERS

- 84 Mining
- Bechtel Construction
- Cincinnati Gas
- Exxon Chemical
- Florida Power & Light
- Georgia Pacific
- Kraft General Foods
- Loyola Medical Center
- Microsoft
- NASA
- New York City Transit Authority
- Raytheon Engineering
- Rockefeller Center
- Tennessee Valley Authority
- Union Carbide
- University of Chicago
- US Steel
- Wright Patterson AFB

*Application Note: Vacuum circuit breakers switching is known to produce voltage resonance. Use appropriate caution in circuit design. (See IEEE Draft #C57.142)

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