**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**

<table>
<thead>
<tr>
<th>Average Temp. Rise at AA rating</th>
<th>Overload rating without fans</th>
<th>Overload rating with fans</th>
</tr>
</thead>
<tbody>
<tr>
<td>150˚C</td>
<td>100%</td>
<td>133%</td>
</tr>
<tr>
<td>115˚C</td>
<td>115%</td>
<td>150%</td>
</tr>
<tr>
<td>80˚C</td>
<td>135%</td>
<td>180%</td>
</tr>
</tbody>
</table>
Dry Type Transformers

**TYPICAL DIMENSIONS FOR DRY TYPE TRANSFORMERS**

<table>
<thead>
<tr>
<th>KVA</th>
<th>FA</th>
<th>Ventilated Enclosed Height (inches)</th>
<th>Width (inches)</th>
<th>Depth (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>400</td>
<td>90</td>
<td>84</td>
<td>54</td>
</tr>
<tr>
<td>500</td>
<td>667</td>
<td>90</td>
<td>84</td>
<td>54</td>
</tr>
<tr>
<td>750</td>
<td>1,000</td>
<td>90</td>
<td>84</td>
<td>54</td>
</tr>
<tr>
<td>1,000</td>
<td>1,333</td>
<td>90</td>
<td>90</td>
<td>60</td>
</tr>
<tr>
<td>1,500</td>
<td>2,000</td>
<td>90</td>
<td>90</td>
<td>60</td>
</tr>
<tr>
<td>2,000</td>
<td>2,667</td>
<td>90</td>
<td>96</td>
<td>60</td>
</tr>
<tr>
<td>2,500</td>
<td>3,333</td>
<td>102</td>
<td>110</td>
<td>60</td>
</tr>
<tr>
<td>3,000</td>
<td>4,000</td>
<td>102</td>
<td>110</td>
<td>60</td>
</tr>
<tr>
<td>3,750</td>
<td>5,000</td>
<td>120</td>
<td>124</td>
<td>60</td>
</tr>
<tr>
<td>5,000</td>
<td>6,667</td>
<td>108</td>
<td>144</td>
<td>66</td>
</tr>
<tr>
<td>7,500</td>
<td>10,000</td>
<td>124</td>
<td>148</td>
<td>72</td>
</tr>
<tr>
<td>10,000</td>
<td>13,333</td>
<td>124</td>
<td>148</td>
<td>72</td>
</tr>
</tbody>
</table>

**Totally Enclosed Non Ventilated (TENV)**

<table>
<thead>
<tr>
<th>KVA</th>
<th>Ventilated Height (inches)</th>
<th>Width (inches)</th>
<th>Depth (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>90</td>
<td>72</td>
<td>54</td>
</tr>
<tr>
<td>500</td>
<td>90</td>
<td>90</td>
<td>54</td>
</tr>
<tr>
<td>750</td>
<td>108</td>
<td>90</td>
<td>54</td>
</tr>
<tr>
<td>1,000</td>
<td>108</td>
<td>96</td>
<td>60</td>
</tr>
<tr>
<td>1,500</td>
<td>124</td>
<td>110</td>
<td>60</td>
</tr>
<tr>
<td>2,000</td>
<td>124</td>
<td>124</td>
<td>60</td>
</tr>
</tbody>
</table>

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**

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

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

**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

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