1500 A 1.2 kV Class (HTN) Molded Tri-Clamp Secondary Bushing

Electrical Performance:
- Continuous Current 1,500 Amps rms in transformer oil
- Basic Impulse Level (1.2 x 50 micro-second wave) 30kV Crest
- 60 Hertz Hipot (one minute) 10kV rms
- Maximum continuous line to ground voltage 600 volts rms

Mechanical Performance:
- Mounting Nut Clamp-Down Torque: Ten (10) mounting nuts were tightened until failure (cracked around mounting ear) of the mounting base. The average breakage torque was 27.2 ft-lbs.
  - Recommended torque value is 90 in-lb (7.5 ft-lbs) maximum.
- Stud Pushout: Ten (10) bushings were mounted on a horizontal steel plate. Force was applied vertically to the stud until failure (cracked molded base between mounting ears). The average pushout force was 3627.4 lbs.
- Stud Failure Torque: Torque was applied to ten (10) bushings on the stud until failure. Average failure torque was 170 ft-lbs. for the 1” stud.
  - Recommended torque value for all 1-14 bushing nuts is 40 ft-lb maximum.
- Cantilever Break Test: The ten (10) samples were mounted on a steel plate with one mounting ear at the 6 o’clock position. Cantilever force was applied to the stud 3” from the mounting plate surface until failure. The test was performed again with ten (10) new samples with one mounting ear at the 12 o’clock position. The neck of the molded base was the common failure point (cracked).
  - 6 o’clock position samples results: The min. torque was 355 ft-lbs. and the max. was 499 ft-lbs.
  - 12 o’clock position samples results: The min. torque was 303 ft-lbs. and the max. was 413 ft-lbs.
- Seal integrity between the molding compound and the current carrying stud certified using helium mass spectrometer at 1.0 x 10-7 atm cc/sec sensitivity.

Thermal Performance:
- Four (4) bushings were subjected to 10 thermocycle testing per IEEE Std 386-2006, Section 7.20 Fig. 22.
- Seal integrity between the molding compound and the current carrying stud certified using helium mass spectrometer at 1.0 x 10-7 atm cc/sec sensitivity.

Table 1
Voltage Ratings and Characteristics
<table>
<thead>
<tr>
<th>Description</th>
<th>kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Voltage Class</td>
<td>1.2</td>
</tr>
<tr>
<td>AC 60 Hz 1 Minute Withstand</td>
<td>10</td>
</tr>
<tr>
<td>BIL and Full Wave Crest</td>
<td>30</td>
</tr>
</tbody>
</table>

Table 2
Current Ratings and Characteristics
<table>
<thead>
<tr>
<th>Description</th>
<th>Amperes Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Inch Copper Stud</td>
<td>1,500 A rms in Transformer Oil</td>
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</tbody>
</table>

ECL, ERMCO Components Inc.
1607 Industrial Road
Greeneville, TN 37745
Phone: (423) 638-2302
Toll Free: (877) 267-1855
Fax (423) 636-6492
Dimensions and Details

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
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</thead>
<tbody>
<tr>
<td>9U10TGA601</td>
<td>6.75”</td>
<td>2.10”</td>
<td>1.75”</td>
</tr>
<tr>
<td>9U10TGA701</td>
<td>7.25”</td>
<td>2.60”</td>
<td>2.25”</td>
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<tr>
<td>9U10TGA801</td>
<td>8.00”</td>
<td>3.35”</td>
<td>3.00”</td>
</tr>
</tbody>
</table>

1-14 UNS - 2A Rolled Thread

Ø3.38” Bolt Circle [85.85]

Gasket Surface

Ø0.437” [11.09]

Ø1.74” [44.19]

0.62” [15.75]

1.24” [31.49]

0.98” [24.89]

0.59” [14.9]

120°

1.50” Flat [38.10]

0.62” [15.75]

2.40” [60.96]

"A"

"B"

"C" Min. Usable Thread

PRIMARY DIMENSIONS ARE INCHES

SECONDARY DIMENSIONS [ ] ARE MM
Mounting Nut and Washer to Match Mounting Stud
Maximum Torque 90In-Lbs.

4.63" [117.6] Diameter

Mounting Flat
2.50" [63.5] Diameter Flat Gasket Surface

Tank Hole Maximum Diameter 1.875" [47.6] After Painting

Three Mounting Studs Approximately 0.375" [9.5] Diameter Separated By 120° on a 3.38" [85.9] Bolt Hole Circle

Low Voltage Bushing

Brass Contact Nut
Maximum Torque 40Ft-Lb

External Connection Thread

Internal Connection Spade

Tank Wall

Figure 1
Mounting

PRIMARY DIMENSIONS ARE INCHES
SECONDARY DIMENSIONS [ ] ARE MM

Note: Dimensions are given for reference only.

Ordering Information

Table 1
Tri-Clamp and Gasket

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>9U10TGA601</td>
<td>Tri-Clamp and Gasket Usable Thread - 1.75&quot;</td>
</tr>
<tr>
<td>9U10TGA701</td>
<td>Tri-Clamp and Gasket Usable Thread - 2.25&quot;</td>
</tr>
<tr>
<td>9U10TGA801</td>
<td>Tri-Clamp and Gasket Usable Thread - 3.00&quot;</td>
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</table>

Table 2
Replacement Parts

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<th>Catalog Number</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>9U10PRT005</td>
<td>Mounting Gasket</td>
</tr>
<tr>
<td>4391ZR1199</td>
<td>Brass Contact Nut 1/4&quot; Thick</td>
</tr>
<tr>
<td>4391ZR1299</td>
<td>Brass Contact Nut 1/2&quot; Thick</td>
</tr>
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