ARE YOU BUYING DISTRIBUTION TRANSFORMERS MEETING EUROPEAN UNION ECODESIGN REQUIREMENTS?

METGLAS® Amorphous Metal Core Distribution Transformers (AMDTs) ARE MORE EFFICIENT AND HAVE LOWER OPERATING COSTS

Under the Commission Regulation (EU)\(^{(1)}\) that establishes EcoDesign requirements for transformers, each transformer installed must operate with energy losses below both maximum No-Load Loss (NLL) and maximum Load Loss (LL) levels. Due to amorphous metal core material having a random atomic structure and being thin, AMDTs MUST have lower NLL than those called out in the regulations. Therefore, amorphous core transformers will naturally have

- Higher Efficiency
- Less Wasted Energy

under normal Tier 1 operating conditions than a traditional silicon steel transformer.

THE BENEFITS OF A ECODESIGN TIER 1 AMORPHOUS CORE TRANSFORMER

<table>
<thead>
<tr>
<th>Europe Losses Designations (CENELEC) Tier 1</th>
<th>Amorphous (AMDT)</th>
<th>Efficiency at 20% Load(^{(2)})</th>
</tr>
</thead>
<tbody>
<tr>
<td>kVA</td>
<td>No-Load Losses</td>
<td>Load Losses</td>
</tr>
<tr>
<td></td>
<td>(W)</td>
<td>(W)</td>
</tr>
<tr>
<td>400</td>
<td>A_0</td>
<td>C_k</td>
</tr>
</tbody>
</table>

AMDT MUST be 99.81% Efficient at 20% Load and at C_k Load Losses due to lower No-load Losses; Grain Oriented Electrical Steel (GOES) unit would be 99.69% Efficient at 20% Load for A_0C_k

**A TIER 1 AMDT WILL HAVE 38% LESS WASTED ENERGY THAN A TIER 1 TRANSFORMER MADE WITH GOES (20% LOAD)**

If all Tier 1 transformers in the EU were to be amorphous, energy savings (reduced generation) would be more than 5,000 kWHr/Year per MVA of Nameplate Distribution Capacity.

If 30,000 MVA of industrial – distribution transformers are installed in a given year, purchase of 100% AMDT would reduce annual CO_2 emission by **57,000 Tons**.

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(1) COMMISSION REGULATIONS (EU) No 548/2014 of 21 May 2014 (Table 1.1)
(2) VITO’s 2010 LOT 2: Distribution and power transformer Draft Chapter 6 – Improvement Potential (Table 27) assumes that EU Distributions Transformer Load Factors are in the 10% to 25% Range, and Industrial Transformers are Loaded at 10% to 60%.