



Acme manufactures with aluminum conductors in many of our coils for the following reasons:

- 1) Aluminum is approximately 2.2 times as good a conductor when compared on a pound per pound basis to copper.
- 2) Aluminum has the ability to store heat approximately 2.3 times greater than copper on a per pound basis. This is very helpful on a transformer when all of the heat, which occurs during short time overload, is stored in the winding of the transformer.
- 3) When copper oxidizes, it will oxidize completely...much like iron. When aluminum oxidizes, it will oxidize to a point where all the exposed surfaces of the aluminum are covered by aluminum oxide. It will not oxidize past that point unless the aluminum is re-exposed to the air. Aluminum oxide is an excellent electrical insulator and therefore, an aluminum wound transformer will give better resistance to moisture corrosion and longer electrical life. An extensive investigation shows that aluminum causes less deterioration of electrical insulation than copper. This is published in NEMA magnet wire publication no. MW1000-1973, section MW-36-A rates a given insulation on aluminum @ 220° C, where as Section MW-36-C rates the same insulation on copper @ 200° C. This means that copper acts as a mild catalyst on insulation, deteriorating it faster than aluminum when operated at the same temperature.
- 4) Aluminum foil provides for better short circuit capacity because the volts per turn is reduced. Also foil windings reduce dramatically the eddy currents of wire wound transformers.
- 5) Acme terminates its aluminum foil wound transformers in either copper or aluminum bus bars depending on KVA rating. This allows for reliable bolted connections.
- 6) Aluminum foil enables Acme Transformer to effectively deal with the rising level of harmonics for a distribution system. Harmonics exhibit themselves on the transformer conductors, but not evenly distributed throughout the conductor. Harmonics show up on the surface of the conductors (what is called the “skin effect”). Foil gives us the maximum amount of surface area to deal with excess heating caused by harmonics.
- 7) Aluminum foil places less mechanical stress on the layer insulation during the winding process because it conforms more easily to the shape of the coil.
- 8) Acme transformer carries a standard 10 year warranty on all our transformers.

Be assured that Acme transformers are made from the highest quality materials available in today's market place.