TECHNO-COMMERCIAL ADVANTAGES OF
ALLUMINIUM FOIL WOUND TRANSFORMER
AGAINST
COPPER WOUND TRANSFORMER

TECHNICAL ADVANTAGES

1) Compact size and reduced weight
   The foil design facilitates higher accommodation of the window area and so, there is no increase in the size of transformers. In fact, in some cases transformer sizes are reduced because of the foil design. As coils wound with Aluminum foil would weight as much as 60% less than coils wound with copper wire, Aluminum foil transformers will be compact and lighter.

2) Increased thermal stability and higher short-term over load capacity
   The layer type winding in Aluminum foil provides a larger surface area for cooling. Since the heat gets efficiently transferred from the inner layers to the outer layers, the winding achieves thermal stability in a very short time. This, plus the fact that the specific heat of Aluminum is greater than copper, helps in preventing burn-outs due to hot spots and makes the transformer withstand higher short-term over loads.

3) Higher surge withstanding capability
   The inter layer capacitance of Aluminum foil winding is greater than the winding made out of wire and so, the surge developed in a Aluminum foil transformer is equally distributed among all turns in less time than wire wound transformers, giving them higher surge withstanding capability.

4) Enhanced ability to withstand short circuit currents
   Improved balance between magnetic fluxes of primary and secondary windings enhances the capability of Aluminum foil transformers to withstand short circuits, rendering them superior to wire wound or strip wound transformers.

5) Reduced impact of harmonics and high frequency on the design of Transformers
   The ratio surface area to conducting area being higher in foils than wire, heat generated by skin effect is reduced. This in turn reduces the need to de-rate conductors, used in the application of handling currents of higher frequency or containing a high percentage of higher order harmonics.

6) Greater insulation reliability
   In foil wound transformer, the voltage gradient between layers is the voltage gradient per turn. This reduces the strain on the inner layer insulation and increases reliability.

(to be continued..........)
COMMERCIAL ADVANTAGES

1) **Reduced material costs**
   Weight for weight, aluminum is twice as conductive as copper. Therefore, by using only 2.5 kg. of aluminum a conductor can acquire a current carrying capacity, same as that provided by 5 kg of copper. And the cost of aluminum foil is much less than super enameled copper wire.
   Therefore, depending on the nature of the transformer, substitution of copper by aluminum will result in an overall saving on material cost from 20 to 40 percent.

2) **Stable material costs**
   Copper is imported and subject to international price and currency fluctuations. Aluminum availability is ten times more than copper in ore form.

3) **Competitive price**
   You can price the Aluminum foil wound transformers lower than copper wound transformers and all equipment incorporating them will automatically cost less.

4) **Higher productivity of transformers handling larger currents**
   For conductors with larger cross section, the inherent flexibility of foils will enable easy winding, which in turn will enhance productivity in manufacture.

5) **Saving in fright and packaging**
   Aluminum is much lighter than copper. Therefore, Aluminum foil transformers will be 15 % lighter than the copper wound transformers. You can thus save on packaging and freight charges.