

What It Takes To Make The Best Electric Motor Rewind May 2011



The first and most important ingredient is to choose the very best materials. This we do, and I believe our customers have been pleased with the results of our choices. However before we use these premium products we have to be sure that they are going to be put to good use in a stator without any core loss problems. It is necessary for us to **Core Loss Test and closely inspect** each stator to ensure that it is in the best of shape so that the finished product will run long and hard.



The wire used to rewind electric motors is called Magnet Wire. We use Rea Pulse Shield SD inverter duty magnet wire. We have been using inverter duty magnet wire for the last 15 years, ever since AC Drives became popular. This wire has 3 coatings over the copper for a total protection against transient spikes, high frequencies, short rise time pulses, abrasion and heat shock. It is rated Thermal Class N (200°C, 392°F).



The products we use to insulate the magnet wire from the stator steel core are made by DuPont™ and use the Nomex® Laminate Type NMN, for slot liners, wedges and phase separation paper. Type NMN is a triplex laminate, constructed of calendered Nomex® paper bonded to polyester film with a proprietary high temperature adhesive system. It is rated as a Class H temperature insulation system (180°C, 356°F).



For the motor lead wire we use Exar® SFX cable. This wire is extremely flexible over a very broad temperature range, with high cut-through and abrasion resistance. We also use Belden Silicone Rubber, glass braid lead wire for high temperature applications. It is rated for temperature at 200°C, 392°F.



The finished winding and insulation system is varnished in either the VPI (Vacuum Pressure Impregnation) tank using vonRoll Permafil 74041 high performance epoxy resin, rated 200°C or in our Automatic Dip and Bake unit using vonRoll solventless Polyester VRI 709 semi-rigid resin, rated 180°C. Multiple treatments can be applied to get the protection needed for the application.

the links above will lead to detailed pdf specifications residing on our web site

1. All windings received in our shop are verified using our Motor Analysis software to be sure that the correct winding data is used in the rewind. If data is correct no information is changed. If the winding comes in 'concentric' or 'lap' then it goes out the same way. With consent from the owner of the motor we can make changes to increase the motor life wherever possible.
2. Baking of the varnished windings along with preheating stators prior to varnishing is very important and takes a considerable time. The more winding dips and bakes the more time. These factors should not be rushed as the finished product will suffer.
3. All windings are checked with a digital micro ohmmeter to ensure equal phase resistance and the completed winding is surge tested to determine the inner-turn dielectric strength of the wound coils and also allows us a comparison test of the winding impedance of all 3 phases while applying the full (dc equivalent) operating voltage of the motor

We want your finished motor to last a very long time and every thing that we do is geared to that goal.

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