



# ENGINEERING DATA

## The VM630 Story A New Transformer is Born

Welcome to Layered Audio "Engineering Data". On these pages we hope to assist, educate and inspire our customers and friends.

### The VM630 Transformer

When we designed the VM630 audio transformer we started with a clean slate. We did not set out to invent something, but neither did we choose to merely copy or clone what had been done before.

In the beginning we were just experimenting with materials and winding techniques. Our research led us to settle on a quadfilar design with the physical size dictated by what we could fit into a modern API\* 500 style module.

After determining the exact physical dimensions, we began to focus on and develop the voice of the transformer by experimenting with different core materials. Silicon steel, iron, nickel and cobalt were evaluated with electronic testing and listening tests.

After years of trial and error searching for the best sounding core material we finally had to settle for two distinctly different blends. This resulted in two very different sounding transformers.

A transformer made with silicon steel has unique phase shift and group delay characteristics that give it a pleasing sound quality. A transformer made with high concentrations of nickel results in a very flat response with minimal phase shift. When pushed to their limits nickel core transformers have lower distortion at 20Hz but they also have less overall level-handling ability.

In the final analysis we could not settle on one "best" core material so we decided to manufacture both.

For pure undistorted audio, like mastering applications, nothing beats the performance of high nickel content in the laminations. With a nickel transformer, what goes in is what comes out. The sound is pure and uncolored with a sweet high frequency sound.

Silicon steel (aka iron) core transformers have been turning in Gold and Platinum recording performances for over 50 years. Many engineers swear by the unique distortion produced by iron core components. Here at Layered Audio, we like both types.

In the final analysis it's up to each user to decide on the sound they want. To assist you in deciding which VM630 is right for you we offer a special Two-Pack Engineering Sample Kit with one of each. Check the price list in our internet store for details and discount pricing.

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