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Using a Step-Up Transformer with a Moving Magnet Phono Preamplifier vs. Using a Phono Preamplifier that has Both Moving Magnet and Moving Coil Inputs

With a Moving Coil Phono cartridge, you should use an external Moving Coil (MC) step-up transformer into a Moving Magnet (MM) phono preamp or MM inputs, versus using a self-contained phono preamp that has both MM and MC inputs.

Background: Matching Moving coil Cartridges to phono preamplifiers is a difficult process. For MM cartridges it is relatively easy since there is a standard for MM cartridges which is 5mV output (at 1k Hz) and 47k Ohms loading. With MC cartridges, there is a wide spectrum of output voltages and internal impedances, as well as a variety of inductances. For a Phono preamp manufacturer, matching all moving coil cartridges requires some serious design considerations.

Basically, almost all MC phono preamplifiers have a MM mode. The designer in most cases, builds a second head amplifier or phono pre-pre amplifier to convert the signal from a MC cartridge to the MM level, where it enters the MM preamplifier. Most do this with an active head amplifier designed and built with FETs. Some use internal step-up transformers. The challenge is accommodating a wide variety of MC cartridges. This is typically accomplished using a set of switches or jumpers on a circuit board. Many have adjustments for impedance and output voltage (different gain settings). If you look at the specs of each phono preamplifier and compare them for MC cartridges vs. MM cartridges, there is usually a significant difference in signal to noise ratios, except for those that use internal step up transformers. For active head amplifiers going into the phono preamplifier, the ratio is lower by about 8-10dB for MC cartridges vs. MM cartridges. This results in a louder background noise floor for MC cartridges. Additionally, adding switches to low output signals degrades sound quality.

With phono preamplifiers that use internal step-up transformers, there is a limited range for MC cartridges, and typically, the internal step up transformers do not approach the quality of the best in the industry. One step-up transformer cannot be made to work properly with all MC cartridges.

A stand-alone step up transformer can be used to better match a cartridge to a MM phono preamplifier, instead of using the internal active head amplifier or the internal step-up

transformers in a phono preamplifier. Step-up transformers ratios typically range from 1:5 to 1:40.

Adding an additional set of interconnects to use a stand-alone step up transformer instead of using internal circuitry inside a phono preamp does add some additional lengths of wire as well as connectors, however, the active stage or internal step up transformers are connected by wires or printed circuits inside the phono preamp. Perhaps one could also say that a console stereo or integrated receiver is better than separate components since no interconnects are required. That is true if you could choose which components are hard wired inside the console.

The bottom line is that you will get better result by matching a Moving Coil Phono Cartridge using a Step-up transformer with the correct ratio, than by using the Moving Coil section of a Phono Preamplifier.