

RE-CONFIGURABLE LINEAR MOTOR COIL ASSEMBLY MODULE

FIELD OF INVENTION

This invention relates to linear motors in which the moving coil assemblies are re-configurable and translates to linear thrust force when the coil assembly is incorporated into the magnet assembly. In particular, this invention relates to a moving coil assembly with modular cascading ability and the method for coil setting.

BACKGROUND

A brushless linear motor coil is typically encapsulated with epoxy resin and hardened. In order to increase the motor rating, the coil length is often lengthened by laying multiple coils side by side and encapsulates it into one single coil module. Hence, there could be as many different types of module of different lengths that need to be produced and stocked.

In addition, the existing linear motor coil assembly will need to be replaced entirely, in an event of localized coil damage such as mechanical impact, coil overheating, coil shorting or insulation breakdown.

Therefore, there is clearly a need for a linear motor coil assembly to have a more productive and efficient method for coil assembly and in which any coil replacement is done in modular form instead of the entire coil assembly.

DESCRIPTION OF INVENTION

According to a first aspect of the existing invention, this invention proposes a more productive and efficient method of coil assembly and coil setting, shown in Figure 1. The coil design features (A) electrical connectors at both ends and (B) assembly grooves to facilitate multiple coil modules to be seamlessly cascaded to increase its

output force. Hence, a single standard coil module needs to be produced instead of multiples of different sizes,

According to a second aspect of the existing invention, this invention proposes a method of coil assembly and coil setting, shown in Figure 1. The coil design features (A) electrical connectors at both ends and (B) assembly grooves to facilitate multiple coil modules to be seamlessly cascaded to increase its output force. Hence, in an event of localized coil assembly damaged, only the affected module will be replaced instead of the entire coil assembly.

CLAIMS

What is claimed is:

1. A multi-phase fully modular and re-configurable linear motor coil assembly having plurality of successive coil cascades.
2. The coil assembly can be configured for single module or multiple cascading modules using the same motor commutation to produce the linear thrust force.
3. Method of coil setting for producing the assembly grooves feature.