JUNG ANTRIEBSTECHNIK U. AUTOMATION GMBH

Technology for Linear Motion - Tec4Lin

TECNOTION THE LINEAR MOTOR COMPANY

Linearmotorelemente

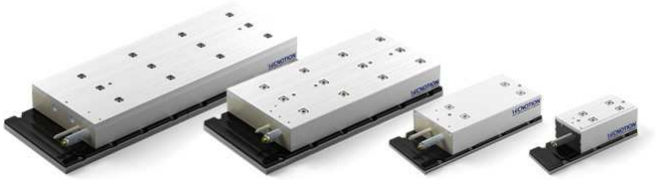
- **OEM-Linearmotorelemente für Maschinenintegrationen**
- **Eisenlose und eisenbehaftete Technologie**
- **Spitzenkräfte bis 6.750 N**
- **Dauerkräfte bis 3.000 N**

Die Linearmotor Technologie für den industriellen Einsatz!

Tec4Lin Produkte

Tec4Lin steht für Technology for Linear Motion!

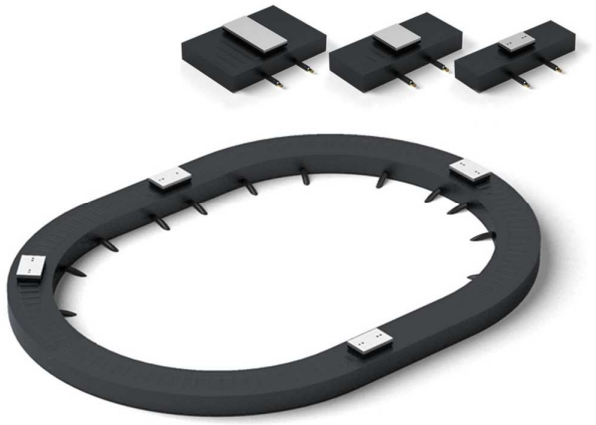
Tec4Lin OEM-Motorelemente sind lineare Direktantriebe in eisenbehafteter flacher und eisenloser U-förmiger Ausführung.
Die lineare Bewegung wird ohne Zwischenschaltung von Getrieben, Spindeln, Riemen, Zahnstangen oder Kurvenscheiben rein elektromagnetisch erzeugt.
Der Motor besteht aus zwei Teilen, dem Aktiv- und dem Passivteil. Das Aktivteil beinhaltet die Motorwicklungen und das Passivteil ist mit NdFeB-Magneten bestückt.
Bei allen Motorelementtypen lassen sich die Passivteile prinzipiell beliebig aneinanderreihen, sodaß der Verfahrweg unbegrenzt ist.



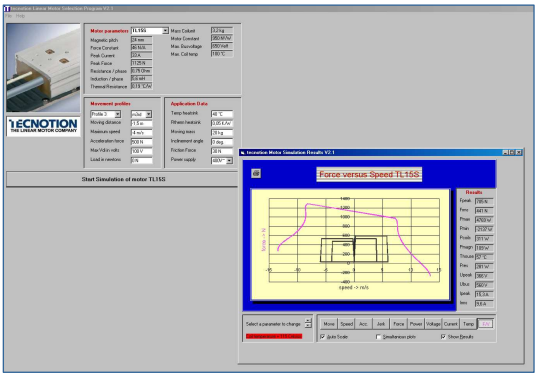
Motorelemente in eisenbehafteter flacher Bauform

Motorelemente in eisenloser U-förmiger Bauform

Für ***ClosedGuide*** Systeme sind die Motorelemente der ***Tec4Lin*** Reihe mit anreihbaren geraden und gebogenen Aktivteilen als Baukasten konzipiert. Die Aktivteile bestehen aus anreihbaren geraden oder gebogenen Motorelementen, in die mehrere Statorpakete hintereinander integriert sind.
Revolutionär ist die gebogene Form des Linearmotor Stators. Das Passivteil ist als kurze Magnetplatte konzipiert, sodass die bewegten Massen äußerst gering sind.
Nahezu beliebig viele Passivteile sind in einem ***ClosedGuide*** System betreibbar, sodass ein sehr flexibler Einsatz dieser Technologie möglich ist.



Motorelemente in eisenbehafteter gerader und gebogener Ausführung



Designer Tool

Mit dem Designer Tool steht ein leistungsfähiges Antriebsauslegungswerkzeug für lineare Bewegungen zur Verfügung, mit dem fast beliebige Bewegungs- und Kraftverläufe simuliert werden können.

In der integrierten Produktdatenbank wählt man die passenden ***Tec4Lin*** Antriebskomponenten aus. Anwendungen können danach sekundenschnell analysiert und nach unterschiedlichen Kriterien optimiert werden, ohne dass aufwändige manuelle Berechnungen durchgeführt werden müssen.

Tec4Lin Applikationen

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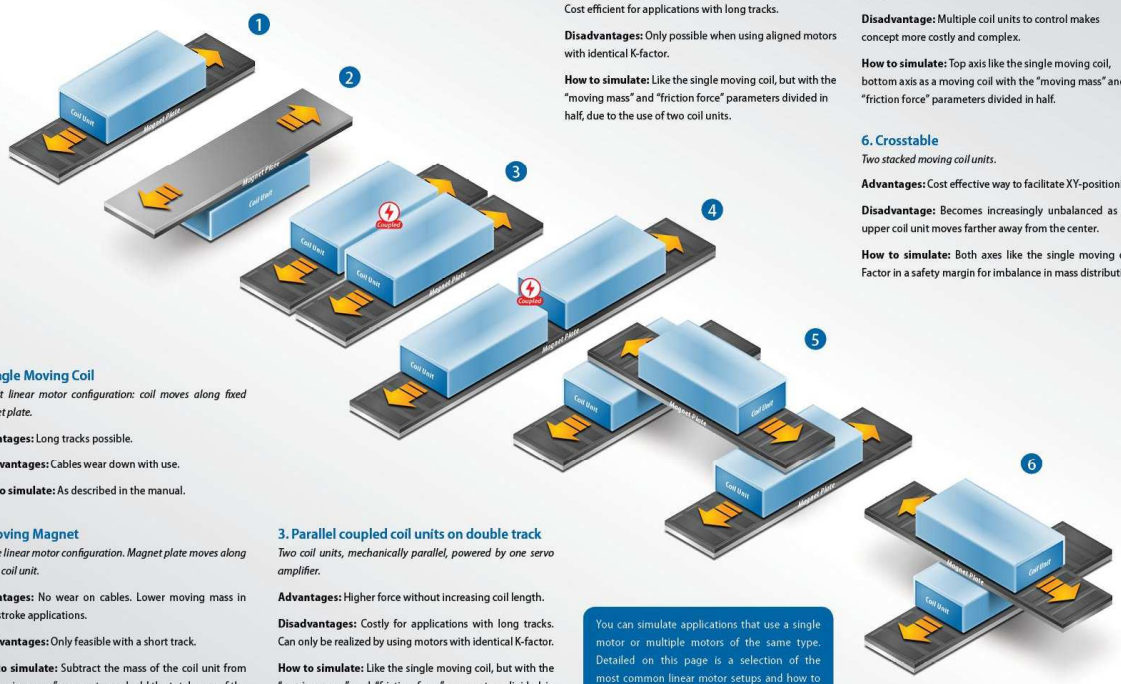
APPLICATION EXAMPLES



1. Single Moving Coil

Default linear motor configuration: coil moves along fixed magnet plate.

Advantages: Long tracks possible.

Disadvantages: Cables wear down with use.

How to simulate: As described in the manual.

2. Moving Magnet

Inverse linear motor configuration. Magnet plate moves along a fixed coil unit.

Advantages: No wear on cables. Lower moving mass in short stroke applications.

Disadvantages: Only feasible with a short track.

How to simulate: Subtract the mass of the coil unit from the "moving mass" parameter and add the total mass of the magnet plates.

3. Parallel coupled coil units on double track

Two coil units, mechanically parallel, powered by one servo amplifier.

Advantages: Higher force without increasing coil length.

Disadvantages: Costly for applications with long tracks. Can only be realized by using motors with identical K-factor.

How to simulate: Like the single moving coil, but with the "moving mass" and "friction force" parameters divided in half, due to the use of two coil units.

4. In-line coupled coil units on single track

Two coil units, mechanically in-line, powered by one servo amplifier.

Advantages: Higher force without increasing coil width. Cost efficient for applications with long tracks.

Disadvantages: Only possible when using aligned motors with identical K-factor.

How to simulate: Like the single moving coil, but with the "moving mass" and "friction force" parameters divided in half, due to the use of two coil units.

5. Gantry / Portal

Three coil units, one of which is stacked on top of the others.

Advantage: Stable construction along entire movement range.

Disadvantage: Multiple coil units to control makes concept more costly and complex.

How to simulate: Top axis like the single moving coil, bottom axis as a moving coil with the "moving mass" and "friction force" parameters divided in half.

6. Crosstable

Two stacked moving coil units.

Advantages: Cost effective way to facilitate XY-positioning.

Disadvantage: Becomes increasingly unbalanced as the upper coil unit moves farther away from the center.

How to simulate: Both axes like the single moving coil. Factor in a safety margin for imbalance in mass distribution.

You can simulate applications that use a single motor or multiple motors of the same type. Detailed on this page is a selection of the most common linear motor setups and how to simulate them.

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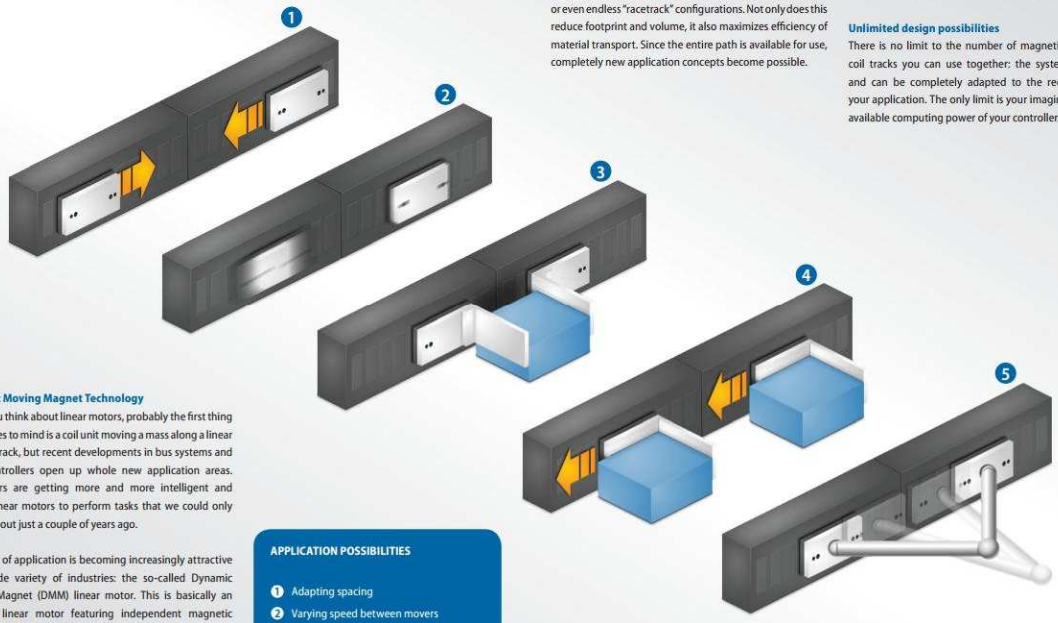
MM-SERIES BASIC CONCEPTS



Curved and endless tracks

DMM systems are no longer limited to movement in a straight line. The magnetic movers can be positioned along a curved track, with absolutely no loss in performance. Applications can be designed using straight tracks, S-tracks or even endless "racetrack" configurations. Not only does this reduce footprint and volume, it also maximizes efficiency of material transport. Since the entire path is available for use, completely new application concepts become possible.

Independent movers

Each magnetic mover that runs along the track can be controlled independently by powering coils individually or in groups. The design of the MM-series provides you with maximum flexibility in the way you control each mover.

Unlimited design possibilities

There is no limit to the number of magnetic movers and coil tracks you can use together: the system is modular and can be completely adapted to the requirements of your application. The only limit is your imagination and the available computing power of your controller.

Dynamic Moving Magnet Technology

When you think about linear motors, probably the first thing that comes to mind is a coil unit moving a mass along a linear magnet track, but recent developments in bus systems and logic controllers open up whole new application areas. Controllers are getting more and more intelligent and enable linear motors to perform tasks that we could only dream about just a couple of years ago.

One type of application is becoming increasingly attractive for a wide variety of industries: the so-called Dynamic Moving Magnet (DMM) linear motor. This is basically an inverted linear motor featuring independent magnetic movers that move along a modular coil track.

Combined with position sensors and a controller, DMM technology opens up whole new fields of application with incredible functionality.

APPLICATION POSSIBILITIES

1. Adapting spacing
2. Varying speed between movers
3. Exerting clamping forces
4. Pushing materials
5. Using kinematics to manipulate materials

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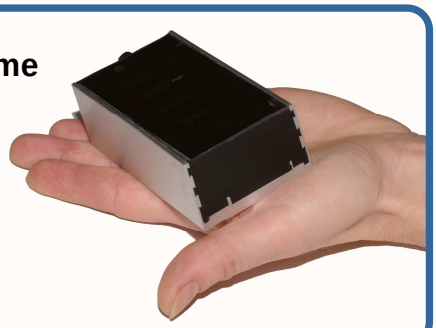
In der linearen Direktantriebstechnik gehört unser Unternehmen zu den führenden Anbietern von Systemlösungen in Deutschland!

Linearmotor-Systeme aus einer Hand!



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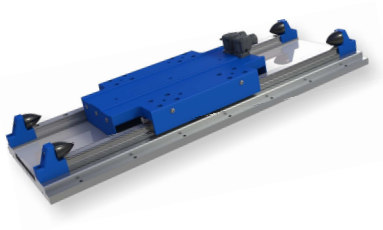

Maschinenintegration

Wegmesssensorik

Kabel und Schlepp

Positioniercontroller

Linearmotor-Systeme aus einer Hand!