Industrial Linear Motors

Smart solutions are driven by

LinMot®

PRODUCT OVERVIEW

Precision and dynamics

In the products and in the everyday life of NTI AG, these values are inseparable.

NTI AG

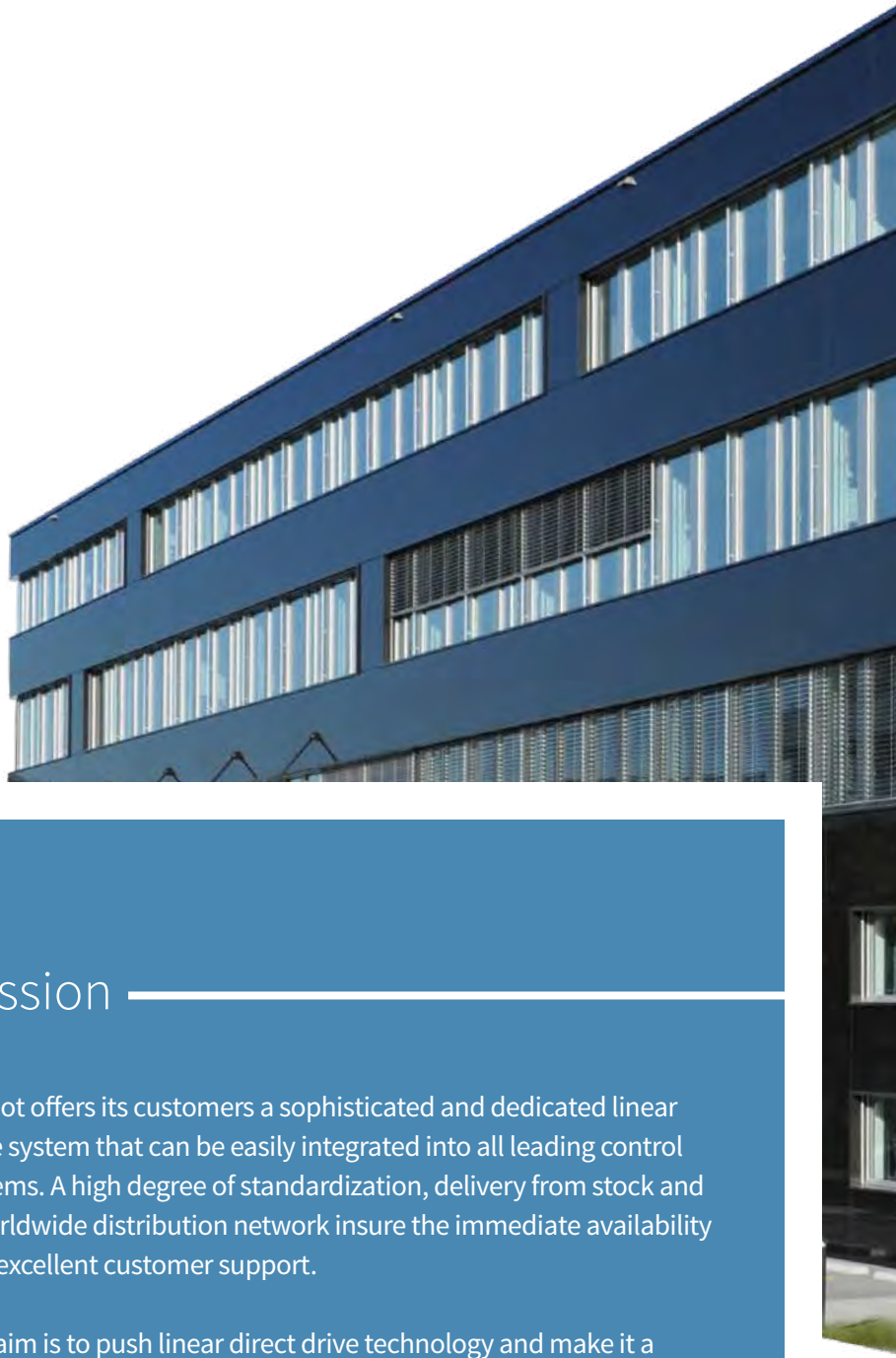
NTI AG is a global manufacturer of high quality tubular style linear motors and linear motor systems and thus focuses on the development, production and distribution of linear direct drives for use in industrial environments.

Founded in 1993 as an independent business unit of the Sulzer Group, NTI AG has been in operation since 2000 as an independent company.

NTI AG headquarters are located in Spreitenbach, near Zurich in Switzerland. In addition to three production sites in Switzerland and Slovakia, NTI AG maintains a sales and support office LinMot® USA Inc. to cover the Americas.

The brands LinMot® for industrial linear motors and MagSpring® for magnetic springs are offered to customers worldwide. NTI AG maintains an experienced customer consultant sales and support network of over 80 locations worldwide.

For the realization of linear motion NTI AG is always a competent and reliable partner.



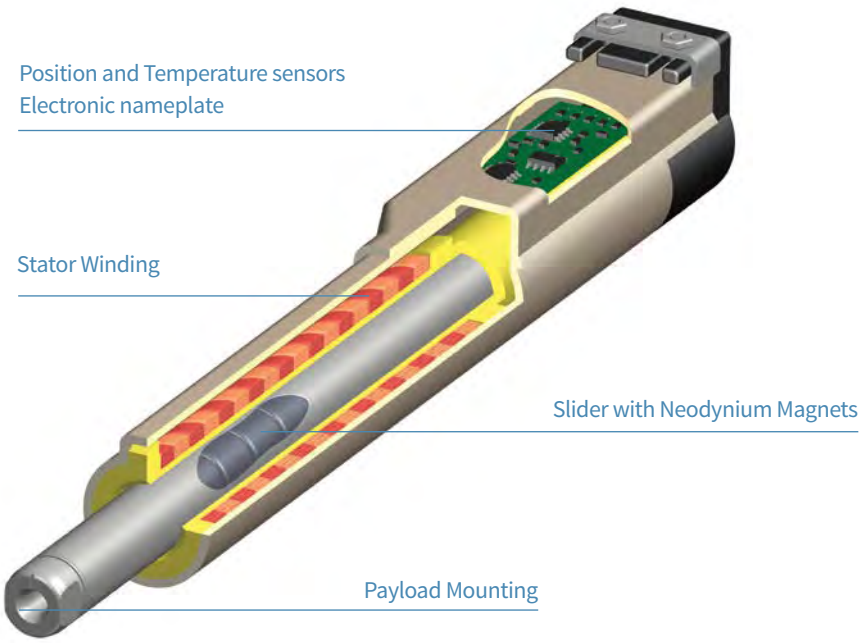
Mission

LinMot offers its customers a sophisticated and dedicated linear drive system that can be easily integrated into all leading control systems. A high degree of standardization, delivery from stock and a worldwide distribution network insure the immediate availability and excellent customer support.

Our aim is to push linear direct drive technology and make it a standard machine design element. We offer highly efficient drive solutions that make a major contribution to the overall resource conservation effort.

LinMot®

Linear Motors



LinMot linear motors employ a direct electromagnetic principle. Electromagnetic force provides direct linear movement without the use of cams, gears, belts, or other mechanical devices. The engine consists of only two parts: The slider and the stator. The slider is made of neodymium magnets in a high precision stainless steel tube. In the stator are the motor windings, the bearing for the slider, the position detection and temperature sensors for thermal monitoring of the motor.

Standard Motors
High-Performance Motors
Short Type Motors
Stainless Steel Motors
ATEX Motors
Special Motors

- ✓ Freely positionable
- ✓ Speed adjustable
- ✓ Acceleration adjustable
- ✓ Programmable force
- ✓ Extreme dynamics
- ✓ Monitored movements
- ✓ Soft movements
- ✓ Synchronized movements
- ✓ Long service life
- ✓ Low maintenance costs
- ✓ Hygienic
- ✓ Low energy costs


LinMot®
LinMot
PS01-23x80-R
S/N: 1233.661.019
P/N: 0160-1233
LinMot
PS01-23x80-R
S/N: 1233.661.047
P/N: 0160-1233
LinMot
PS01-23x80-R
S/N: 1233.661.042
P/N: 0160-1233
LinMot
S/N: 1233.661.038
P/N: 0160-1233

Standard Motors
Universal

- Highly dynamic drives
- Wide stroke range
- Available with cable outlet or with rotatable connector
- Optional with air cooling
- Wide range of applications in handling modules as well as in plant and machine construction

Stroke up to	mm	1830
Max. Force	N	23-1024
Nominal Force	N	9-354
Peak Velocity	m/s	6.9
Peak Acceleration	m/s^2	500
Repeatability	mm	0.05/0.01
Stator Length	mm	162-410
Slider Length	mm	130-2000

Short Type Motors
Compact

- Short design
- Integrated mounting flange
- Pluggable motor cable with cover
- Free positionable cable outlet
- For use where space is limited and in multi-axis applications

Stroke up to	mm	1480
Max. Force	N	29-255
Nominal Force	N	8-65
Peak Velocity	m/s	7.3
Peak Acceleration	m/s^2	750
Repeatability	mm	0.05/0.01
Stator Length	mm	90/105/150
Slider Length	mm	130-1600

HP Motors
High-Performance

- Particularly strong magnetic circuit
- Increased duration of force and acceleration
- Enables higher operating temperatures
- In comparison with the standard motors , a smaller HP motor can be used with the same load.

Stroke up to	mm	1480
Max. Force	N	21-255
Nominal Force	N	15-92
Peak Velocity	m/s	7.3
Peak Acceleration	m/s^2	780
Repeatability	mm	0.05/0.01
Stator Length	mm	162-257
Slider Length	mm	170-1600

P10-54 Motors
Power packages

- 230VAC and 3 x 400VAC technology
- Peak forces up to 900 N
- Rotating push-pull TWIN connector for power and encoder cables
- One-piece clamping flange
- Can also be controlled by standard third-party servo drives

Stroke up to	mm	2240
Max. Force	N	892
Nominal Force	N	255
Peak Velocity	m/s	11.1
Peak Acceleration	m/s^2	413
Repeatability	mm	0.01
Stator Length	mm	22-402
Slider Length	mm	350-2500

P10-70 Motors
High Power

- 3 x 400VAC technology
- Peak force up to 2700 N
- Extremely high accelerations
- Separate connector for sensor and power cable
- Can be operated by standard “third party” Servo Drives

Stroke up to	mm	1770
Max. Force	N	557-2703
Nominal Force	N	65-862
Peak Velocity	m/s	7.4
Peak Acceleration	m/s^2	975
Repeatability	mm	0.05/0.01
Stator Length	mm	180-500
Slider Length	mm	290-1990

Stainless Steel Motors
Hygienic

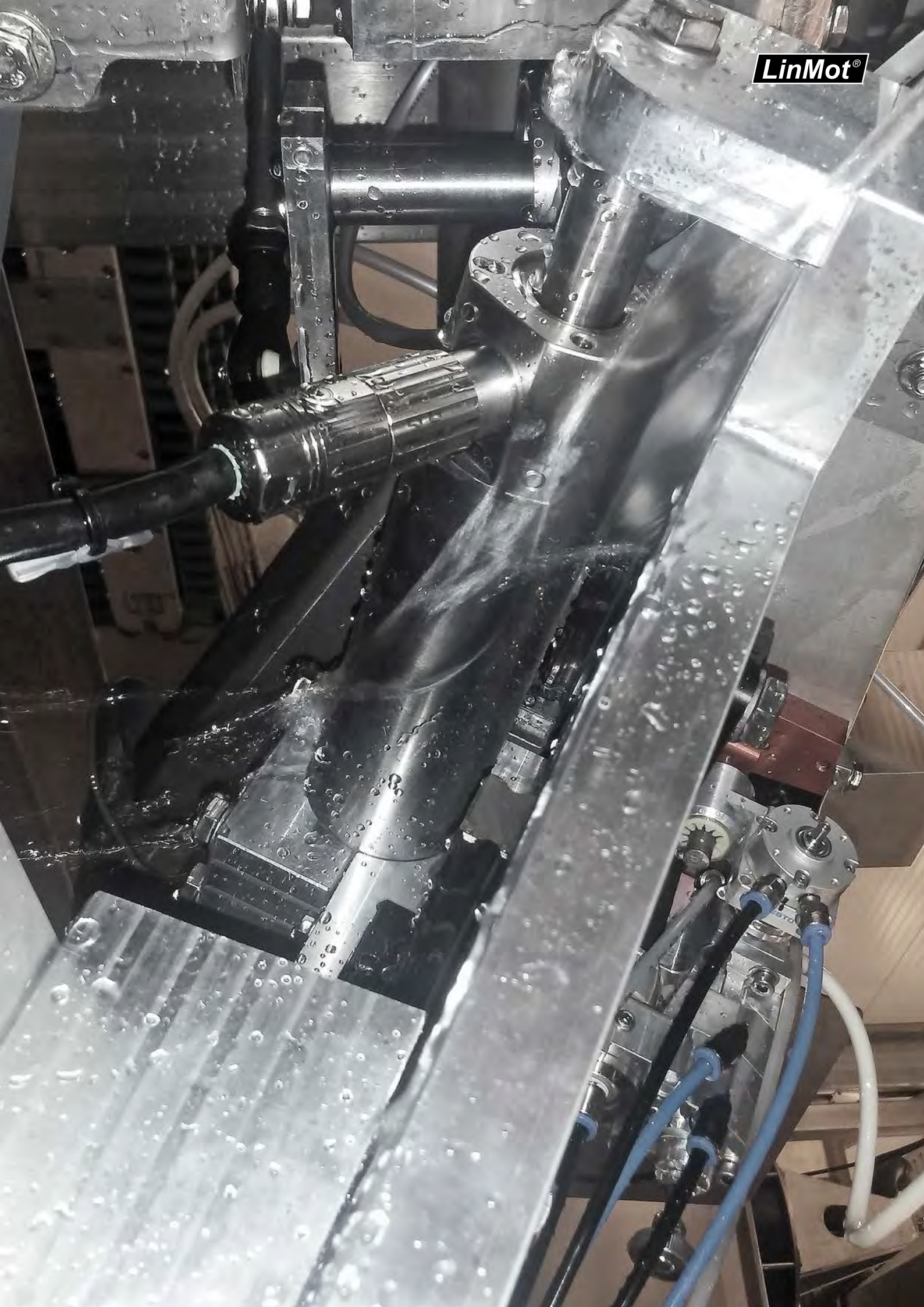
- Stainless steel housing
  EN 1.4404/ AISI 316
- Hygienic design
- Welded connections, no gaskets
- Completely encapsulated (IP69K)
- Optional integrated water cooling
- For use in the food
  or in the pharmaceutical sector

Stroke up to	mm	980
Max. Force	N	210-888
Nominal Force	N	24-360
Peak Velocity	m/s	3.4
Peak Acceleration	m/s^2	440
Repeatability	mm	0.05/0.01
Stator Length	mm	296/395/515
Slider Length	mm	395-1400

ATEX Motors
Encapsulated

- ATEX and IECEx certified
- Welded connections
- Completely encapsulated (IP69K)
- Protection class IP69K
- Optional integrated water cooling
- For use in protection zones 1 / 2 (gas)
- Suitable for use in protection zones
  21 / 22 (dust)

Stroke up to	mm	980
Max. Force	N	210-888
Nominal Force	N	24-360
Peak Velocity	m/s	3.4
Peak Acceleration	m/s^2	440
Repeatability	mm	0.05/0.01
Stator Length	mm	296/395/515
Slider Length	mm	395-1400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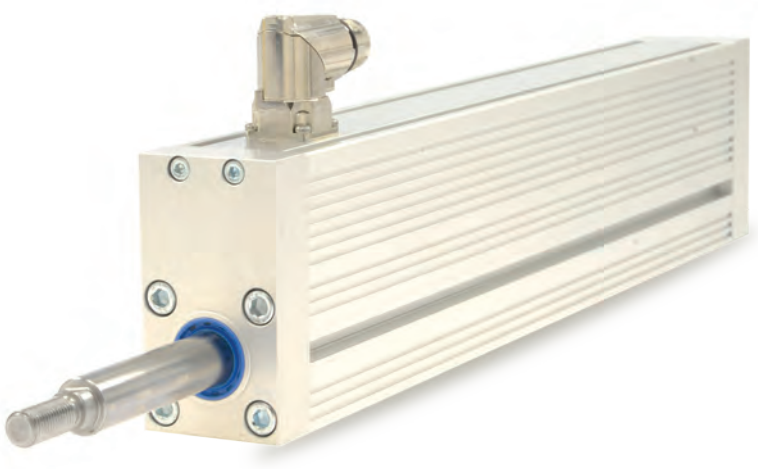
P04 Motors
Pneumatic substitute

- Peak force up to 550 N
- Stroke up to 150 mm
- Hardened rod capable to handle side load
- Ø 16 mm rod with M10x1.25 thread
- Mounting connection according to ISO pneumatic cylinder
- Stator encapsulated (IP54)

Stroke up to	mm	150
Max. Force	N	550
Nominal Force	N	255
Peak Velocity	m/s	3.9
Peak Acceleration	m/s^2	50
Repeatability	mm	±0.05
Stator Length	mm	400-455
Slider Length	mm	429-488



PD04 Motors
Pneumatic substitute

- Stand alone configuration of the motor
- Setting 4 positions in real time
- Best usability with clear display
- Absolute sensor, no homing required
- Motor conforms to protection class IP54
- Integrated linear guide

Stroke up to	mm	150
Max. Force	N	550
Nominal Force	N	255
Peak Velocity	m/s	3.9
Peak Acceleration	m/s^2	50
Repeatability	mm	±0.05
Stator Length	mm	400 - 455
Slider Length	mm	429-488

P03 Motors
Integrated Drive

- High-performance linear motor with integrated drive
- Compact form factor
- Highly dynamic
- Suitable for daisy-chain linkages
- Integrated mounting flange
- Low cabling effort
- Low overall costs
- Simple commissioning

Stroke up to	mm	135
Max. Force	N	255
Nominal Force	N	35
Peak Velocity	m/s	3.2
Peak Acceleration	m/s^2	450
Repeatability	mm	±0.05
Stator Length	mm	400
Slider Length	mm	240

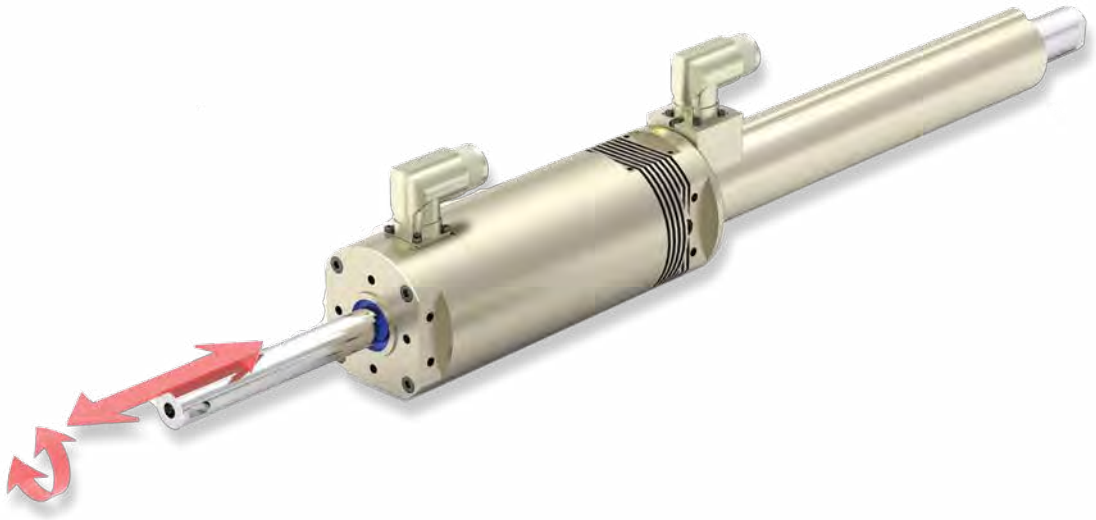
Special Motor
Integrated Drive IP69k

Omega Motor

- Stainless Steel Motor with integrated drive
- Especially for applications in the pharmaceutical and food industry with very tight spaces
- Welded connections
- Completely encapsulated (IP69K)
- Special designed connector
- Control via fieldbus or Industrial Ethernet

LinMot®

Linear Rotary Motors



The PR01 motor series combines linear and rotary movements in a single integrated direct drive solution. The two motors are individually and independently driven. Working with a higher-level control high dynamic linear and rotary movements can be realized. These can be programmed either synchronously or independently of each other.

Complex tasks such as screwing, closing, capping, stacking, aligning and much more can be realized with a single component. The PR01 linear-rotary motor allows for independently specified linear force/pressing force as well as rotary torque.

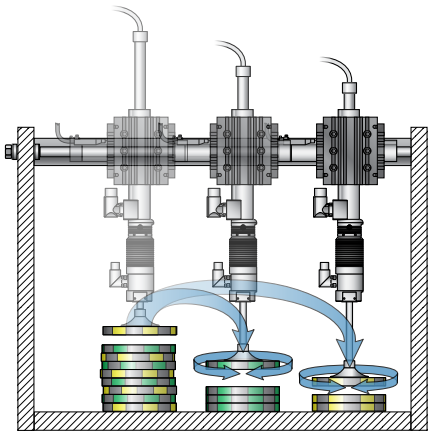
Standard
Gearbox
Hollow shaft
Stainless steel

- ✓ Linear and rotary direct drive
- ✓ Synchronous linear and rotary movements
- ✓ Programmable forces and torques
- ✓ Stainless steel version available
- ✓ With gear transmission or hollow shaft
- ✓ Simplest realization of seamers & cappers


LinMot®
LinMot
PR01 52x40-R/37x120-
HP-C-80
S/N: 0150-1573
P/N: 1573.64X.044
LinMot
PR01 52x40-R/37x120-
HP-C-80-L
P/N: 0150-2703/V1
S/N: 2703.64X.013
LinMot

Hollow shaft

- Version with hollow shaft
- Inner diameter 2.5 / 4.0 mm
- Upgradeable to vacuum gripper
- Can be combined with a pneumatic or electric gripper



Stroke up to	mm	150
Max. Force	N	229-921
Nominal Force	N	45-319
Peak Velocity	m/s	3.9
Peak Torque	m/s²	1.53-8.9
Constant Torque	Nm	0.32-2.64
Max. Num. of Rev.	rpm	1000-1500
Repeatability	mm	0.05/0.01
Length	mm	503-959

Standard

Stroke up to	mm	300
Max. Force	N	255-1024
Nominal Force	N	51-354
Peak Velocity	m/s	3.9
Peak Torque	m/s²	1.53-8.9
Constant Torque	Nm	0.32-2.64
Max. Num. of Rev.	rpm	1000-1500
Repeatability	mm	0.05/0.01
Length	mm	503-1222

- Linear direct drive
- Rotary direct drive
- Independent linear and rotary motions
- Integrated position sensors
- Absolute temperature feedback
- Programmable position / motion profiles
- Programmable press force
- Programmable torque

Stainless steel

- Linear rotary shaft in stainless steel EN 1.4404 / AISI 316
- Hygienic Design
- Resistant to cleaning supplies
- Designed for use with food products
- Designed for use in the chemical industry
- With interchangeable plain bearings

Gearbox

- Independent linear and rotary motions
- For applications with high inertia loads
- For applications with high torque requirement
- 3 selectable transmission ratios
- With guide rails to bear transverse loads

Max. Stroke	mm	150
Max. Force	N	1024
Nominal Force	N	354
Peak Velocity	m/s	3
Gear	n	1:5/1:7/1:10
Peak Torque	Nm	44/62/89
Constant Torque	Nm	9.5/13/19

Linear Guides

LinMot linear guides are compact guide units with integrated ball bushings or bearings for the LinMot linear motors.

The guides use load bearings to support external forces, torques, and bending moments. Additionally the linear guides act as an anti-twist device. These products offer high guidance accuracy and facilitate dynamic and precise positioning of the load.

The load is connected directly to the front panel of the linear guide. The mechanical dimensions and mounting options are compatible with many pneumatic guides. The modular design allows an easy mounting of accessories, such as a mechanical brake or MagSpring (magnetic spring) for load balancing in a vertical installation position.

LinMot also offers a stainless steel guide, which can be used together with the stainless steel motors in special conditions.

Linear Guides H01

- Bearing external forces, torque and bending moments
- Turning resistance
- Compatible with pneumatic guides
- Integrated Linear ball bearings or sintered bearings

Linear Guides B01

- Increased stiffness by endplate
- Use in high-clearance sliders
- Bearing external forces, torque and bending moments
- Turning resistance
- Compatible with pneumatic guides
- Integrated Linear ball bearings or sintered bearings

Linear Guides H10

- Bearing external forces, torque and bending moments
- Turning resistance
- Compatible with pneumatic guides
- Integrated Linear ball bearings or sintered bearings

Linear Guides H01-SSC

- Bearing external forces, torque and bending moments
- Turning resistance
- Made of stainless steel (1.4404 / AISI 316)
- Hardened stainless steel guide shafts
- Sliding bearing with FDA approval
- No seals; connections are welded
- Tapered surfaces
- Motor inside is completely flushable

MagSpring

Weightlessness in your application

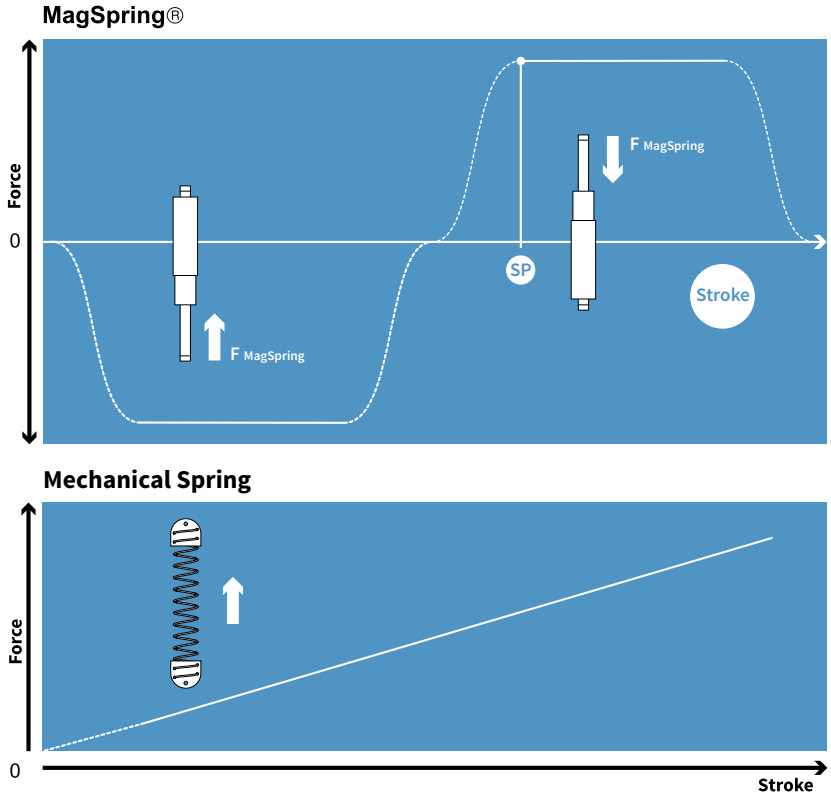
When installed vertically, linear motors and other direct drives must apply a constant force to counteract the force of gravity.

This is exactly why LinMot has developed the «Magnetic Spring» MagSpring.

Mounted parallel to the linear motor, the weight force can be passively compensated via the MagSpring. When the vertical axis de-energizes, the MagSpring may prevent lowering of the vertical axis. Utilizing a MagSpring the linear motor is used only for actual positioning and application of dynamic forces, thus allowing smaller dimensioned motors.

The functionality is based on the attraction of the permanent magnet. Accordingly, no power supply (electricity, compressed air, etc.) is necessary, allowing easy implementation of safety-related applications.

Thanks to the constant power path characteristic numerous applications are possible, such as position-independent generation of a constant contact force, the application of a constant holding force over a large stroke range or the unilateral power assistance in driving tasks.



M01-20			M01-37		
Constant force	N	11 / 17 / 22	Constant force	N	40 / 50 / 60
Stroke (Constant force)	mm	≤ 290	Stroke (Constant force)	mm	≤ 350
Stator mass	g	75 - 388	Stator mass	g	440 - 2200
Slider mass	g	75 - 280	Slider mass	g	75 - 420

Product characteristics

- Constant force along the entire stroke
- Purely passive, no electricity needed nor compressed air
- Ideal for compensating the gravitational force
- Also suitable for dynamic movements
- Different stroke ranges and forces
- Compatible with H-guides
- Simple construction