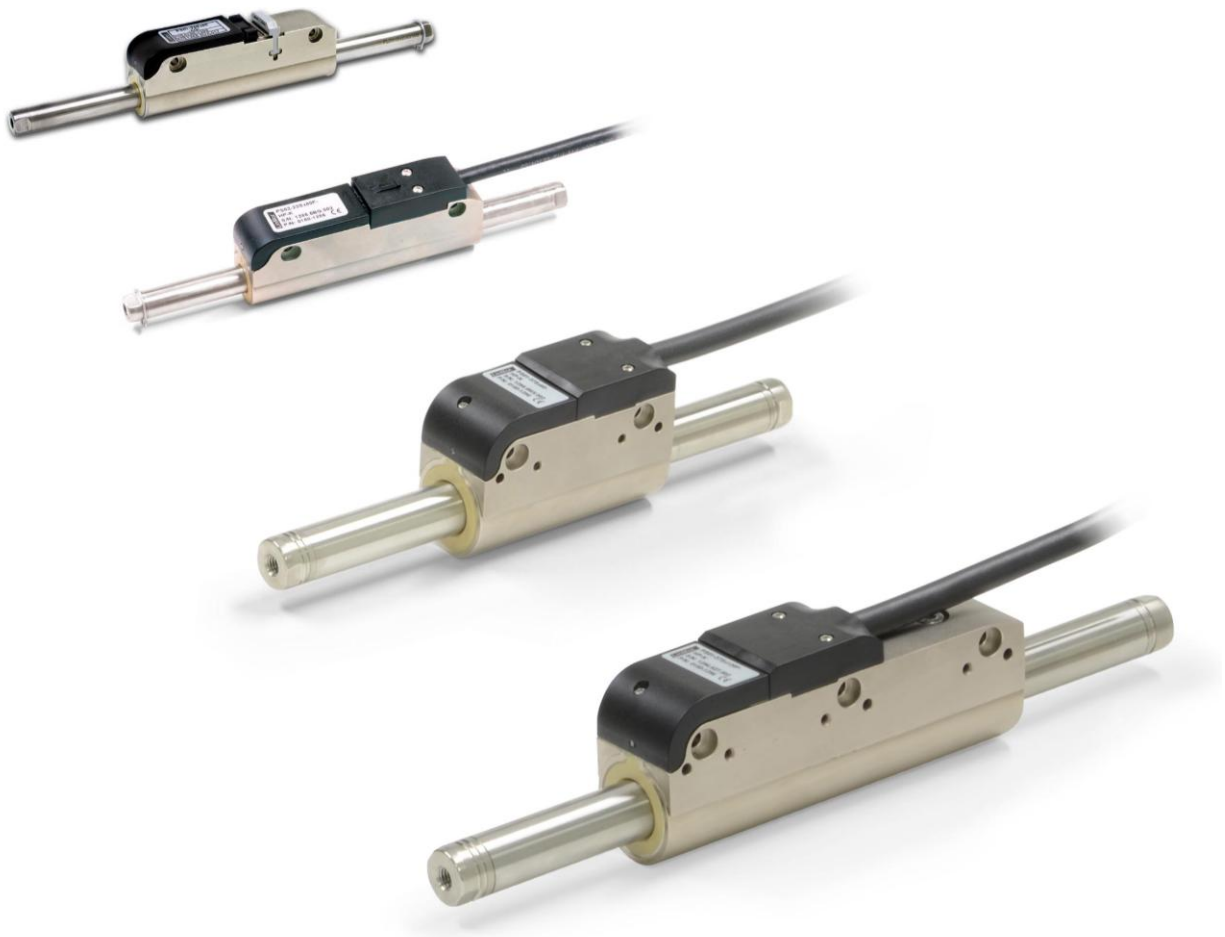
LinMot®

Installation Guide
Linear Motors

ENG

P02-23S / P01-37S Short type



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1 General information

1.1 Introduction

This manual includes instructions for the assembly, installation, maintenance, transport, and storage of linear motors. The document is intended for electricians, mechanics, service technicians, and warehouse staff.
Be sure to observe the general safety instructions as well as those in each chapter at all times.
Keep this manual accessible to the assigned staff.

1.2 Explanation of symbols

Triangular warning symbols warn against a danger.

Round command symbols tell what to do.

1.3 Qualified personnel

All work such as transport, installation, commissioning and service is only allowed to be carried out by qualified personnel. Qualified personnel in the sense of the safety instructions in this documentation are persons who are familiar with the transport, installation, assembly, commissioning and operation of the product and who have the appropriate qualifications.
This manual must be read carefully before transport, installation, commissioning, service and all safety-related information must be adhered to.

1.4 Liability

NTI AG (as manufacturer of LinMot linear motors and MagSpring products) excludes all liability for damages and expenses caused by incorrect use of the products. This also applies to false applications, which are caused by NTI AG's own data and notes, for example in the course of sales, support or application activities. It is the sole responsibility of the user to check the information and information provided by NTI AG regarding their safety-relevant correctness. In addition, the entire responsibility for safety-related product functionality lies exclusively with the user.Product warranties are void if products are used with stators, sliders, servo drives or cables not manufactured by NTI AG unless such use was specifically approved by NTI AG.
NTI AG’s warranty is limited to repair or replacement as stated in our standard warranty policy as described in our "terms and conditions" previously supplied to the purchaser of our equipment (please request copy of same if not otherwise available). Further reference is made to our general terms and conditions.

1.5 Copyright

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2 Safety instructions

Contusions
Sliders contain neodynium magnets and have a strong attractive force.
Careless handling could cause fingers or skin to become pinched between two sliders.
This may lead to contusions, bruises, and bone fractures.
When handling sliders, wear thick protective gloves and keep a minimum distance between sliders. Refer to the "Minimum distance from slider" section for minimum distance.

To reduce the risk of injury, never more than one slider should be held or transported by the same person without packaging.

Pacemaker / Implanted heart defibrillator
Sliders could affect the functioning of pacemakers and implanted heart defibrillators. For the duration of a strong approach to a magnetic field, these devices switch into test mode and will not function properly.

- If you wear one of those devices keep the following minimum distances between the pacemaker / defibrillator and slider:
  - Min. 250 mm (10") for slider Ø 27 mm and 28 mm (PL01-27 / 28 / PL10-28)
  - Min. 150 mm (6") for slider Ø 19 mm and 20 mm (PL01-19 / 20)
  - Min. 100 mm (4") for slider Ø 12 mm (PL01-12)
- Inform others who wear these devices to comply with these minimum distances!

Caution - Risk of Electric Shock !
Before working, make sure that there are no high voltages.

Fast-moving machine parts
The sliders of LinMot linear motors are fast-moving machine parts. All necessary precautions must be taken to prevent persons approaching the moving elements during operation (provide covers, guards, etc.).

Automatic restart
The motors can start automatically under certain cricumstances!
If necessary, a corresponding warning symbol must be provided and protection against entering the hazardous area or a suitable safe electronic disconnection must be provided!

Risk of injury due to a defect or fault
For areas where a defect or fault can result in substantial property damage or even serious personal injury, additional external precautions must be taken or devices must be installed to ensure safe operation even if a defect or fault occurs (eg. suitable safe electronic disconnection, mechanical interlocks, barriers, etc.).

Magnetic field
Magnets integrated in the sliders produce a strong magnetic field. They could damage TVs, laptops, computer hard drives, credit and ATM cards, data storage media, mechanical watches, hearing aids, and speakers.

- Keep magnets away from devices and objects that could be damaged by strong magnetic fields.
- For the above mentioned objects, keep a minimum distance as described in the "Pacemaker / implanted defibrillator" section.
- For non-anti-magnetic watches, keep the double minimum distance.

Combustibility
When machining magnets, the drilling dust could easily ignite.
Machining the sliders and the magnets they contain is not permitted.

Burn hazard
The sliders of LinMot motors can reach temperatures of 80 °C, which may cause burns upon contact.

Grounding
All metal parts that are exposed to contact during any user operation or servicing and likely to become energized shall be reliably connected to the means for grounding.

Mechanical handling
Neodymium magnets are brittle and heat-sensitive.
Machining the sliders and the magnets they contain is not permitted.

- Colliding magnets could crack. Sharp splinters could be catapulted for several meters and cause eye injury.
- By machining the sliders, heat would result which demagnetises the magnets.

Slider
Linear motor sliders consist of a high-precision, thin-walled stainless steel tube in which the neodymium magnets are housed. The LinMot sliders should be handled with care.
Avoid contact with other sliders or iron parts as this can damage the magnets and the slider surface. Do not grip the sliders with pliers, as this can also damage the surface. Do not use sliders which are already damaged on the surface (scratches, deformation, etc.). This can cause further damage to the stator.

Effects on people
According to the current level of knowledge, magnetic fields of permanent magnets do not have a measurable positive or negative effect on people. It is unlikely that permanent magnets constitute a health risk, but it cannot be ruled out entirely.

- For your own safety, avoid constant contact with magnets.
- Store large magnets at least one meter away from your body.

Temperature resistance
Keep slider away from unshielded flame or heat.
Temperature above 120°C will cause demagnetization.

3 Installation instructions

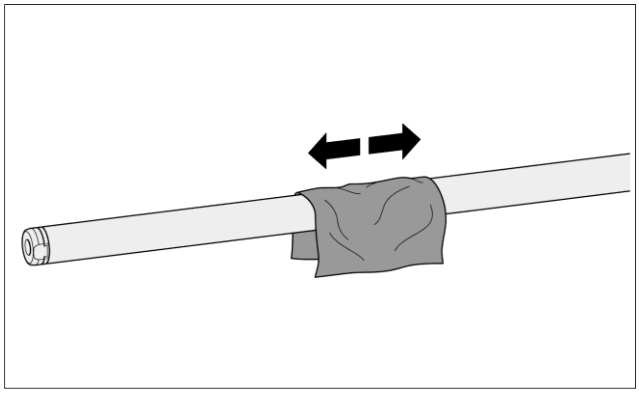
3.1 Operating conditions

Maximum ambient temperature limits:
- Standard motors: -10 °C…80 °C
- HP (High-Performance) Motors: -10 °C…110 °C

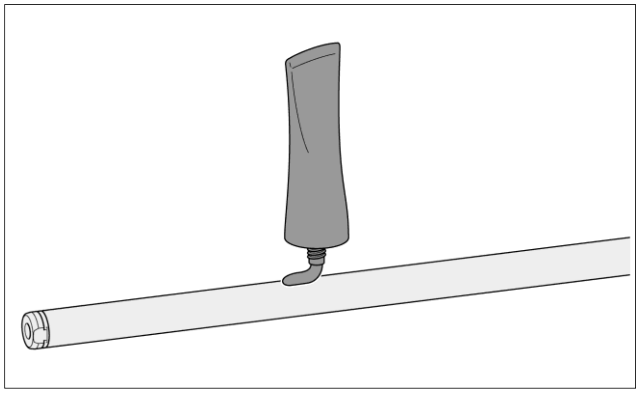
Internal temperature sensor error occurs at:
- Standard motors: 90 °C
- HP (High-Performance) Motors: 120 °C

3.2 Instructions for installing the linear motor

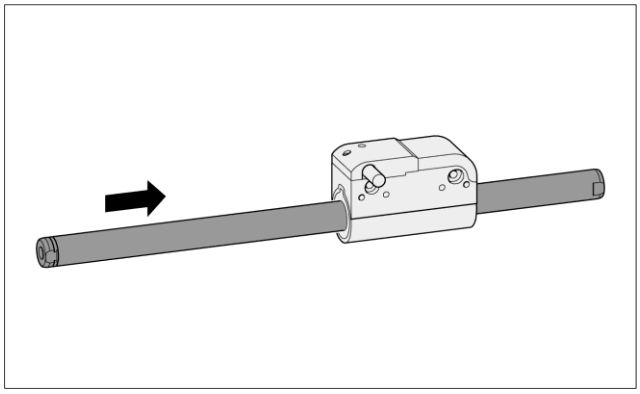
Please attend to the safety instructions in chapter 2 during the assembling!



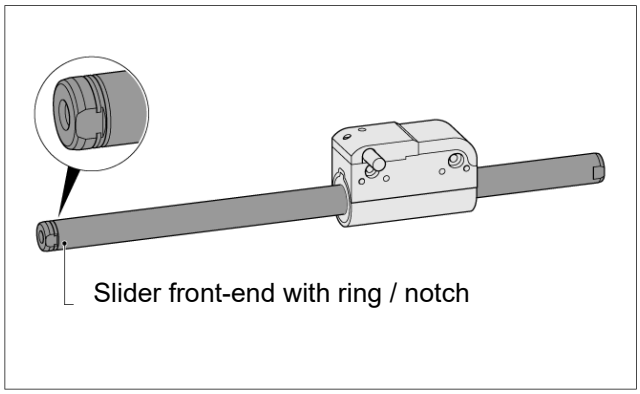
1. Clean the slider with a paper towel.



2. Lubricate the slider in accordance with the « lubrication order » (see the section 6.3)



3. Insert the slider in regular direction (see Assembly step 4.).

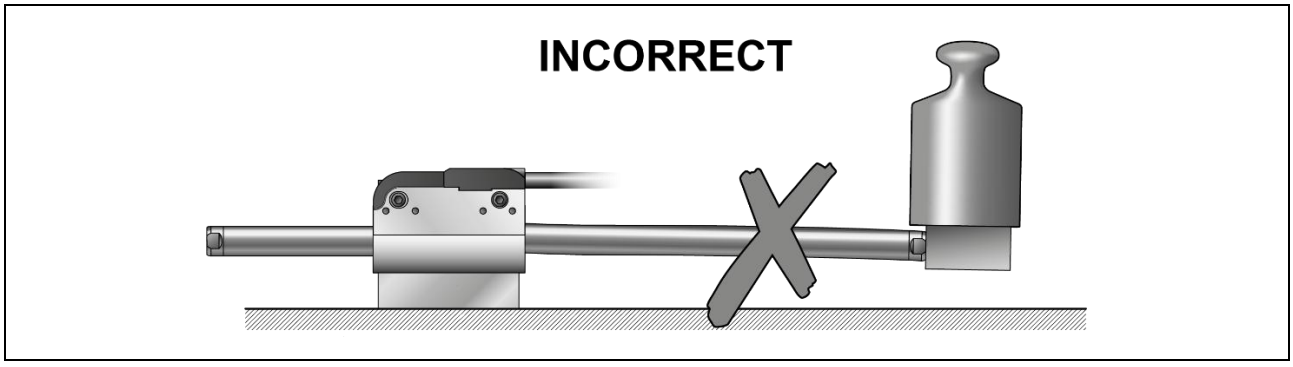


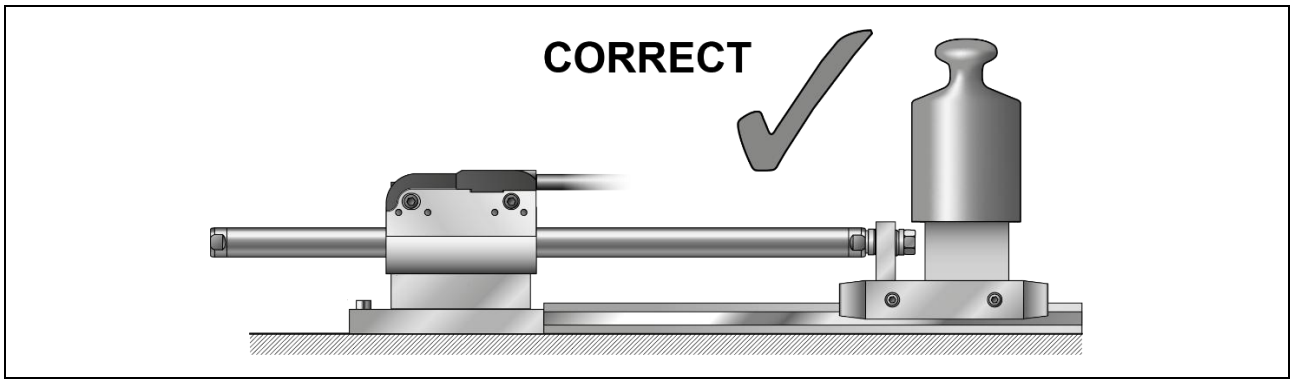
4. **Checking the installed direction of slider**
After the installation, the front end of the slider is located on the side of the cable connector or cable exit.

3.3 Mounting the payload to the slider

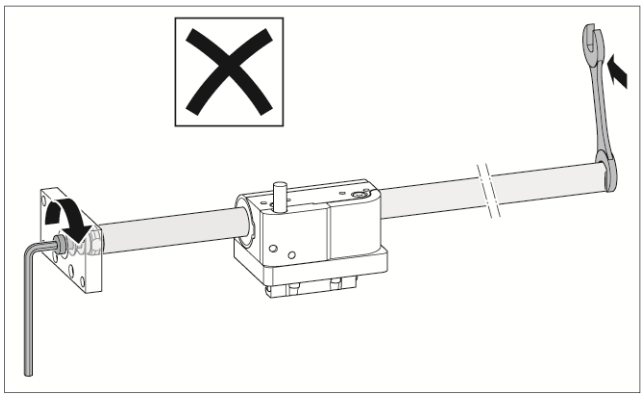
The load is mounted as a fixed bearing using spherical washers and conical seats (see the section 6).

- To avoid shear force on slider and wear on stator, the payload has to be beared by a linear guide.

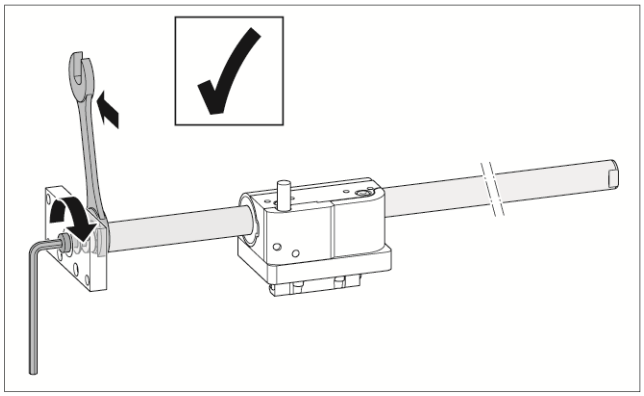




When attaching the load, the wrench for tightening the load must be used only on the load-facing side of the slider. Avoid torsional stress on slider (note the following figures).



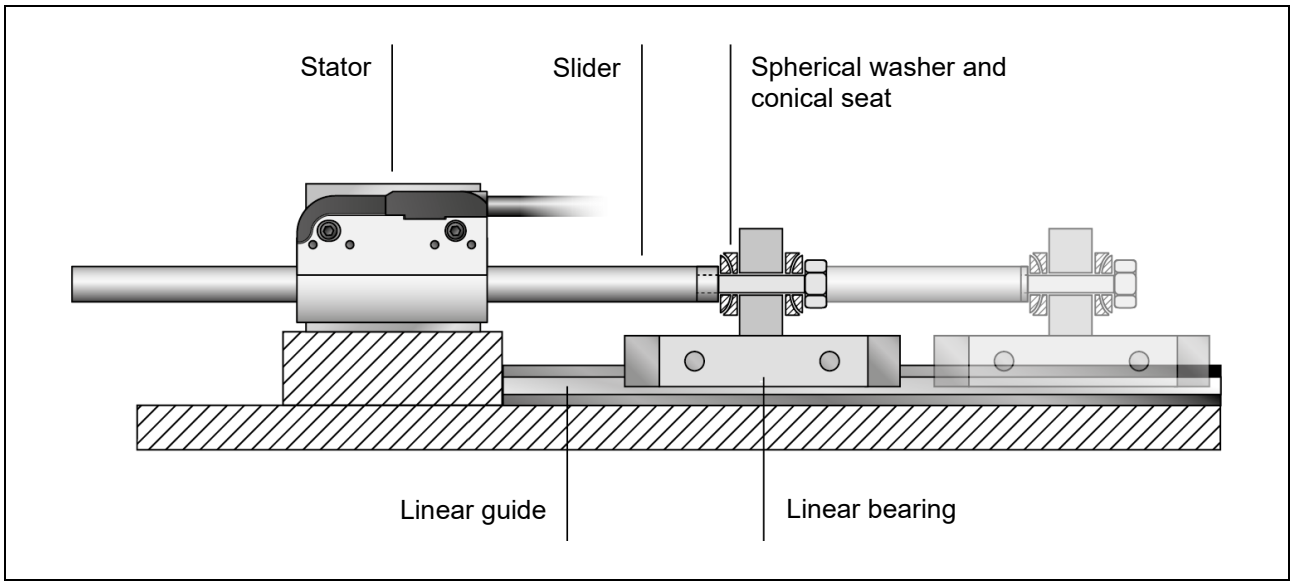
Incorrect mounting
Torsional stress on slider!



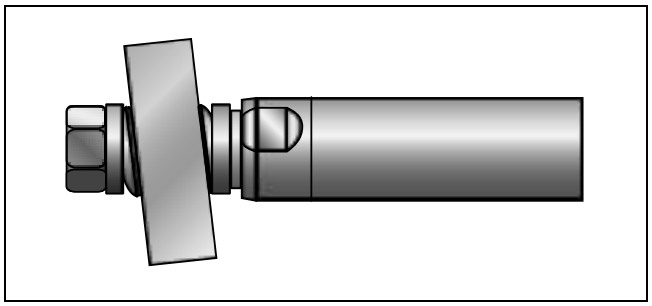
Correct mounting

Slider	Thread	Max. torque for screw (dry)
12 mm	M 5	5.2 Nm
20 mm	M 8	22.5 Nm

3.4 "Moving slider" installation

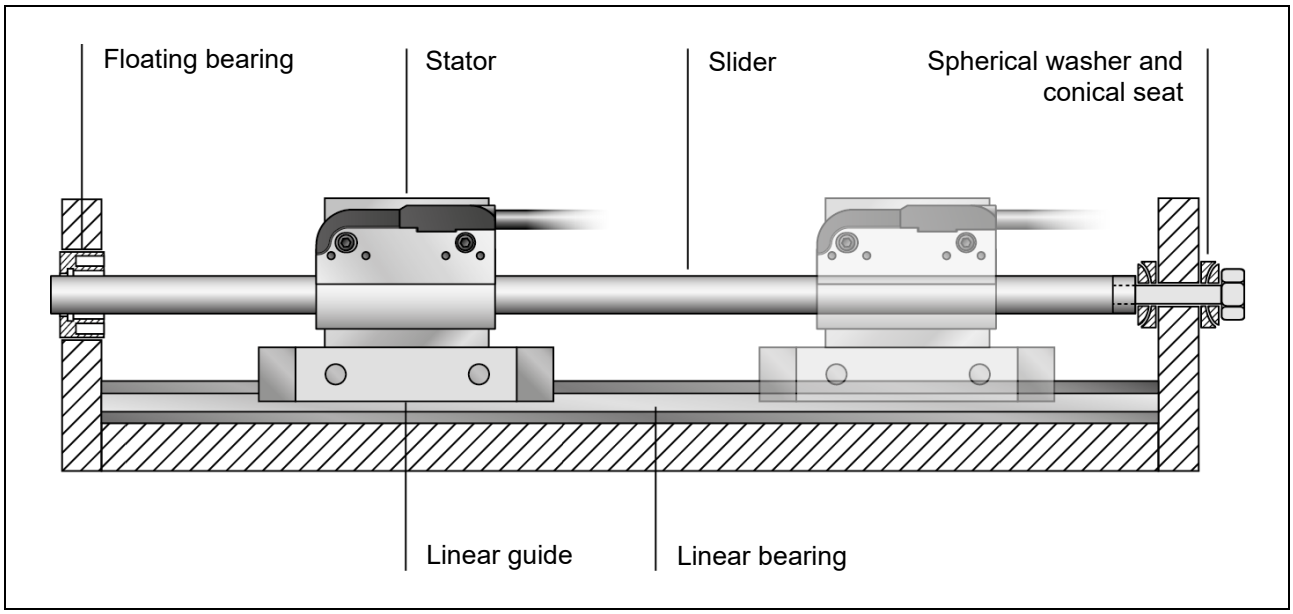


In a "moving slider" installation, the stator is fixed and the slider is the moving part.
The load, borne by a linear guide, is attached directly to the end of the slider. In order to compensate for misalignment, spherical axial bearings consisting of spherical washers and conical seats (see the section Slider mounting kits) are used to connect to the load. The mounting kit of slider and an oversized hole for the screw make it possible to adjust a radial and angle offset.



Mounted payload with radial and angle offset.

3.5 "Moving stator" installation

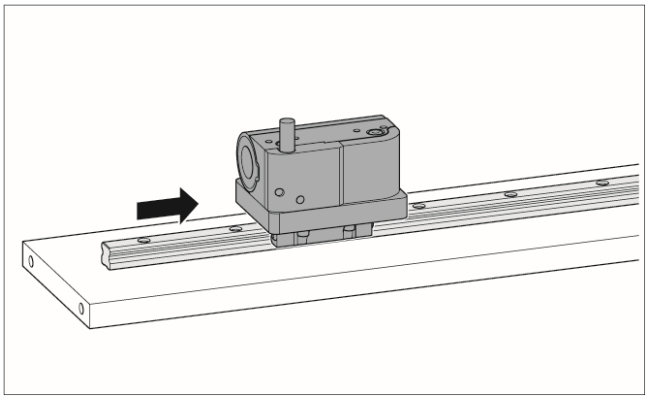


In "moving stator" applications, the slider is fixed and the stator is the moving part.
The load is attached to the stator, which is mounted on a linear guide. In order to avoid an overconstrained bearing mount and compensate for alignment errors, the slider may be mounted on one end in a fixed bearing with a spherical axial bearing. On the opposite end, the slider is mounted in a floating bearing.
Mounting kits are available for mounting the slider (see the section Slider mounting kits).

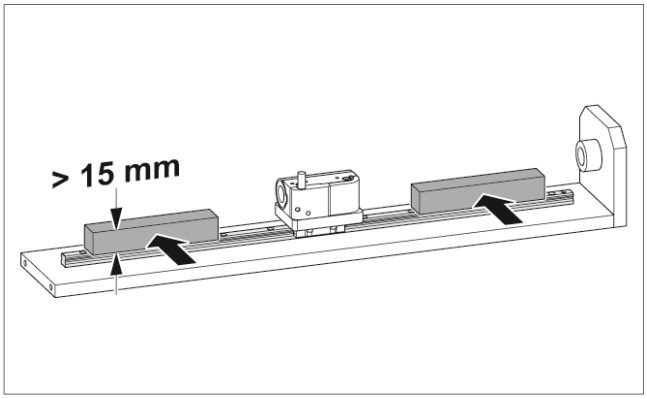
3.5.1 Assembling instruction

Please attend to the safety instructions in chapter 2 during the assembling!

If moving stator application is used, the minimum bending radius of the motor cable should be adhered to. See chapter Cable, section Technical Data.

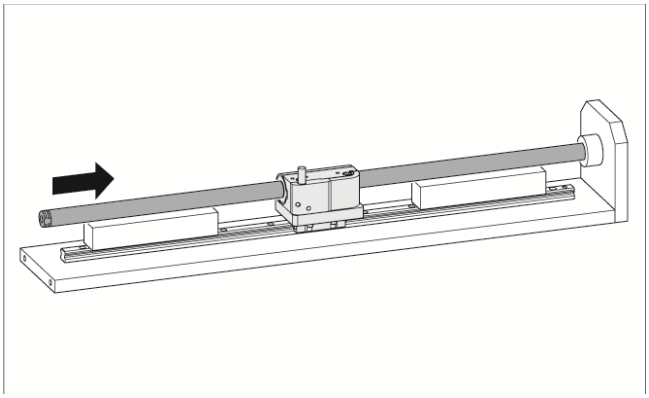


1. Mount stator to its support bearing.

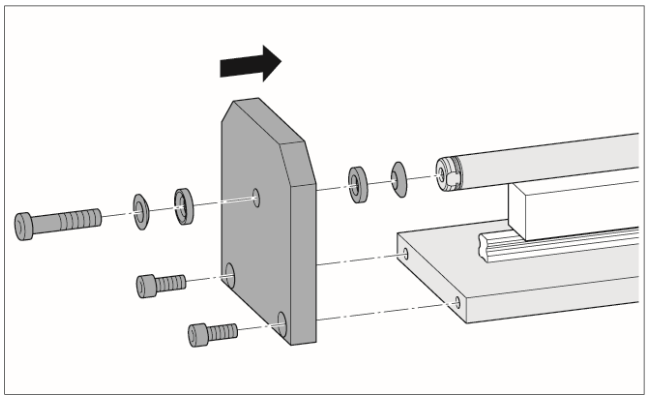


2. Placing a spacer.

Put a spacer (wood, plastic, aluminium with thickness 15 mm) between slider and linear guide. The spacer prevents injuries to the hands and damage to the slider surface!

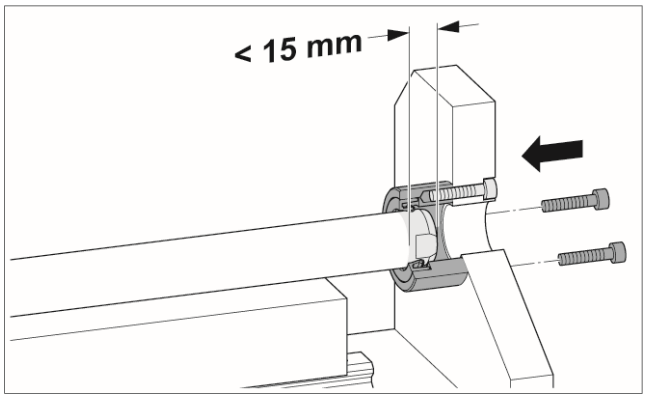


3. Insert slider into stator.



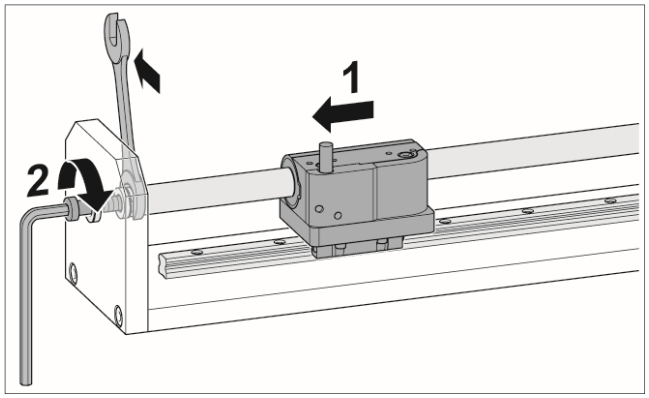
4. Installing the slider using the fixed bearing
The fixed bearing is screwed to the front end of the slider.

Do not tighten the screw yet!

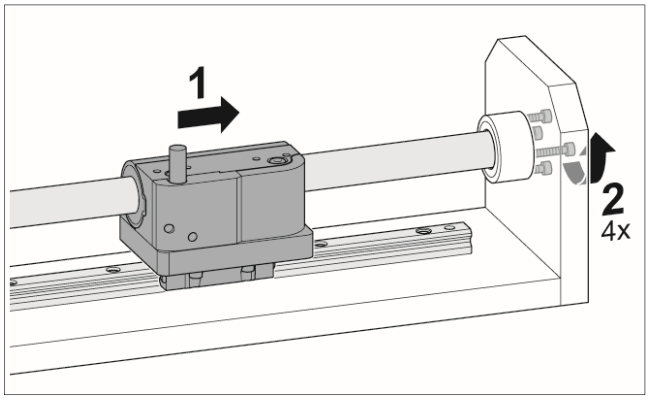


5. Mount floating bearing

Do not tighten the screw!
The slider is allowed to extend into the floating bearing no more than 15 mm!



6. Move stator (back end) to the fixed end of slider, center slider in stator and tighten the screw.

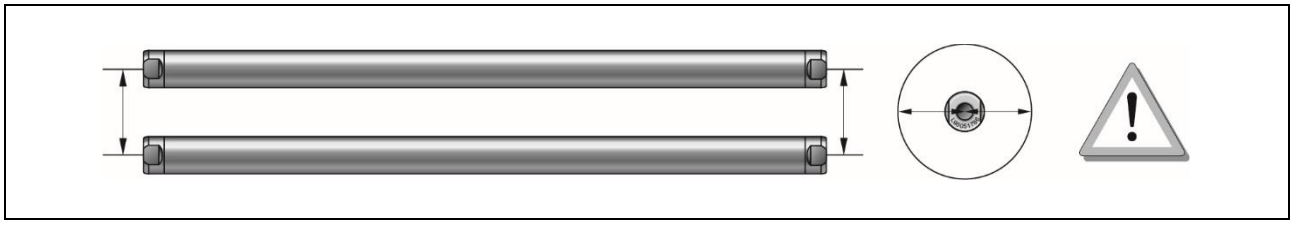


7. Move stator (front side) to the floating bearing and tighten screws.

After the installation of the slider a safety label must be placed close to the slider.

3.6 Minimum distance from slider

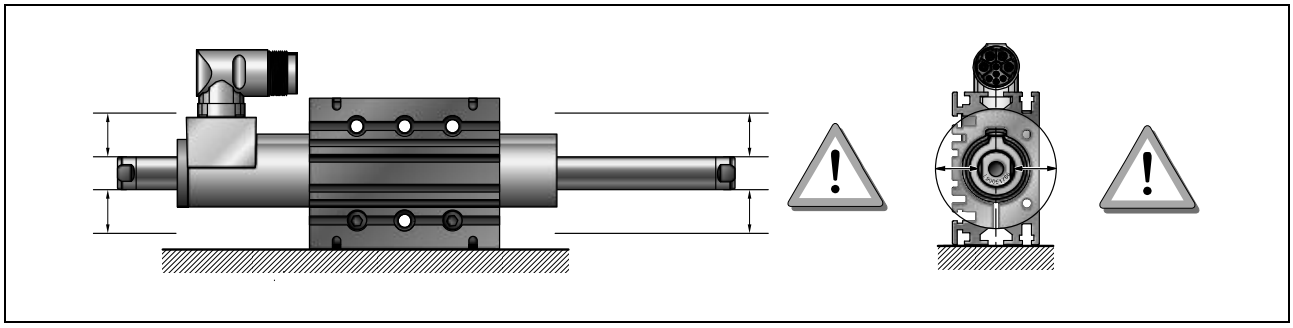
3.6.1 Minimum distance from slider to slider



The sliders are made of neodymium magnets and have a strong magnetic attraction.
It must be kept a minimum distance between the sliders. This minimized the risk of bruising and secondly, the sliders do not influence each other through their magnetic fields.

Type of slider	PL01-12	PL01-20 / PL01-19	PL01-28 / PL01-27	PL10-28
PL01-12	30 mm			
PL01-20 / PL01-19		50 mm		
PL01-28 / PL01-27			80 mm	
PL10-28				70 mm
The data are measured from slider center to slider center.				

3.6.2 Minimum distance from slider to metallic parts



When installing linear motors in modules with metal parts near the slider, undesired forces can arise due to magnetic attraction or eddy currents. These generally manifest as erratic and jerky positioning, or reduced dynamics of the linear motor. In order to avoid this, minimum distances between the slider and any metal parts are to be observed whenever metal materials are used nearby.

Linear Motor	Minimum distance from slider surface to ferromagnetic parts (iron, steel, etc.)	Minimum distance from slider surface to non-ferromagnetic metallic parts (aluminum, bronze, stainless steel, etc.)
P01-23x…	10 mm	5 mm
P01-37x…	15 mm	7 mm
P01-48x…	20 mm	10 mm

4 Motor Cable

Do not connect or disconnect motor when there is power on the servo drive.
Use only original LinMot cable. Cables from other sources must be checked precisely before commissioning.
Incorrect connections can destroy the drive and stator.

4.1 Technical Data

Three types of cables are available for linear motors. The cable attached to the stator is not a high flex cable. For moving cable applications please use the special LinMot KS high flex (suitable for cable tracks) or KR robot cable.

Cable type	KF02	KS03-09	K05-04/05	KS05-04/05	KR05-04/05
Used for	PS02-23Sx80-F (Motor cable)	PS02-23Sx80F-HP-K (Motor cable) PS02-23Sx160H-HP-K (Motor cable)	PS01-37Sx60-HP-N PS01-37Sx120F-HP-N (Motor cable/ Adapter cable) PS02-23Sx80-F PS02-23Sx80F-HP-K (Motor cable / Adapter cable)		
Minimum bending radius for fixed installation	Faltbar	25 mm (1 in)	25 mm (1 in)	30 mm (1.2 in)	30 mm (1.2 in)
Minimum bending radius when moving	25 mm (1 in)	50 mm (2 in) No Torsion	Not for moving cable application	60 mm (2.4 in) No Torsion	60mm (2.4in) Max. Torsion: ±270° per 0.5m
Approval	(-)	UL / CSA 300V	Cable material according to UL	UL / CSA 300V	UL / CSA 300V
Material Wire insulation	Polyester	TPE	TPE-U	TPE-E	TPE-E
Material Cable sheath		PUR	PUR	PUR	PUR

Maintain the minimum bending radius of the stator cable (see data of table).

4.2 Motor cable variants

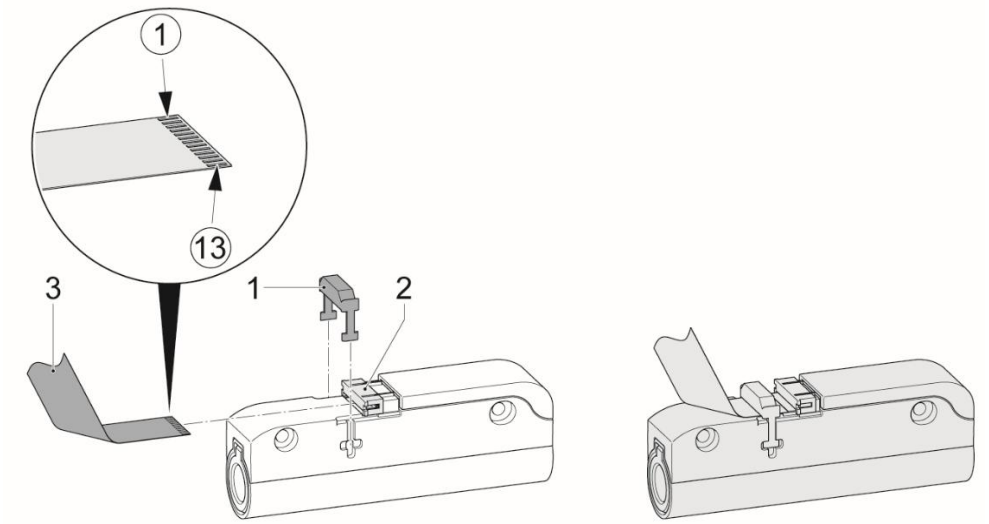
PS02-23Sx80-F

Item	Description	Item-No.
KF02-D15/F-0.08	Flat cable, 0.08 m	0150-2150
KF02-D15/F-0.16	Flat cable, 0.16 m	0150-2156
KF02-D15/F-0.32	Flat cable, 0.32 m	0150-2152
KF02-D15/F-0.48	Flat cable, 0.48 m	0150-2154
KF02-D15/F-0.70	Flat cable, 0.70 m	0150-2158
K05-D/D15-1	Adapter cable D/D15, 1 m	0150-1936

Adapter cables for all other short motor types are available with different connectors and in different length. Please find a list of these options in the LinMot data book on www.linmot.com. If you need a special cable, please contact LinMot directly (see contact information on last page).

4.3 Mounting the motor cable

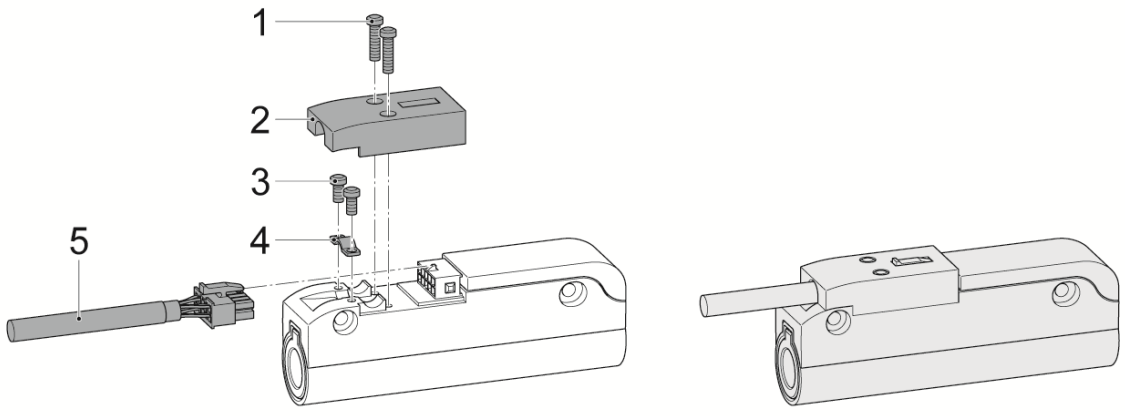
4.3.1 PS02-23Sx80-F



Position	Description
1	Cable relief
2	Connector
3	Flatcable

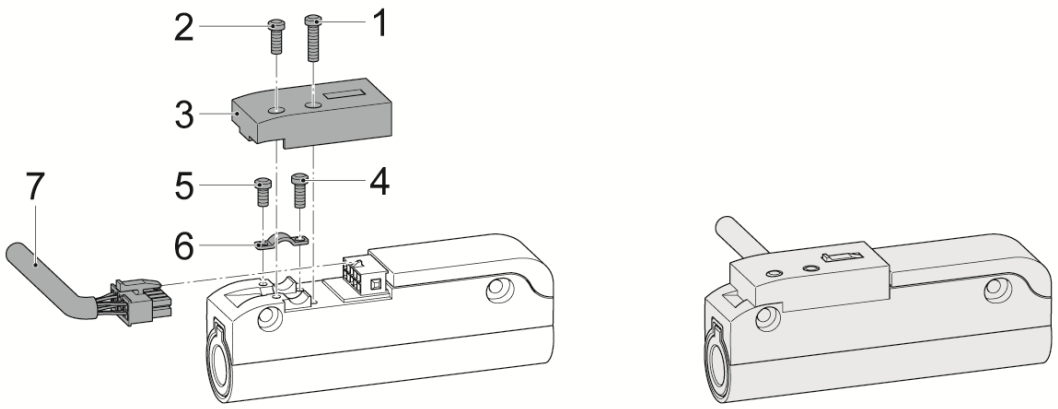
Mounting instruction
Insert the flat cable into the connector with the contacts facing upwards and the blue reinforcing foil facing downwards. Then plug on the cable relief.

4.3.2 PS02-23Sx80F-HP-K / PS02-23Sx160H-HP-K



Cable outlet to the front

Position	Description
1	M2.5 x 12
2	Cover
3	M2.5 x 6
4	Shielding and cable relief
5	Cable with connector

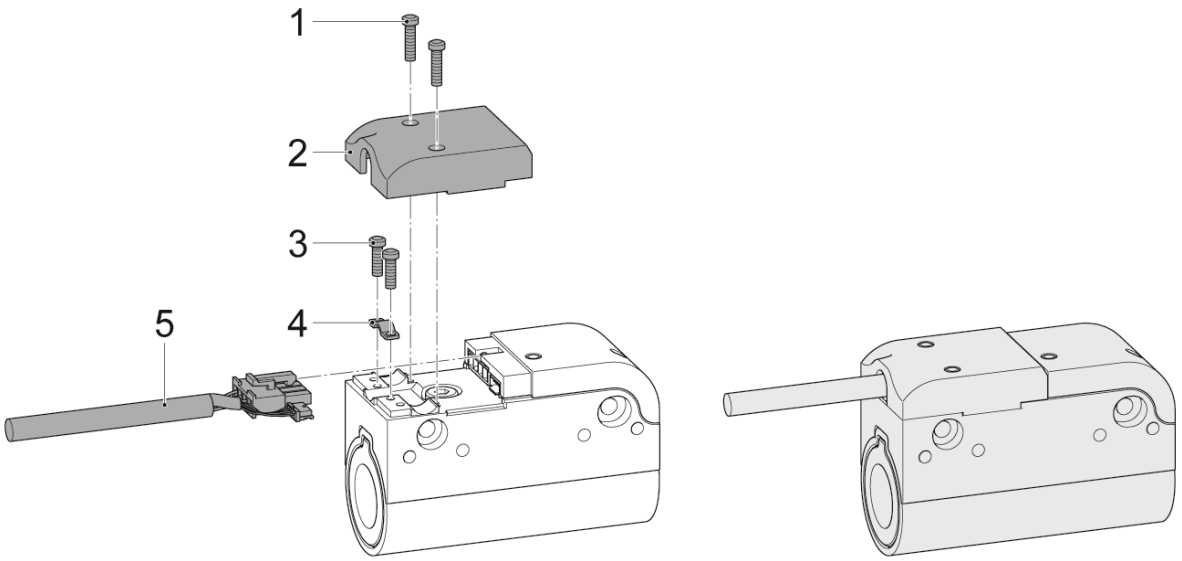


Cable outlet to right / left side

Position	Description
1	M2.5 x 12
2	M2.5 x 8
3	Cover
4	M2.5 x 8
5	M2.5 x 6
6	Shielding and cable relief
7	Cable with connector

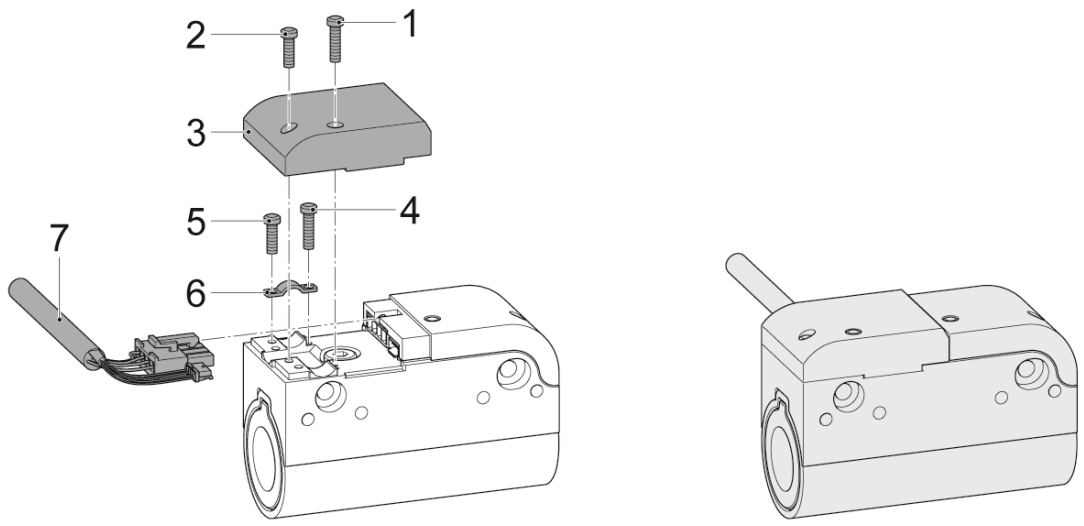
4.3.3 PS01-37Sx60 (120F) -HP-N

- Depending on the direction of the cable exit, it may happen that the cables are above the screw holes. It is important to ensure that the screw holes are free before srewing.
- It is important to ensure that the cable relief must be positioned differently depending on the direction of the cable outlet.



Cable outlet to the front

Position	Description
1	M2.5 x 12
2	Cover
3	M2.5 x 10
4	Shielding and cable relief
5	Cable with connector



Cable outlet to right / left side

Position	Description
1	M2.5 x 12
2	M2.5 x 10
3	Cover
4	M2.5 x 12
5	M2.5 x 10
6	Shielding and cable relief
7	Cable with connector

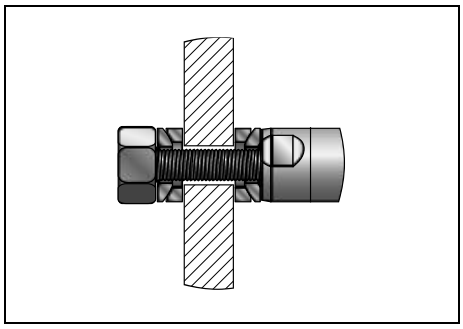
Ordering information

Description	Description	Description
PSM01-37S	Cable mounting kit incl. Pos 1 until Pos. 6	0150-3469

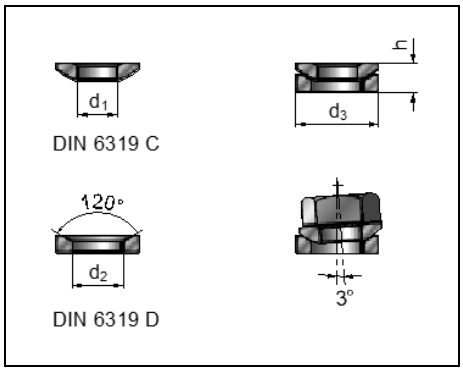
5 Accessories

5.1 Slider mounting kits

5.1.1 Fixed bearing



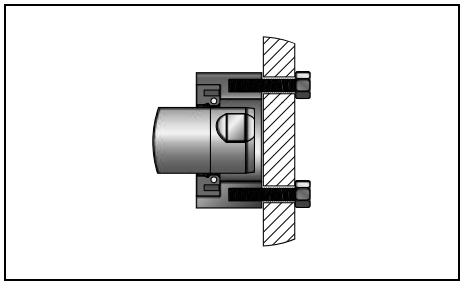
Slider mounting kit consists of a spring washer, a pair of spherical washers, and a pair of conical seats. It allows the slider to be fixed in the direction of motion. It also helps to compensate for radial and angle offset.



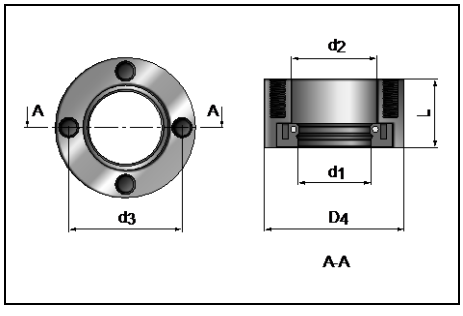
Material
Spherical washer / conical seat: case hardened steel

Item	Item No.	Slider	Thread	d1	d2	d3	h
PLF01-12	0150-3085	12mm	M5	5.2mm (0,20in)	6.0mm (0.24in)	10.5mm (0.41in)	3.2mm (0.13in)
PLF01-20	0150-3083	20mm	M8	8.4mm (0.33in)	9.6mm (0.38in)	17mm (0.67in)	5.5mm (0.22in)

5.1.2 Floating bearing



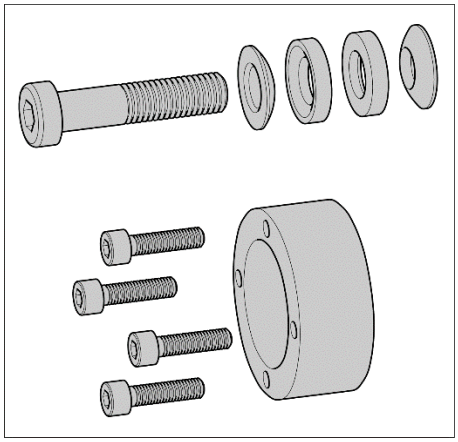
Floating bearing assembly that permits radial adjustment of slider position and permits a small amount of radial and axial movement.



Material
Housing: Stainless steel 1.4305
Bearing: Nitrile butadiene rubber
Spring steel DIN17223

Item	Item No.	Slider	Thread	d1	d2	d3	D4	L
PLL02-12	0150-3111	12mm	-	12mm (0.47in)	Gummi-ring	- -	22mm (0.87in)	6.6mm (0.26in)
PLL01-19	0150-3335	19mm	M5	20mm (0.79in)	23mm (0.90in)	30mm (1.18in)	37mm (1.46in)	20mm (0.79in)
PLL01-20	0150-3084	20mm	M5	20mm (0.79in)	23mm (0.90in)	30mm (1.18in)	37mm (1.46in)	20mm (0.79in)

5.1.3 Complete mounting kit



This kit provides one set of mounting parts for each end of the slider.

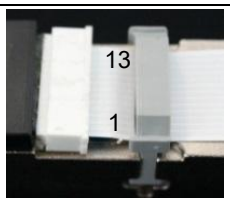
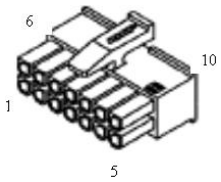
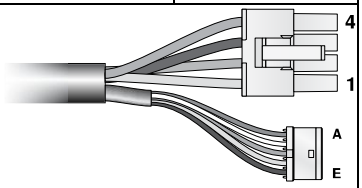
Ordering information

Item	Description	Item-No.
PLM01-28-MK	Mounting kit for PL01-28 slider composed of: 1 Spherical washer & conical seat (0150-3083) 1 Floating Bearing (0150-3084) 1 Socket hd. cap screw * DIN 912 / M8, L=35 mm (L=1.38 in) 4 Socket hd. cap screw * DIN 912 / M5, L=20 mm (L=0.78 in)	0150-3079
** For use with 12 mm (1/2 in) thick mounting plates.*		

6 Maintenance and test instructions

6.1 Stator connector assignment

Do not connect or disconnect motor when there is power on the servo drive.
Use only original LinMot cable. Cables from other sources must be checked precisely before commissioning.
Incorrect connections can destroy the drive and stator.

Connector Type	Flat connector	K-Connector		N-Connector	
Series	*PS02-23Sx80-F*	*PS02-23Sx80F-HP-K* *PS02-23Sx160H-HP-K*		*PS01-37Sx60-HP-N* *PS01-37Sx120F-HP-N*	
	PIN & Wire	**PIN**	**Wire**	**PIN**	**Wire**
Phase1+	12&13	1	red	4	red
Phase1-	3&4	4	pink	3	pink
Phase2+	10&11	2	blue	2	blue
Phase2-	1&2	5	grey	1	grey
+5V	5	9	white	A	white
GROUND*	7	8	brown	B	Inner shield
Sensor Sin	9	6	yellow	C	yellow
Sensor Cos	8	7	green	D	green
Temp sensor	6	10	black	E	black
SHIELD* of stator and stator cable	No shield	Case (cable relief)	shield	Case (cable relief)	Outer shield
Connector on the stator (-cables)	 **Note:** Contacts on the flat cable are on top.				

Extension cables are double shielded. The two shields of the extension cables must not be connected together: the inner shield of the extension cables is used as GROUND and must be connected to GROUND*; only the outer shield must be connected to SHIELD* of the connector.

6.2 Stator checking

The following tables show the resistive value between the different connector pins for each stator type. If the value is not within a range of +/- 10% the stator may be damaged (temperature of the stator for all measurements: 20°C).

PS02–23Sx80-F (0150-1272)		
Phase1+ / Phase1-	Pin 12&13 / Pin 3&4	10 Ω
Phase2+ / Phase2-	Pin 10&11 / Pin 1&2	10 Ω
5V / GND	Pin 5 / Pin 7	505 Ω / 275 Ω**
Sensor Sinus / GND	Pin 9 / Pin 7	37.5 kΩ
Sensor Cosine / GND	Pin 8 / Pin 7	37.5 kΩ
Temp. Sensor / GND	Pin 6/ Pin 7	10.5 kΩ / >20 MΩ***
Phase / GND	Pin 1,2,3,4,10,11,12,13 / Pin 7	>20 MΩ
All Pin / Shield	Pin 1 – 13 / Housing	>20 MΩ

PS01–23Sx80F-HP-K (0150-1285)			
Phase1+ / Phase1-	Red / Pink	Pin 1 / Pin 4	4,2 Ω
Phase2+ / Phase2-	Blue / Gray	Pin 2 / Pin 5	4,2 Ω
5V / GND	White / Brown	Pin 9 / Pin 8	930 Ω / 505 Ω**** / 275 Ω*
Sensor Sinus / GND	Yellow / Brown	Pin 6 / Pin 8	37.5 kΩ
Sensor Cosine / GND	Green / Brown	Pin 7 / Pin 8	37.5 kΩ
Temp. Sensor / GND	Black / Brown	Pin 10 / Pin 8	10.5 kΩ / >20 MΩ*
Phase / GND	-	Pin 1, 2, 4, 5 / Pin 8	>20 MΩ
All Pin / Shield	-	Pin 1 – 10 / Housing	>20 MΩ

PS01–23Sx160H-HP-K (0150-6106)			
Phase1+ / Phase1-	Red / Pink	Pin 1 / Pin 4	3.8 Ω
Phase2+ / Phase2-	Blue / Gray	Pin 2 / Pin 5	3.8 Ω
5V / GND	White / Brown	Pin 9 / Pin 8	>500 Ω
Sensor Sinus / GND	Yellow / Brown	Pin 6 / Pin 8	>12 kΩ
Sensor Cosine / GND	Green / Brown	Pin 7 / Pin 8	>12 kΩ
Temp. Sensor / GND	Black / Brown	Pin 10 / Pin 8	>1 kΩ
Phase / GND	-	Pin 1, 2, 4, 5 / Pin 8	>20 MΩ
All Pin / Shield	-	Pin 1 – 10 / Housing	>20 MΩ

PS01-37Sx60-HP-N (0150-1295)			
Phase1+ / Phase1-	Red / Pink	Pin 4 / Pin 3	2.9 Ω
Phase2+ / Phase2-	Blue / Grey	Pin 2 / Pin 1	2.9 Ω
5V / GND	White / Inner shield	Pin A / Pin B	155 Ω
Sensor Sinus / GND	Yellow / Inner shield	Pin C / Pin B	33 kΩ
Sensor Cosine / GND	Green / Inner shield	Pin D / Pin B	33 kΩ
Temp. Sensor / GND	Black / Inner shield	Pin E / Pin B	10 kΩ
Phase / GND	-	Pin 1, 2, 3, 4 / Pin B	>20 MΩ
All Pin / Shield	-	Pin 1-4, A-E / Housing	>20 MΩ

PS01-37Sx120F-HP-N (0150-1296)			
Phase1+ / Phase1-	Red / Pink	Pin 4 / Pin 3	2.6 Ω
Phase2+ / Phase2-	Blue / Grey	Pin 2 / Pin 1	2.6 Ω
5V / GND	White / Inner shield	Pin A / Pin B	155 Ω
Sensor Sinus / GND	Yellow / Inner shield	Pin C / Pin B	33 kΩ
Sensor Cosine / GND	Green / Inner shield	Pin D / Pin B	33 kΩ
Temp. Sensor / GND	Black / Inner shield	Pin E / Pin B	10 kΩ
Phase / GND	-	Pin 1, 2, 3, 4 / Pin B	>20 MΩ
All Pin / Shield	-	Pin 1-4, A-E / Housing	>20 MΩ

PS01-37Sx120H-HP-N (0150-6238)			
Phase1+ / Phase1-	Red / Pink	Pin 4 / Pin 3	0.9 Ω
Phase2+ / Phase2-	Blue / Grey	Pin 2 / Pin 1	0.9 Ω
5V / GND	White / Inner shield	Pin A / Pin B	155 Ω
Sensor Sinus / GND	Yellow / Inner shield	Pin C / Pin B	33 kΩ
Sensor Cosine / GND	Green / Inner shield	Pin D / Pin B	33 kΩ
Temp. Sensor / GND	Black / Inner shield	Pin E / Pin B	10 kΩ
Phase / GND	-	Pin 1, 2, 3, 4 / Pin B	>20 MΩ
All Pin / Shield	-	Pin 1-4, A-E / Housing	>20 MΩ

* For stators before serial no. xxxx.3IJ.xxx
** For stators before serial no. xxxx.3UZ.xxx
*** For stators before serial no. xxxx.371.xxx
**** For stators before serial no. xxxx.863.xxx

6.3 Maintenance of linear motors

The stators will be shipped with an initial lubrication. Maintenance will only be required if the motors run 'dry' or there is a heavy pollution of the motors.Under normal industrial conditions (5 day, 8 h / day) one inspection every 3 months is adequate. The inspection cycle must be shortened if severe motor loads or deviating conditions exist. These conditions are for example:

- Permanent fouling
- Direct sunshine
- Low Humidity
- Outdoor operation
- Increased operating temperature

6.3.1 Mounting

Sliders with a length ≤ 500 mm (20 in) are to be inserted in a clean contition in the stator.
Sliders with a length > 500 mm (20 in) must be lubricated with LU02. 4 g of lubricant per meter slider is enough to create a film of lubricant on the surface of the sliders. 4 g (0.14 oz) is about ½ of a hazel-nut.
The grease can be applied by hand or with a soft paper towel.
If wipers are used then the inner side of the seals of the wipers must be lubricated as well.

Basically, it must be ensured that only a thin film of grease is applied. 4 g of grease per 1000 mm of slider length is sufficient for this purpose. Over lubrication leads to a gumming of the grease, which appears particularly at higher operating temperatures! In this case, a complete cleaning of the motor has to be made.

6.3.2 Inspection

Inspections have to be executed according to the operating condition and the load of motors. Following points have to be checked during inspection:

a) Is a film of lubricant on the slider? If not -> Lubrication
b) Is the wiper (if existent) without visible wear? If not -> Replace wipers

c) Is the lubricant homogeneous and not decomposed? In case of negation -> Cleaning (stator, slider) + Lubrication
d) Can the slider be moved easily? If not -> Cleaning (stator, slider) + Lubrication

6.3.3 Cleaning

- Pull the sliders carefully out of the stator.
  Attention! Strong magnetic attraction forces (note safety instructions on page 5)!
  Use non magnetic material (e.g. wood) to cover close-by iron constructions.
- Clean slider and stator with a soft disposable paper, ideally with the help of LU06 cleaning spray (or methylated spirits or alcohol).
- Afterwards, lubricate the bore of the stators with about 2-3 g (0.1 oz) grease LU02.
  There should only be a slight film of lubricant.
  Note: Do not over lubricate!
- Finally, slider should be lubricated according to the chapter 'mounting'.

6.3.4 Cleaning agent / Lubricant

For the cleaning of LinMot stators and sliders cleaning agent spray LU06 is recommended.
To improve the sliding characteristics between the stainless steel surface of the slider and the plastic slide bearing the LinMot lubricant LU02 is prescribed.

Ordering information

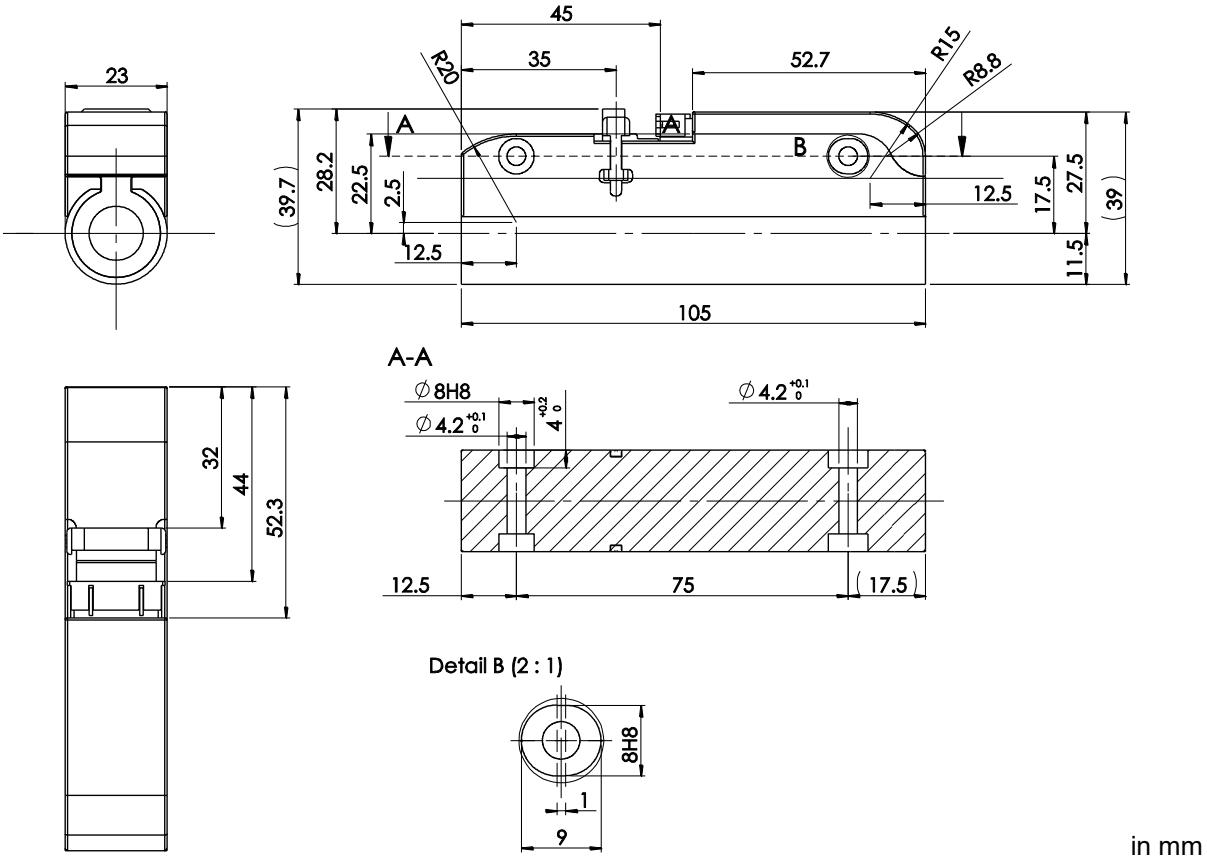
Item	Description	Item-No.
LU06-250	Klüberfood NH1 4-002 Spray* (250 ml)	0150-2394
LU02-08	Lubricant for linear motors ** (8 g)	0150-1953
LU02-50	Lubricant for linear motors ** (50 g)	0150-1954
LU02-1000	Lubricant for linear motors ** (1000 g)	0150-1955
** LinMot Spray LU06 corresponds to KLÜBERFOOD NH1 4-002 which was developed for the food processing industry.* *** LinMot LU02 Lubricant corresponds to KLÜBERSYNTH UH1 14-31 which was developed for the food processing industry.*		

7 Storage, transport, installation altitude

- Sliders are to be stored and transported only in the plastic containers (with cardboard inlay) provided for this purpose, or already installed and secured in LinMot P stators.
- Remove the slider from this plastic containers only for assembling.
- The storage area must be dry, dust-free, frost-free and vibration-free.
- The relative air humidity should be less than 95 %.
- Prescribed storage temperature: -15 °C…70 °C
- The motor must be protected against extreme weather conditions.
- The air in the storage area must not contain any harmful gases.
- The max. installation altitude is 4'000 m (for higher values contact LinMot) above sea level.
  Beyond 1'000m, a derating of 0.5% per 100m must be taken into account on the rated force in the case of air cooling.

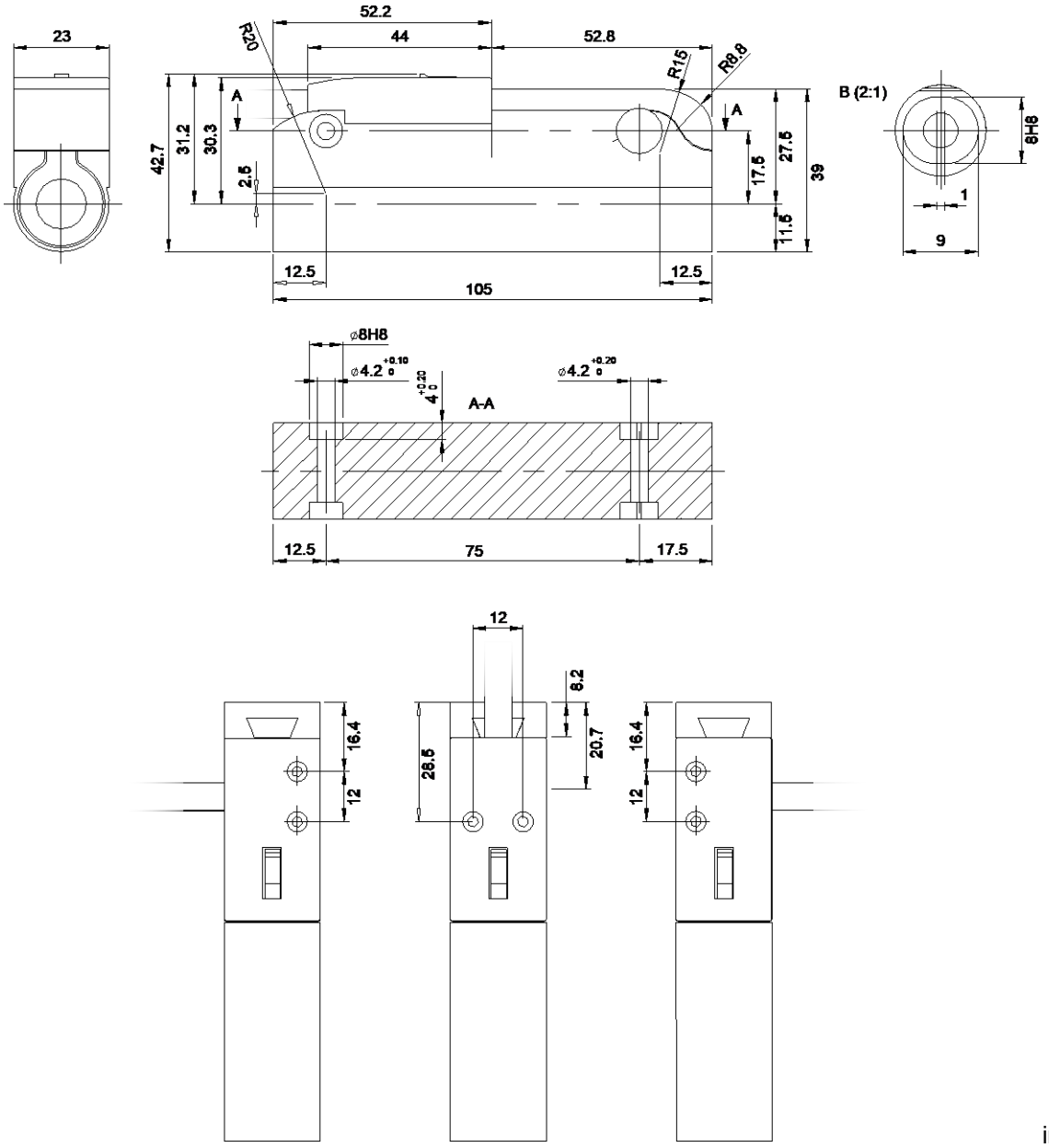
8 Dimensions

8.1 Stator PS02-23Sx80-F



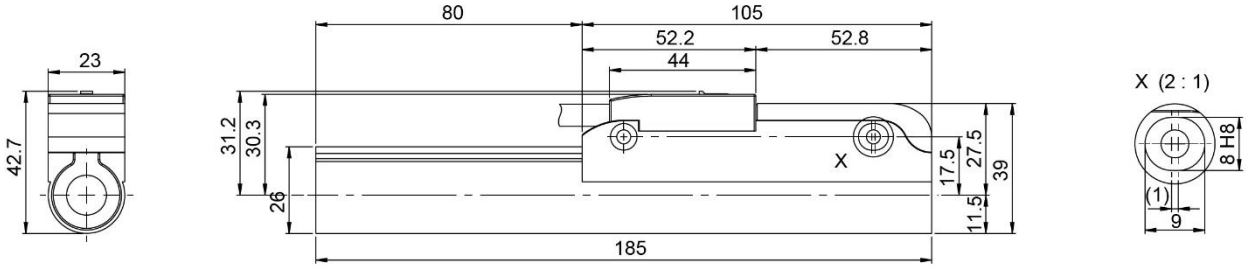
in mm

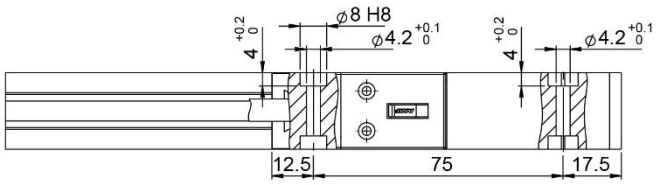
8.2 Stator PS02-23Sx80F-HP-K

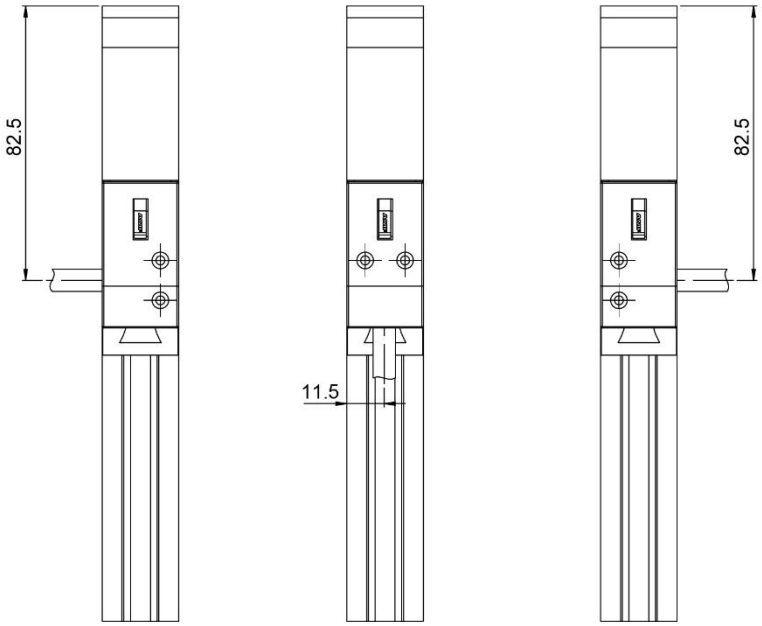


in mm

8.3 Stator PS02-23Sx160H-HP-K



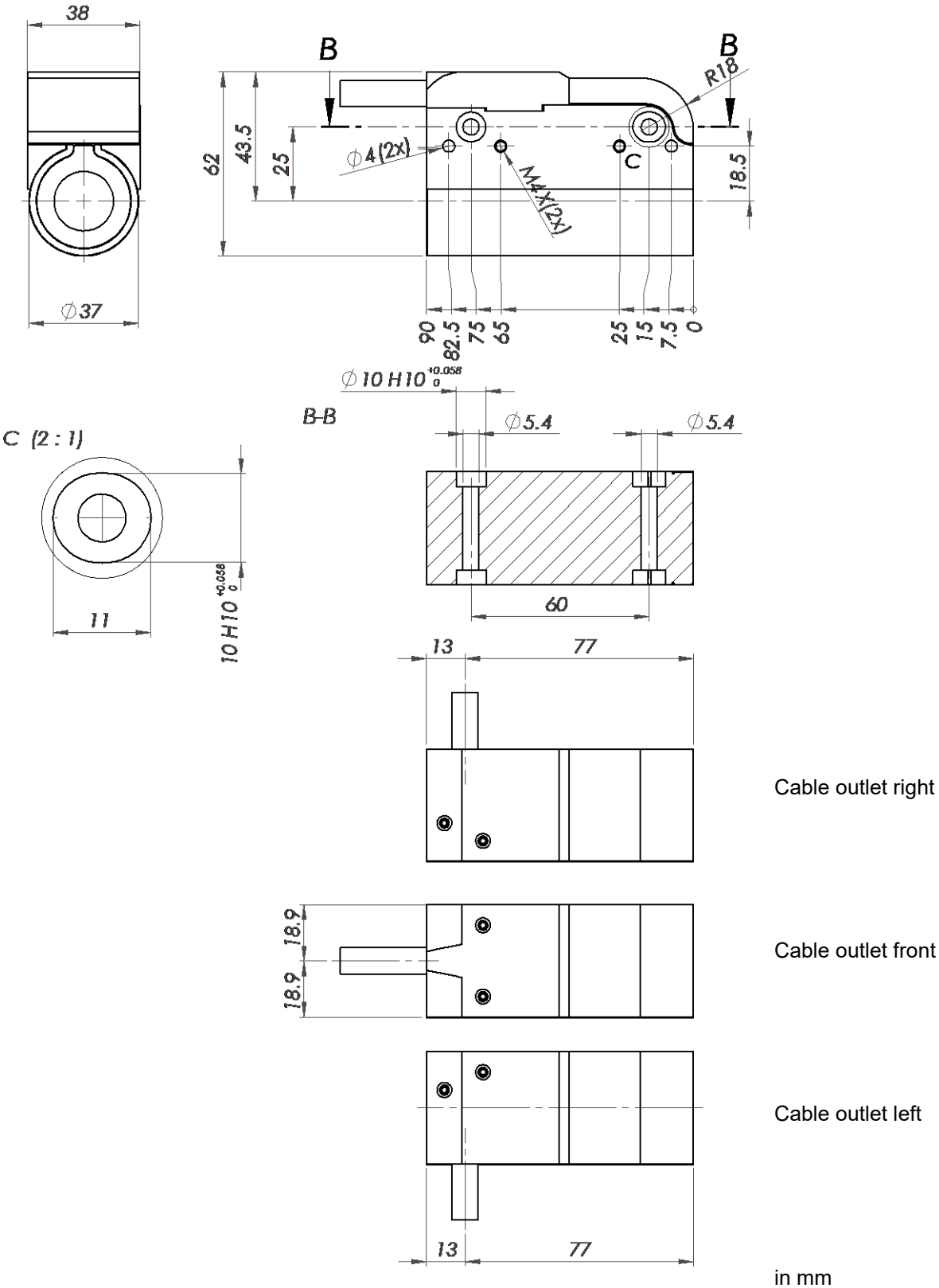




Cable outlet right | Cable outlet front | Cable outlet left

in mm

8.4 Stator PS01-37Sx60-HP-N



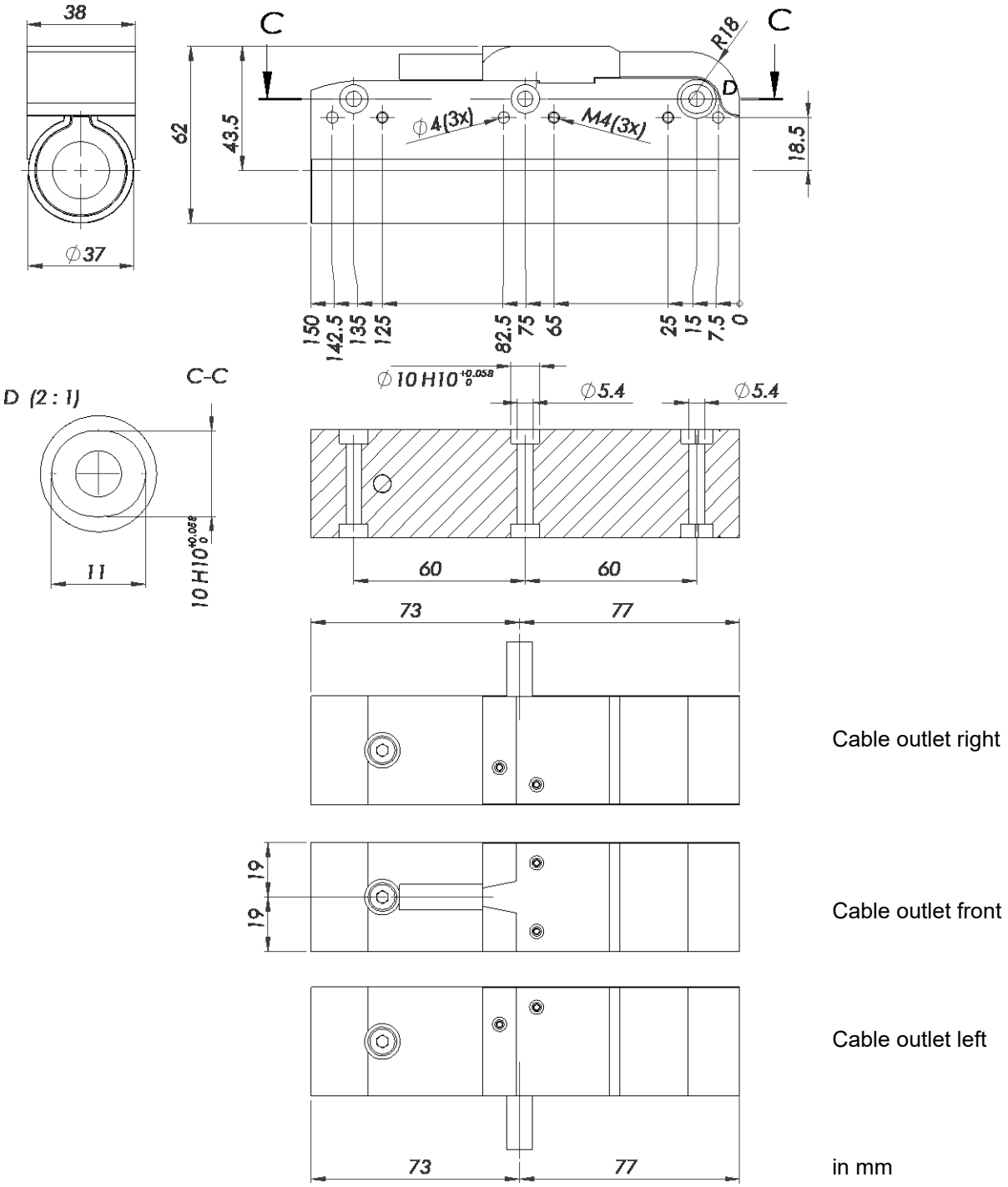
Cable outlet right

Cable outlet front

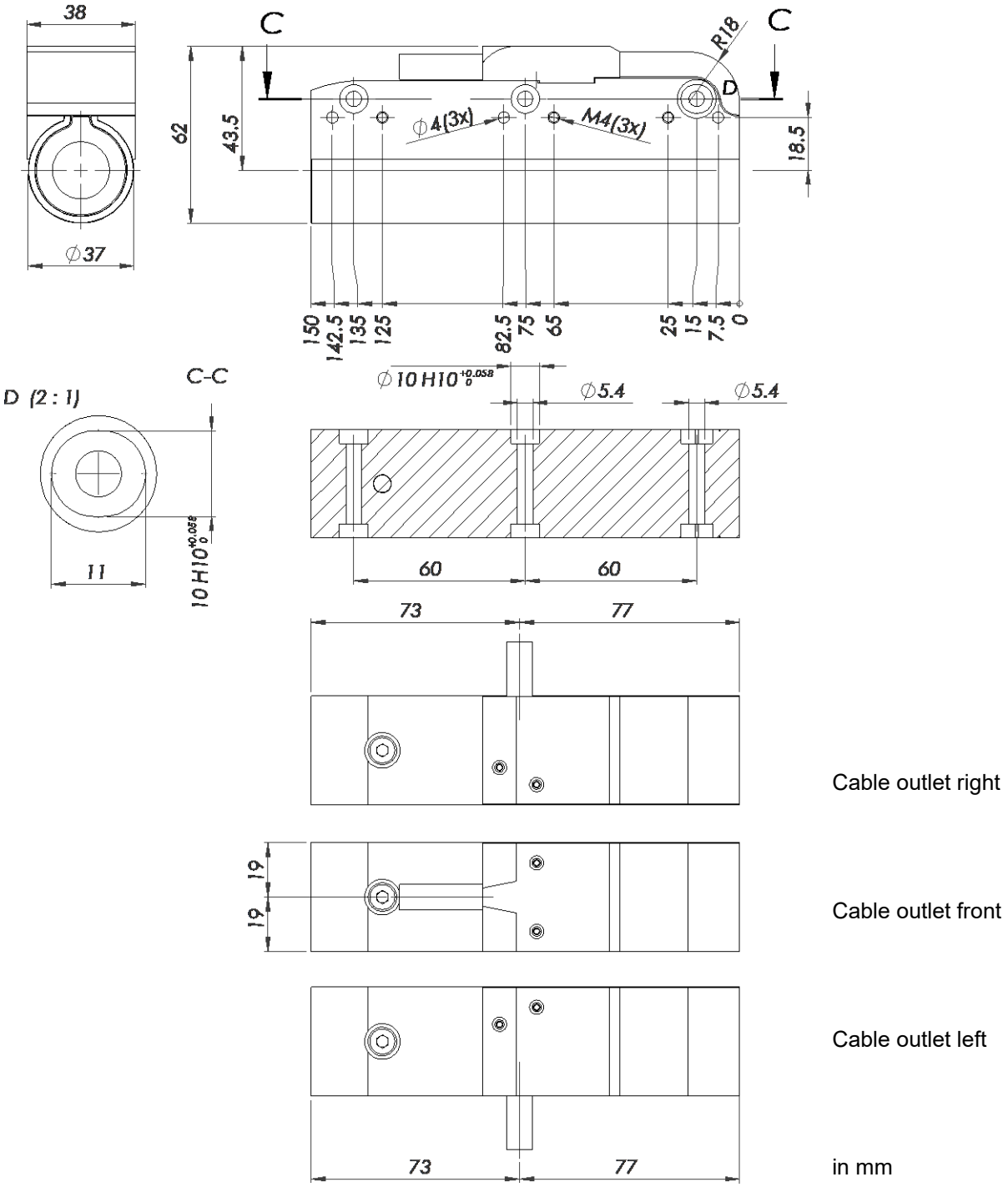
Cable outlet left

in mm

8.5 Stator PS01-37Sx120F-HP-N



8.6 Stator PS01-37Sx120H-HP-N



Cable outlet right

Cable outlet front

Cable outlet left

in mm

9 International Certificates

Europe CE	See chapter “EU Declaration of Conformity CE-Marking”
UK UKCA	See chapter “UK Declaration of Conformity UKCA-Marking”
IECEE CB SCHEME	Ref. Certif. Nr. CH-8521
USA / Canada cULus	File Number E354430 Refers to cURus marked motors

Ref. Certif. No.
CH-8521

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product	Linear motor	
Name and address of the applicant	NTI AG	Bodenäckerstrasse 2 SWITZERLAND 8957 Spreitenbach
Name and address of the manufacturer	NTI AG	Bodenäckerstrasse 2 SWITZERLAND 8957 Spreitenbach
Name and address of the factory	NTI AG	Bodenäckerstrasse 2 SWITZERLAND 8957 Spreitenbach
Note: When more than one factory, please report on page 2	☐ Additional Information on page 2	
Ratings and principal characteristics	supplied via servo drive, see TR 17-EL-0006.E02 for details	
Trade mark (if any)	LinMot	
Customers's Testing Facility (CTF) Stage used	---	
Model / Type Ref.	PR series PS series P04 series P05 series	
Additional information (if necessary may also be reported on page 2)	---	
	☐ Additional Information on page 2	
A sample of product was tested and found to be in conformity with IEC	IEC 61000-6-2:2016 IEC 61000-6-4:2006, IEC 61000-6-4:2006/AMD1:2010 IEC 61000-6-7:2014	
National differences	EU Group Differences; EU Special National Conditions; EU A-Deviations	
As shown in the Test Report Ref. No. which forms part of this Certificate	17-EL-0006.E01 + .E02 + .Z01	

This CB Test Certificate is issued by the National Certification Body

Electrosuisse
Luppmenstrasse 1
8320 Fehraltorf
SWITZERLAND

Signed by: Martin Plüss
Date: 2017-03-13

electro suisse

page 1 of 1

CERTIFICATE OF COMPLIANCE

Certificate Number	20171024-E354430
Report Reference	E354430-20171023
Issue Date	2017-OCTOBER-24
Issued to:	NTI AG Bodenaeckerstr 2, 8957 SPREITENBACH SWITZERLAND
This is to certify that representative samples of	COMPONENT - INCOMPLETE ROTATING MACHINES AND ROTATING MACHINE PARTS Class A Insulated Linear Motor models Series PS01 and PS02 Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL 1004-1 - Rotating Electrical Machines – General Requirements CAN/CSA C22.2 No. 100 - Motors and generators
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark: , may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at http://ul.com/aboutul/locations/

Page 1 of 1

10 EU Declaration of Conformity CE-Marking

NTI AG / LinMot ®
Bodenaeckerstrasse 2
8957 Spreitenbach

Switzerland

Tel.: +41 (0)56 419 91 91
Fax: +41 (0)56 419 91 92

declares under sole responsibility the compliance of the products:

- Linear Motors of the Series **PS02-23S**
- Linear Motors of the Series **PS01-37S**

with the EMC Directive 2014/30/EU.

Applied harmonized standards:

- **EN 61000-6-2: 2005 (Immunity for industrial environments)**
- **EN 61000-6-4: 2007 + A1: 2011 (Emission for industrial environments)**

According to the EMC directive, the listed devices are not independently operable products.

Compliance of the directive requires the correct installation of the product, the observance of specific installation guides and product documentation. This was tested on specific system configurations.

The safety instructions of the manuals are to be considered.

The product must be mounted and used in strict accordance with the installation instructions contained within the installation guide, a copy of which may be obtained from NTI AG.

Company: NTI AG
Spreitenbach, 14.10.2025

Dr.-Ing. Ronald Rohner
CEO NTI AG

11 UK Declaration of Conformity UKCA-Marking

NTI AG / LinMot ®
Bodenaeckerstrasse 2
8957 Spreitenbach

Switzerland

Tel.: +41 (0)56 419 91 91
Fax: +41 (0)56 419 91 92

declares under sole responsibility the compliance of the products:

- Linear Motors of the Series **PS02-23S**
- Linear Motors of the Series **PS01-37S**

with the EMC Regulation S.I. 2016 No. 1091.

Applied designated standards:

- **EN 61000-6-2: 2005 (Immunity for industrial environments)**
- **EN 61000-6-4: 2007 + A1: 2011 (Emission for industrial environments)**

According to the EMC regulation, the listed devices are not independently operable products.

Compliance of the regulation requires the correct installation of the product, the observance of specific installation guides and product documentation. This was tested on specific system configurations.

The safety instructions of the manuals are to be considered.

The product must be mounted and used in strict accordance with the installation instructions contained within the installation guide, a copy of which may be obtained from NTI AG.

Company: NTI AG
Spreitenbach, 14.10.2025

Dr.-Ing. Ronald Rohner
CEO NTI AG

ALL LINEAR MOTION FROM A SINGLE SOURCE

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Visit https://linmot.com/contact/ to find a distributor near you.

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