

Installation Guide Linear Modules

ENG

DM03-23 / 37 / 48



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1 General Information

1.1 Introduction

This manual includes instructions for the assembly, installation, maintenance, transport, and storage of linear guides / linear modules. The document is intended for electricians, mechanics, service technicians, and warehouse staff.

Read this manual before using the product and observe the general safety instructions and those in the relevant section at all times.

Keep these operating instructions in an accessible place and make them available to the personnel assigned.

1.2 Explanation of Symbols



Triangular warning signs warn of danger.



Round command symbols tell what to do.

1.3 Qualified Personnel

All work such as installation, commissioning, operation and service of the product may only be carried out by qualified personnel.

The personnel must have the necessary qualifications for the corresponding activity and be familiar with the installation, commissioning, operation and service of the product. The manual and in particular the safety instructions must be carefully read, understood and observed.

1.4 Liability

NTI AG (as manufacturer of LinMot 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 responsibility of the user to check the data and information provided by NTI AG for correct applicability in terms of safety. 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 Warranty Period

The warranty period is 24 months from the date of delivery ex works. During this period, only NTI AG / LinMot or a company authorised and qualified by the manufacturer may make structural changes to the product. Any disassembly or modification of the product by the customer is at the customer's own risk and will invalidate the warranty. If disassembly is carried out by the customer, there is a separate section with instructions for replacing individual components.



Improper structural modifications to the product may result in increased friction and/or premature wear of consumable parts and/or damage to the module and/or its components due to misalignment of the components. If the alignment and orientation of the stator and slider in a linear motor is not maintained, the guaranteed positioning accuracy can no longer be maintained. The stator and slider are matched to each other and can only be replaced by qualified personnel of NTI AG / LinMot.

NTI AG / LinMot does not assume any warranty in the cases described above.

1.6 Copyright

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Under the copyright laws, this publication may not be reproduced or transmitted in any form, electronic or mechanical, including photocopying, recording, microfilm, storing in an information retrieval system, not even for training purposes, or translating, in whole or in part, without the prior written consent of NTI AG.

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2 Safety Instructions



Contusions

Sliders contain neodymium 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 circumstances! 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**

During operation the slider can become hotter than 100 °C, which can cause burns if touched. All necessary precautions (e.g. covers, casing, etc.) must be taken to prevent contact with persons in the vicinity of the slider during operation.

**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 demagnetizes the magnets.

**2S Stators**

Series 2S stators correspond mechanically to the respective standard stators and are to be handled in exactly the same way in terms of assembly. For special features, please refer to the safety manual (Item-No. 0185-1174).

**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



- The ambient temperature limit is enclosed: -10 °C...80 °C
- The maximum sensor temperature is enclosed: 120 °C
- Max. set up altitude:
The maximum installation altitude is 4000 metres above sea level.
From 1000m, a derating of 0.5% per 100m must be taken into account for the nominal force with air cooling.

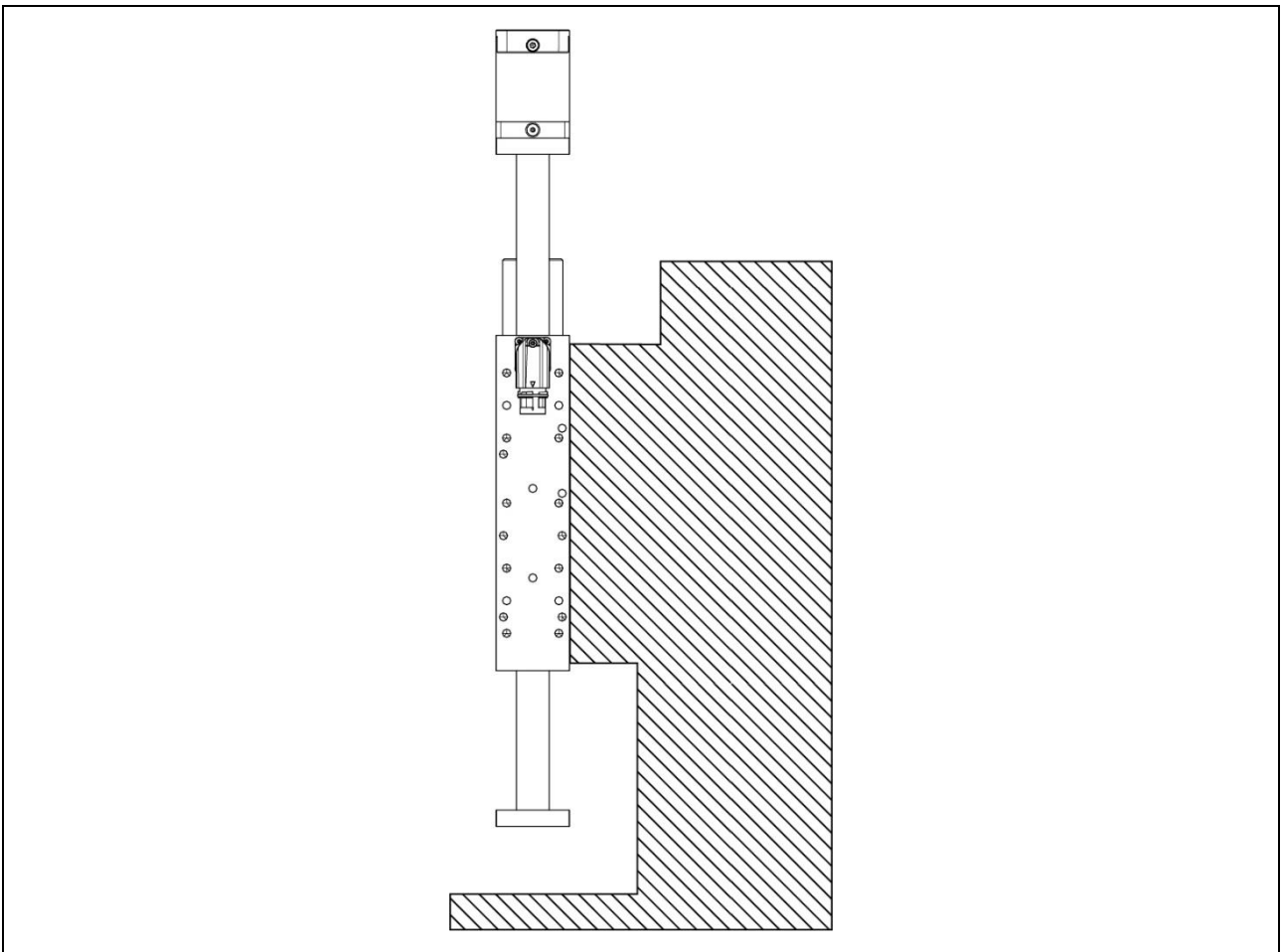
3.2 Installation Options



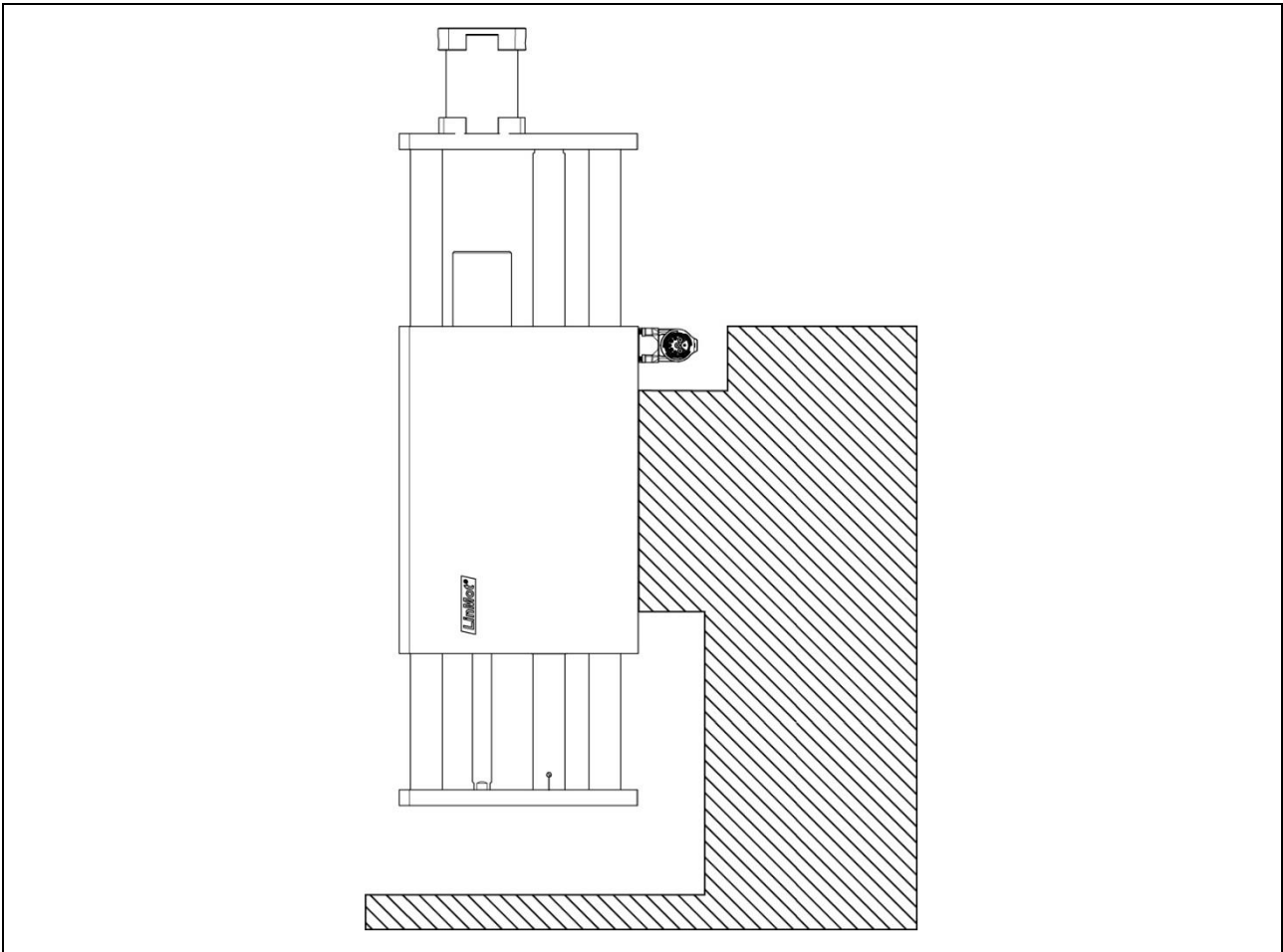
Always observe the safety instructions in chapter 2 during installation!

For easy installation of the linear module, the guide block is provided with locating pins and tapped holes on the bottom and side faces. The exact positions are given in chapter 10. The linear module is mainly designed for vertical applications, so the following installation instructions also refer to this case. For horizontal mounting, please refer to the instructions in document 0185-0113.

3.2.1 Vertical mounting on the underside of the guide block



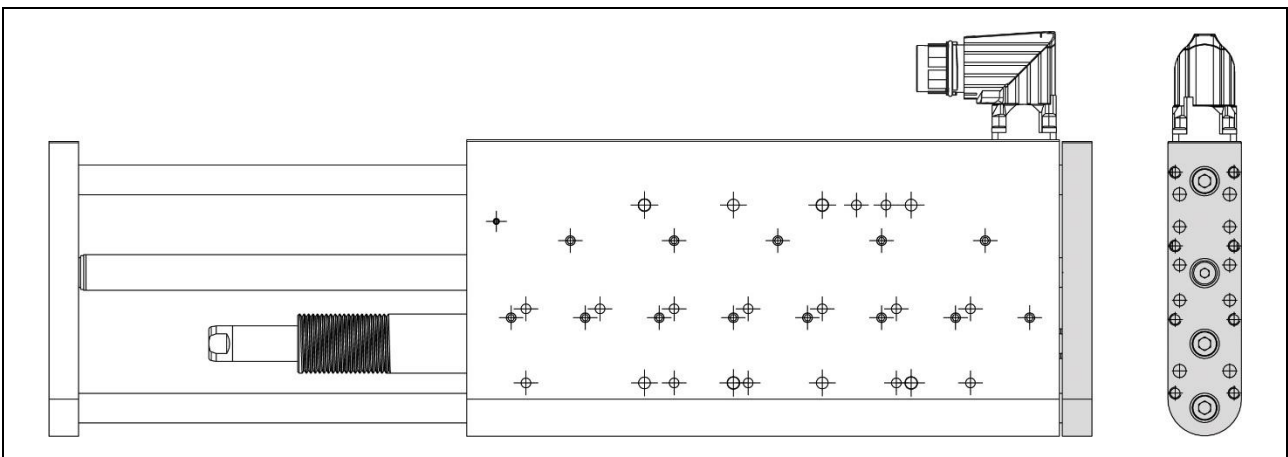
3.2.2 Vertical mounting on the side surface of the guide block



3.2.3 Mounting the Load

The linear modules have a mounting plate for mounting the load. The mounting plate is provided with several threaded holes and fits for dowel pins. The complete dimensions of the mounting plates as well as the positions and specifications of the threaded holes and fits can be found in chapter 10.

The center of gravity of the mounted load mass should be centred and the load should be placed as close as possible to the mounting plate. This ensures even distribution of the mass and minimizes the maximum load on the linear module.



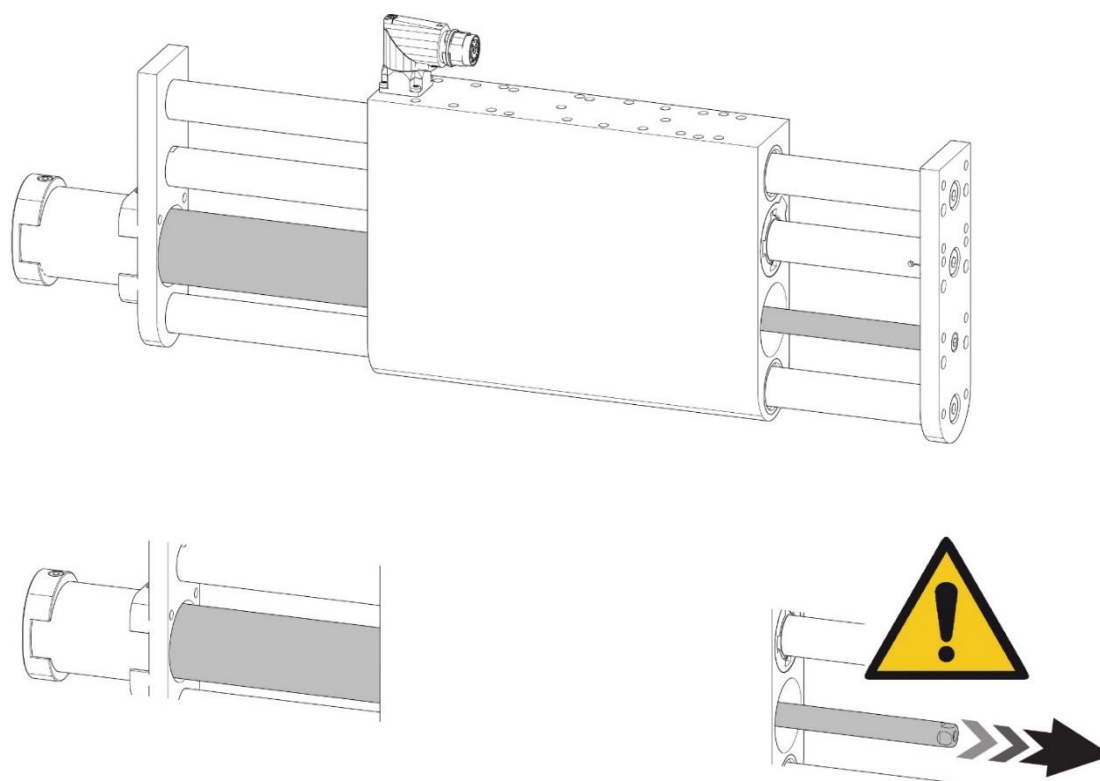
3.3 Material Specifications

Component	Material
Front Mounting Plate	Anodized Aluminum
Rear Mounting Plate	Anodized Aluminum
Guide Shafts	Hardened steel, hard chrome-plated
Guide Block	Anodized Aluminum
Bearing	Linear Ball Bearing
Wiper	H-ECOPUR

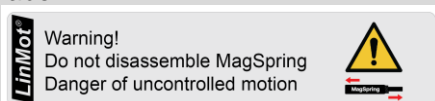
3.4 Vertical Load Balancing MagSpring®

All DM03 linear modules are equipped with a magnetic spring, MagSpring®. When the linear modules are installed vertically, they must constantly apply a constant force to counteract the weight force. With a MagSpring installed parallel to the linear motor, the weight force can be passively compensated. The drive is only used for the actual positioning operation or the application of dynamic forces and can be relieved accordingly.

3.4.1 Danger of MagSpring slider disassembly



- The MagSpring slider is locked against rotation. During disassembly, this anti-rotation device is released and this can result in sudden, uncontrolled movement of the slider. There is a considerable risk of injury!
- All maintenance work and repairs should be carried out by NTI AG / LinMot. If maintenance and repairs are carried out by the user, the warranty is immediately void (see chapter 1.5).
- DM03 linear modules with a built-in MagSpring over 60 N are labelled with the following label:



4 Electrical Connection

4.1 Motor Cable



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



The stator is connected to protective earth via the motor cable. The screw connections of the C and R connectors must be tightened up to the stop. Three types of cables are available for linear modules. 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.

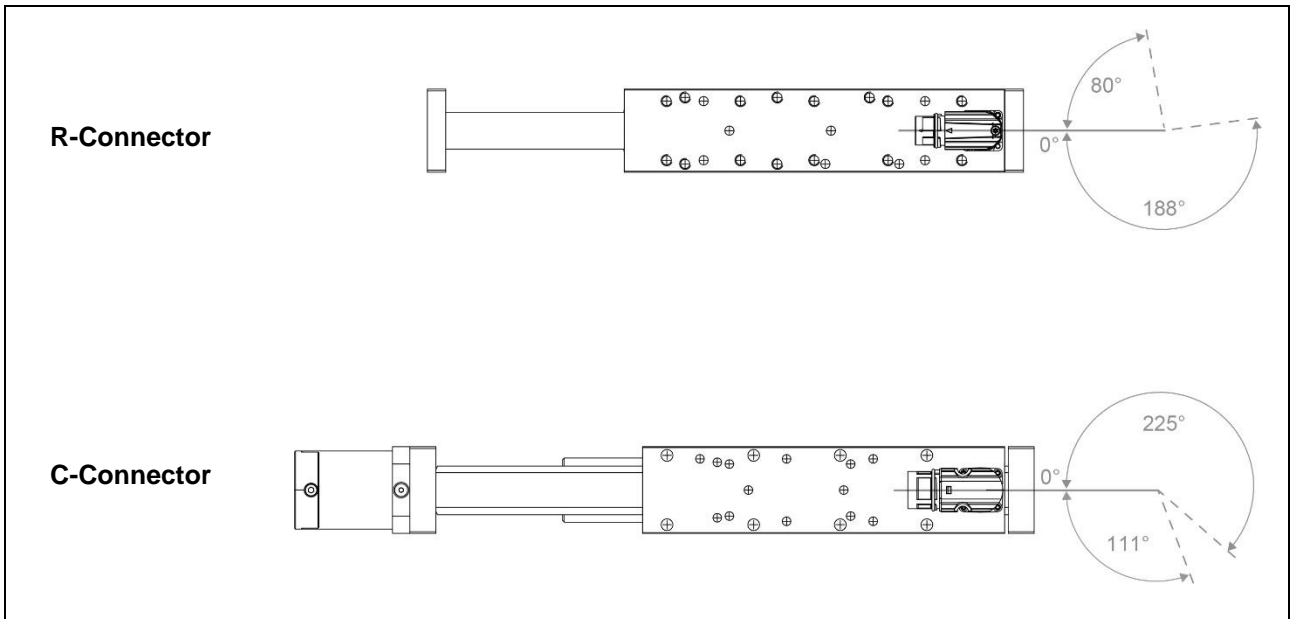
4.1.1 Technical Data

	Standard Cable		High-Flex Cable				Robot Cable	
Cable name	K05-04/05	K15-04/05	KS03-09*	KS05-09*	KS05-04/05	KS10-04/05	KR05-04/05	KR10-04/05
Minimum bending radius for fixed installation	25 mm (1 in)	50 mm (2 in)	25 mm (1 in)	25 mm (1 in)	30 mm (1.2 in)	50 mm (2 in)	40 mm (1.6 in)	50 mm (2 in)
Minimum bending radius when moving	Not suitable for applications with moving motor cable		50 mm (2 in) No Torsion	50 mm (2 in) No Torsion	60 mm (2.4 in) No Torsion	100 mm (4 in) No Torsion	80 mm (3.2 in) Max. Torsion: ±270° per 0.5 m	100 mm (4 in) Max. Torsion: ±270° per 0.5 m
Shielding	double		single		double		double	
Approval	UL / CSA 300V		UL / CSA 300V				UL / CSA 300V	
Material wire insulation	TPE-U		TPE-E	TPE	TPE-E		TPE-E	
Material cable sheath	PUR		PUR	PUR	PUR		PUR	
Oil resistance	very good acc. DIN VDE 0282 Part 10 + HD 22.10		very good acc. DIN VDE 0282 Part 10 + HD 22.10				very good acc. DIN VDE 0282 Part 10 + HD 22.10	
Chemical resistance (to acids, alkalis, solvents, hydraulic fluid)	good		good				good	



* Single shielded cables with small bending radius for confined installation situations. The cable length of these cable types must not exceed 6 m. An extension of the total cable length between motor and Servo Drive with double shielded cables is permissible.

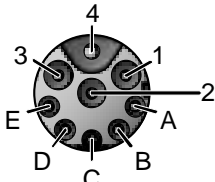
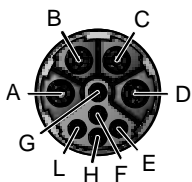
4.1.2 Rotatability of Motor Connector



4.2 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.

Stator Connector Assignment	DM03-23x80 DM03-23x160 DM03-37x120	DM03-48x150 DM03-48x240	Wire Color Motor Cable
	R-Connector	C-Connector	
Phase1+	PIN 1	PIN A	Red
Phase1-	PIN 2	PIN B	Pink
Phase2+	PIN 3	PIN C	Blue
Phase2-	PIN 4	PIN D	Grey
+5V	PIN A	PIN E	White
GROUND*	PIN B	PIN F	Brown or inner shield
Sensor Sin.	PIN C	PIN G	Yellow
Sensor Cos.	PIN D	PIN H	Green
Temp. Sensor	PIN E	PIN L	Black
SHIELD* of stator and stator cable	Case	Case	Outer shield
Stator Connector			



Motor extension cable with double shielding:
 The two shields of the extension cable are insulated from each other. The inner shield of the extension cable may only be connected to ground* (no contact to the outer shield). Only the outer shield must be connected to the shield* of the connector.

5 Start-up

5.1 Plug and Play

LinMot DM01 linear modules are "Plug and Play" capable (see motor label "PnP"). This means that they log on to the drive independently. The module- and motor-specific parameters are automatically stored in the drive, and the motor is ready for operation.

5.2 Setting Motor Parameters



To configure the linear module, use the LinMot-Talk software from version 6.9. The software and the corresponding detailed user manual can be downloaded from <https://linmot.com/download/linmot-talk-drive-configuration/> can be downloaded.

5.2.1 Application-specific Parameters

The various application-specific parameters, such as cable length, load mass, PID control settings, etc. are set on the drive side via the Motor Wizard in the LinMot-Talk configuration program.

For this purpose, the LinMot-Talk software should be started first. Then the Motor Wizard can be opened.

To open it, please select the "Motor Wizard" icon in the task bar.

The Motor Wizard now guides the user step by step through the menu. The application parameters should be entered as accurately as possible to ensure the best possible motor control.

5.2.2 Referencing the Linear Module

The built-in linear motor has a position detection system which must be referenced. Various modes are available to the user for this purpose. Depending on the selected mode, the linear motor searches for a mechanical stop and/or an electronic switch, for example.

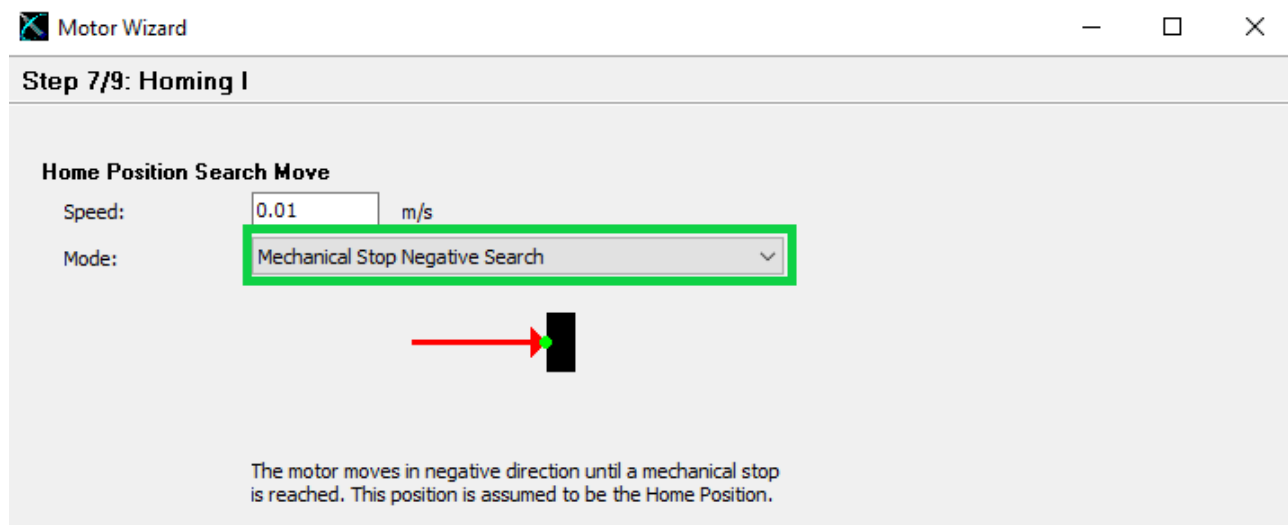


Figure: Selection of reference run linear module

6 Spare Parts

6.1 Linear Ball Bearings

LinMot offers the respective replacement bearings for the DM03 linear modules. The linear ball bearings are greased at the factory with the food-compatible lubricant SKF LGFP2 (NSF approval for H1). The replacement interval of the bearings is determined by the functional test performed on the LM Guide. See chapter 9.1.

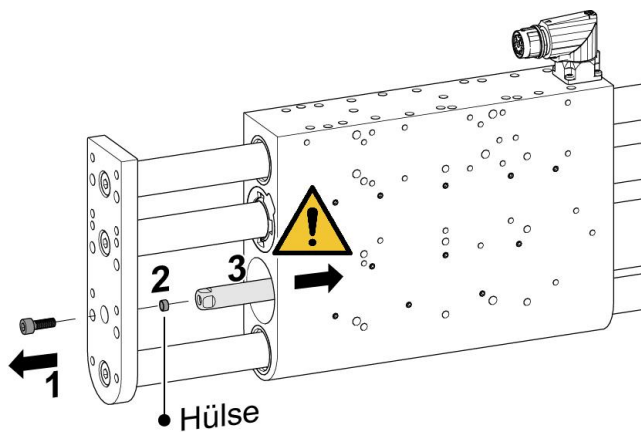
Ordering information

Item	Description	Item-No.
Linear Ball Bearing LBBR 10-LS-LGFP	Linear Ball Bearing for DM01-23 Food Grade	0230-0691
Linear Ball Bearing LBBR 20-LS-LGFP	Linear Ball Bearing for DM01-37 Food Grade	0230-0692
Linear Ball Bearing LBBR 25-LS-LGFP	Linear Ball Bearing for DM01-48 Food Grade	0230-0693

6.1.1 Installation



Always observe the safety instructions in chapter 2 during installation!



1. Release MagSpring slider

Loosen the screw of the MagSpring slider on the front mounting plate.

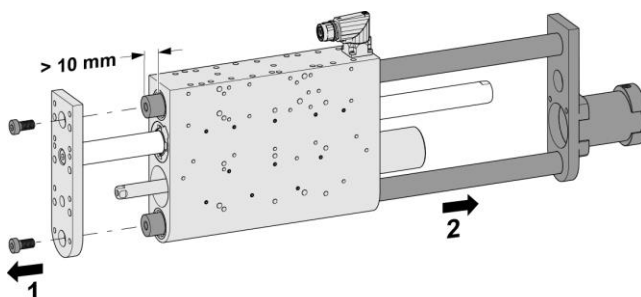


The MagSpring slider is locked against rotation. During disassembly, this anti-rotation device is released and this can result in sudden, uncontrolled movement of the slider. There is a considerable risk of injury!

All maintenance work and repairs should be carried out by NTI AG / LinMot. If maintenance and repairs are carried out by the user, the warranty is immediately void (see chapter 1.5).



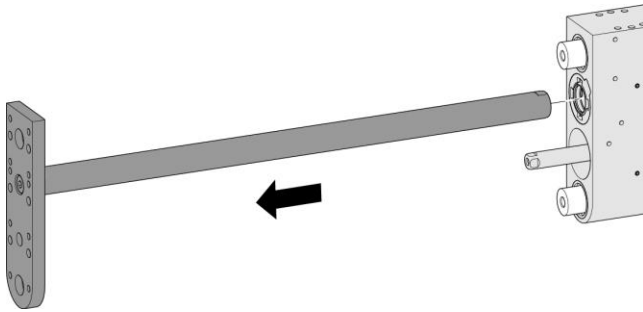
In order to avoid statically overdetermined bearing of the MagSpring slider, it is movably attached to the mounting plate. This is ensured by the built-in sleeve. Pay attention to this during disassembly and assembly!



2. Release guide shafts

Loosen the screws of the guide shafts on the front mounting plate.

Then push the guide shafts into the guide block, but do not pull them out completely.

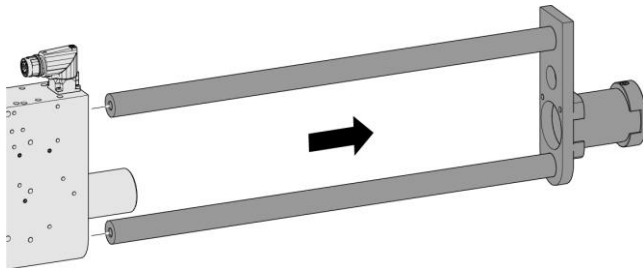


3. Remove the slider

Now the slider can be removed together with the front mounting plate.

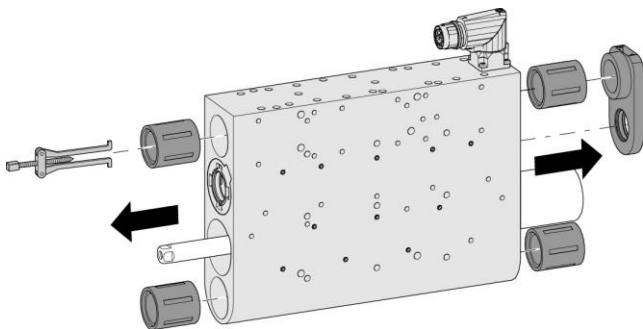


When handling with sliders, there are sometimes large magnetic forces of attraction. Observe the warnings in section 2! If necessary, cover nearby iron structures with non-magnetic material (e.g. wood).



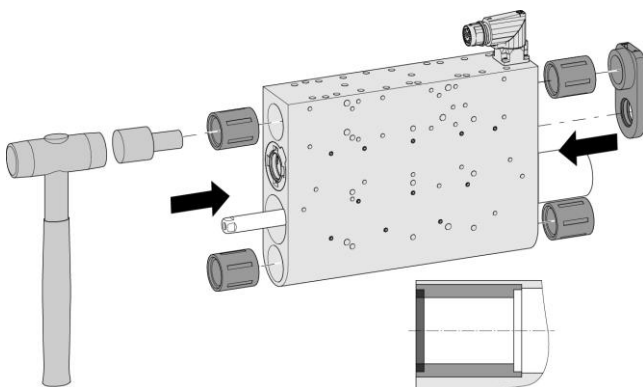
4. Remove guide shafts

The guide shafts are pulled out together with the rear mounting plate.



5. Disassemble old linear ball bearing

Pull the old bearings with the help of a universal puller such as Kukko 27-A.

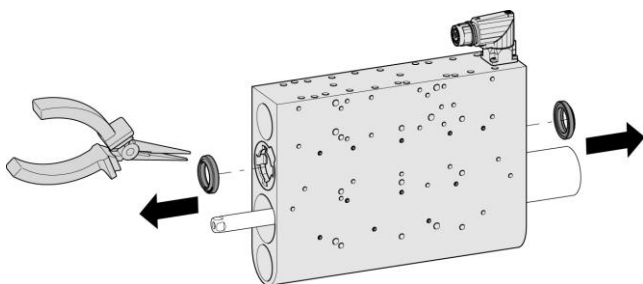


6. Insert new linear ball bearings

The new bearings are inserted using a hand press or a press pin.

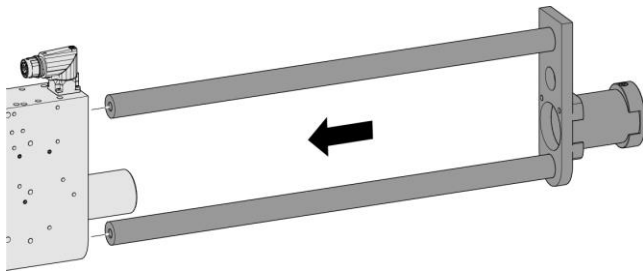


Ensure that the linear ball bearings are pointing away from the housing with the sealing ring after mounting. The bearings are already initially lubricated.

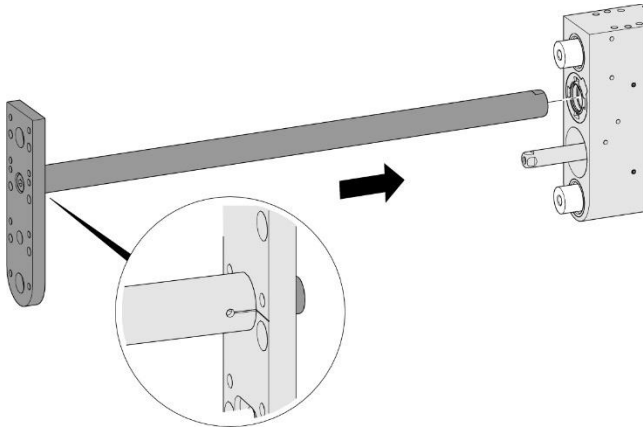


7. Replace wiper (optional)

Remove the old wipers using pointed pliers and insert the new ones manually at both ends of the stator.

**8. Insert guide shafts**

The guide shafts are reinserted together with the rear mounting plate on the side with MagSpring stator.

**9. Insert the slider**

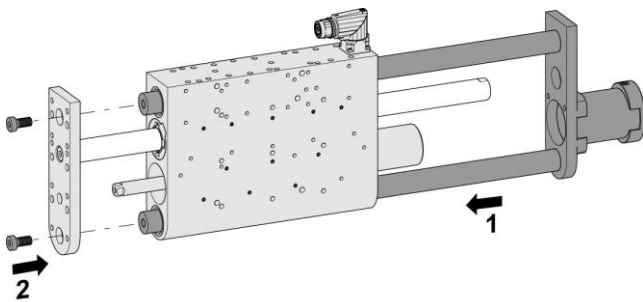
The slider is inserted together with the front mounting plate on the side that is still free.



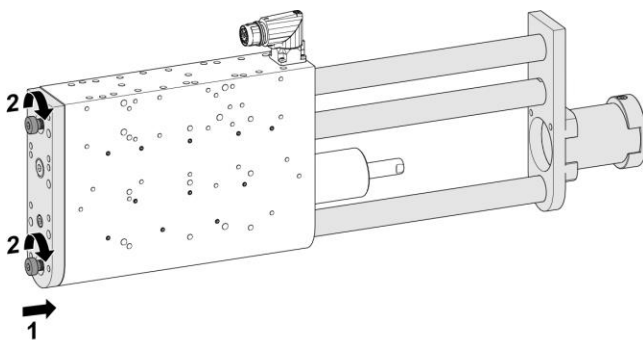
Make sure that the markings on the slider match the markings on the mounting plate!



When handling with sliders, there are sometimes large magnetic forces of attraction. Observe the warnings in section 2! If necessary, cover nearby iron constructions with non-magnetic material (e.g. wood).

**10. Fix the guide shafts**

Put Loctite 243 into the threaded hole of the guide shaft. Then lightly screw the front mounting plate to the guide shafts. If the guide shafts have not been replaced, remove the old Loctite with a thread cutter.

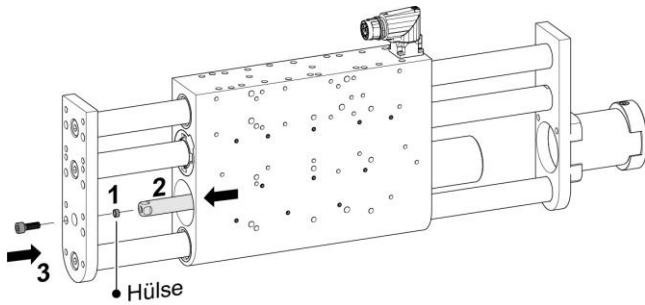
**11. Screw guide shafts tight**

Push the guide shafts to the stop of the guide block and tighten the screws.

Tightening torque for DM03-23:	5 Nm
Tightening torque for DM03-37:	21 Nm
Tightening torque for DM03-48:	21 Nm



If the guide does not move smoothly, the screws should be loosened again and the previous step repeated.



12. Screw MagSpring slider

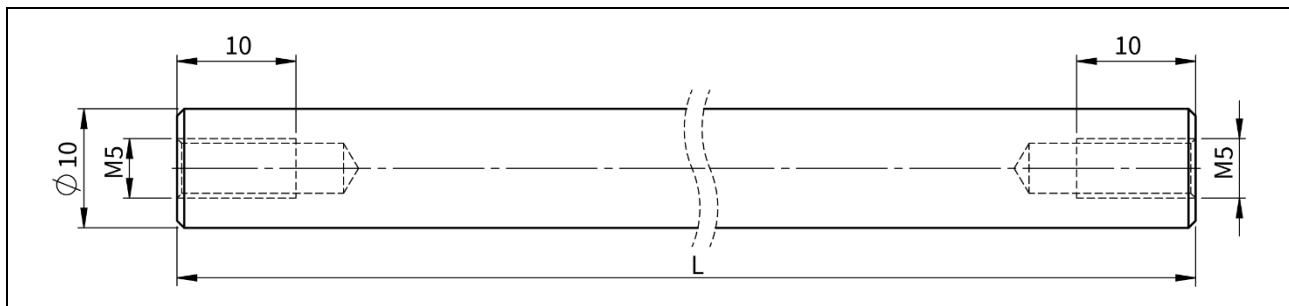
Apply Loctite 243 threadlocker to the threaded hole in the MagSpring slider. Insert the screw with the spacer sleeve into the mounting plate and press the MagSpring slider against the front of the mounting plate from behind. Meanwhile, tighten the screw firmly.

Tightening torque for DM03-23: 5 Nm
 Tightening torque for DM03-37: 8.6 Nm
 Tightening torque for DM03-48: 8.6 Nm

- ! It is essential to observe the tightening torques in order not to damage the spacer sleeve.
- The flattened surfaces of the MagSpring slider must lie in the groove of the mounting plate.

6.2 Guide Shafts

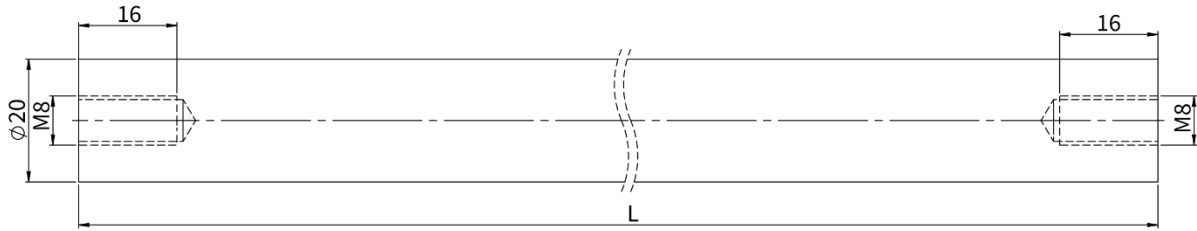
Hardened and hard chrome-plated shafts ensure precise guidance. As a rule, these do not need to be replaced. Only in case of damage should the guide shafts be replaced.



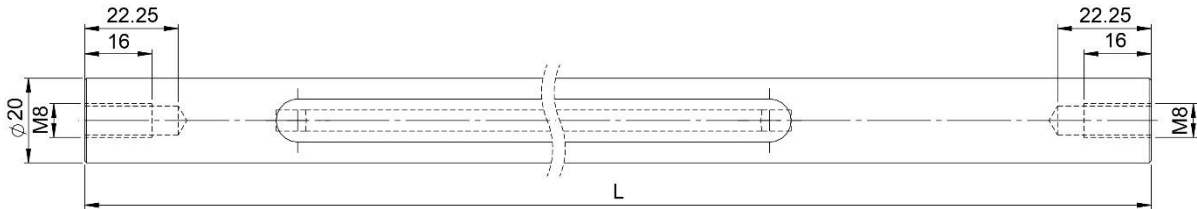
Item	Description	Item-No.
DL01-10x186	Guide shaft for DM03-23, Stroke ¹⁾ / Stroke ²⁾ = 60 / (-) mm, L= 186 mm	0150-4033
DL01-10x226	Guide shaft for DM03-23, Stroke ¹⁾ / Stroke ²⁾ = 100 / (-) mm, L= 226 mm	0150-4034
DL01-10x286	Guide shaft for DM03-23, Stroke ¹⁾ / Stroke ²⁾ = 160 / 80 mm, L= 286 mm	0150-4035
DL01-10x346	Guide shaft for DM03-23, Stroke ¹⁾ / Stroke ²⁾ = 220 / 140 mm, L= 346 mm	0150-4036
DL01-10x416	Guide shaft for DM03-23, Stroke ¹⁾ / Stroke ²⁾ = 290 / 210 mm, L= 416 mm	0150-4037
DL01-10x476	Guide shaft for DM03-23, Stroke ¹⁾ / Stroke ²⁾ = (-) / 270 mm, L= 476 mm	0150-4093

¹⁾ Stroke with linear module DM03-23x80

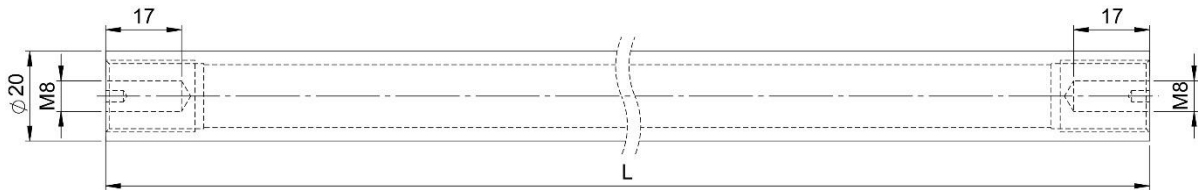
²⁾ Stroke with linear module DM03-23x160



Item	Description	Item-No.
DL01h-20-14x307-M16/M8	Guide shaft for DM03-37, Stroke 95 mm, L= 307 mm	0160-1689
DL01h-20-14x407-M16/M8	Guide shaft for DM03-37, Stroke 195 mm, L= 407 mm	0160-1690
DL01h-20-14x507-M16/M8	Guide shaft for DM03-37, Stroke 295 mm, L= 507 mm	0160-1691
DL01h-20-14x607-M16/M8	Guide shaft for DM03-37, Stroke 395 mm, L= 607 mm	0160-1692
DL01h-20-14x707-M16/M8	Guide shaft for DM03-37, Stroke 495 mm, L= 707 mm	0160-1693
DL01h-20-14x807-M16/M8	Guide shaft for DM03-37, Stroke 595 mm, L= 807 mm	0160-4030
DL01h-20-14x907-M16/M8	Guide shaft for DM03-37, Stroke 695 mm, L= 907 mm	0160-4031



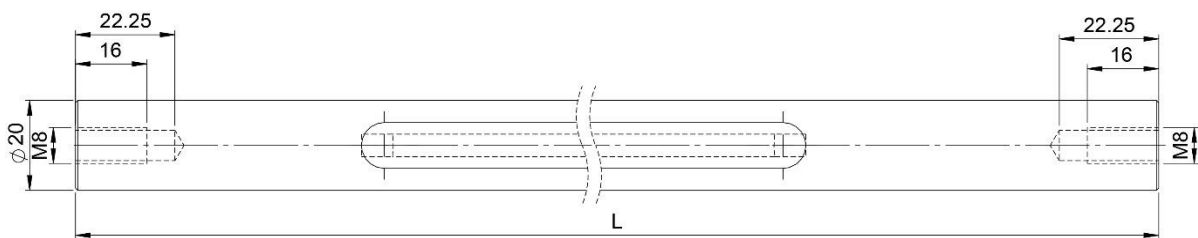
Item	Description	Item-No.
DL01-20x307-SSC_EN02	Guide shaft for DM03-37, Stroke 95 mm, L= 307 mm	0150-5697
DL01-20x407-SSC_EN02	Guide shaft for DM03-37, Stroke 195 mm, L= 407 mm	0150-5693
DL01-20x507-SSC_EN02	Guide shaft for DM03-37, Stroke 295 mm, L= 507 mm	0150-5698
DL01-20x607-SSC_EN02	Guide shaft for DM03-37, Stroke 395 mm, L= 607 mm	0150-5699
DL01-20x707-SSC_EN02	Guide shaft for DM03-37, Stroke 495 mm, L= 707 mm	0150-5702
DL01-20x807-SSC_EN02	Guide shaft for DM03-37, Stroke 595 mm, L= 807 mm	0150-6101
DL01-20x907-SSC_EN02	Guide shaft for DM03-37, Stroke 695 mm, L= 907 mm	0150-6102



Item	Description	Item-No.
DL01h-20x14x282-M16	Guide shaft for DM03-48, Stroke ¹⁾ / Stroke ²⁾ = 65 / (-) mm, L= 282 mm	0160-4093
DL01h-20x14x342-M16	Guide shaft for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =125 / (-) mm, L= 342 mm	0160-4096
DL01h-20x14x402-M16	Guide shaft for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =185 / 95 mm, L= 402 mm	0160-4097
DL01h-20x14x492-M16	Guide shaft for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =275 / 185 mm, L= 492 mm	0160-4098
DL01h-20x14x612-M16	Guide shaft for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =(-) / 285 mm, L= 612 mm	0160-4099
DL01h-20x14x702-M16	Guide shaft for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =(-) / 395 mm, L= 702 mm	0160-4100

¹⁾ Stroke with linear module DM03-48x150

²⁾ Stroke with linear module DM03-48x240



Item	Description	Item-No.
DL03-20x282-SSC_EN02	Guide shaft for DM03-48, Stroke ¹⁾ / Stroke ²⁾ = 65 / (-) mm, L= 282 mm	0150-5860
DL03-20x342-SSC_EN02	Guide shaft for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =125 / (-) mm, L= 342 mm	0150-5861
DL03-20x402-SSC_EN02	Guide shaft for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =185 / 95 mm, L= 402 mm	0150-5862
DL03-20x492-SSC_EN02	Guide shaft for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =275 / 185 mm, L= 492 mm	0150-5863
DL03-20x612-SSC_EN02	Guide shaft for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =(-) / 285 mm, L= 612 mm	0150-5864
DL03-20x702-SSC_EN02	Guide shaft for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =(-) / 395 mm, L= 702 mm	0150-5865

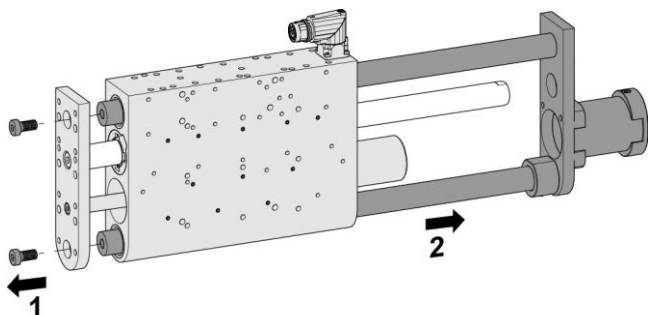
¹⁾ Stroke with linear module DM03-48x150

²⁾ Stroke with linear module DM03-48x240

6.2.1 Installation



Always observe the safety instructions in chapter 2 during installation!

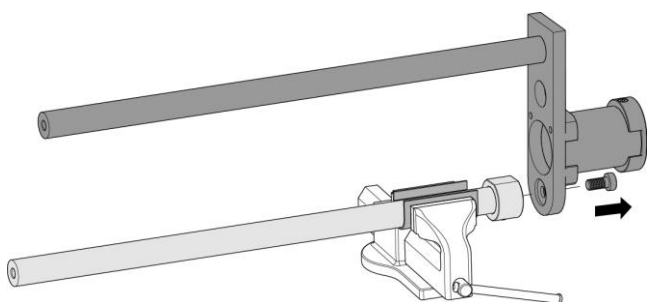


1. Remove guide shafts

Loosen the screws of the guide shafts on the front mounting plate. Then pull out the guide shafts together with the rear mounting plate.

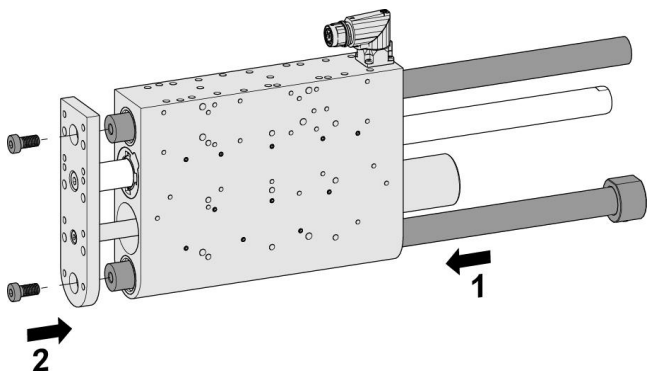


The front mounting plate is not pulled out.



2. Remove rear mounting plate from guide shafts

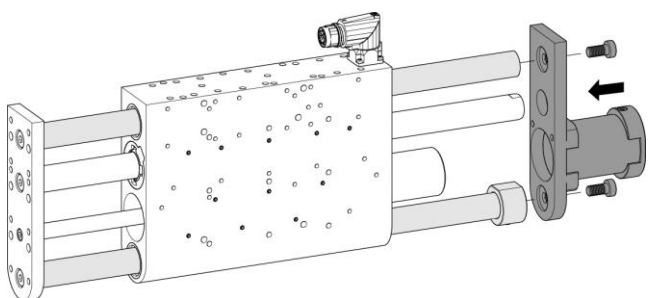
Clamp the guide unit and completely loosen the screws of the guide shafts on the rear mounting plate. Then remove the adjusting ring from the guide shaft.



3. Screw new guide shafts firmly to the front mounting plate

Apply Loctite 243 threadlocker to the threaded hole in the guide shafts. Then screw the front mounting plate firmly to the guide shafts. Slide the adjusting ring onto the other side of the guide shaft and tighten lightly.

Tightening torque for DM03-23: 5 Nm
Tightening torque for DM03-37: 21 Nm
Tightening torque for DM03-48: 21 Nm



4. Screw new guide shafts firmly to the rear mounting plate.

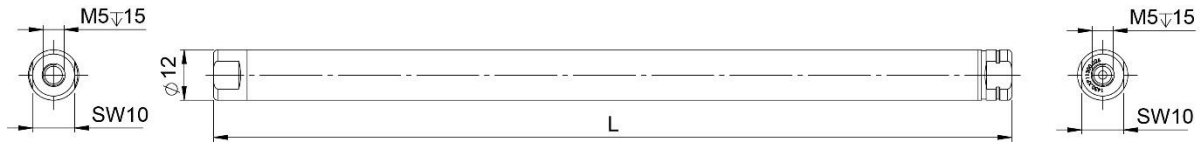
Apply Loctite 243 threadlocker to the threaded hole in the guide shafts. Then screw the rear mounting plate firmly to the guide shafts.

Tightening torque for DM03-23: 5 Nm
Tightening torque for DM03-37: 21 Nm
Tightening torque for DM03-48: 21 Nm

Finally, apply Loctite 243 to the threaded hole in the adjusting ring and push the adjusting ring to the end of the rear mounting plate. Finally, tighten the screw.

6.3 Slider

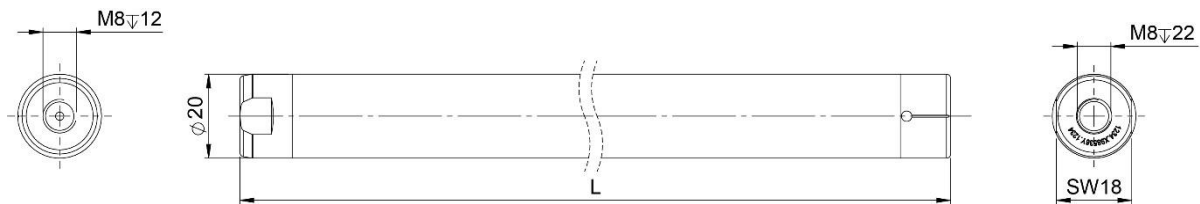
Together with the stator, the slider, which is a stainless steel tube, provides the dynamic movement of the linear module. Sliders do not normally need to be replaced. They should only be replaced if they are damaged.



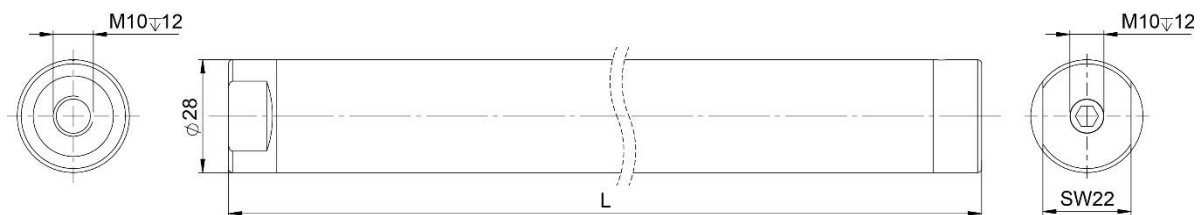
Item	Description	Item-No.
PL01-12x190/150-HP	Slider for DM03-23, Stroke ¹⁾ / Stroke ²⁾ = 60 / (-) mm, L= 190 mm	0150-4044
PL01-12x230/190-HP	Slider for DM03-23, Stroke ¹⁾ / Stroke ²⁾ =100 / (-) mm, L= 230 mm	0150-1519
PL01-12x290/250-HP	Slider for DM03-23, Stroke ¹⁾ / Stroke ²⁾ =160 / 80 mm, L= 290 mm	0150-1521
PL01-12x350/310-HP	Slider for DM03-23, Stroke ¹⁾ / Stroke ²⁾ =220 / 140 mm, L= 350 mm	0150-2304
PL01-12x420/380-HP	Slider for DM03-23, Stroke ¹⁾ / Stroke ²⁾ =290 / 210 mm, L= 420 mm	0150-1523
PL01-12x480/440-HP	Slider for DM03-23, Stroke ¹⁾ / Stroke ²⁾ =(-) / 270 mm, L= 480 mm	0150-1524

1) Stroke with linear module DM03-23x80

2) Stroke with linear module DM03-23x160



Item	Description	Item-No.
PL01-20x310/260-HP-SF	Slider for DM03-37, Stroke 95 mm, L= 310 mm	0150-3903
PL01-20x410/360-HP-SF	Slider for DM03-37, Stroke 185 mm, L= 410 mm	0150-3904
PL01-20x410/360-HP-SF	Slider for DM03-37, Stroke 195 mm, L= 410 mm	0150-3904
PL01-20x510/460-HP-SF	Slider for DM03-37, Stroke 275 mm, L= 510 mm	0150-3905
PL01-20x510/460-HP-SF	Slider for DM03-37, Stroke 295 mm, L= 510 mm	0150-3905
PL01-20x610/560-HP-SF	Slider for DM03-37, Stroke 395 mm, L= 610 mm	0150-3906
PL01-20x710/660-HP-SF	Slider for DM03-37, Stroke 495 mm, L= 710 mm	0150-3997
PL01-20x810/760-HP-SF	Slider for DM03-37, Stroke 595 mm, L= 810 mm	0150-5704
PL01-20x910/860-HP-SF	Slider for DM03-37, Stroke 695 mm, L= 910 mm	0150-5710



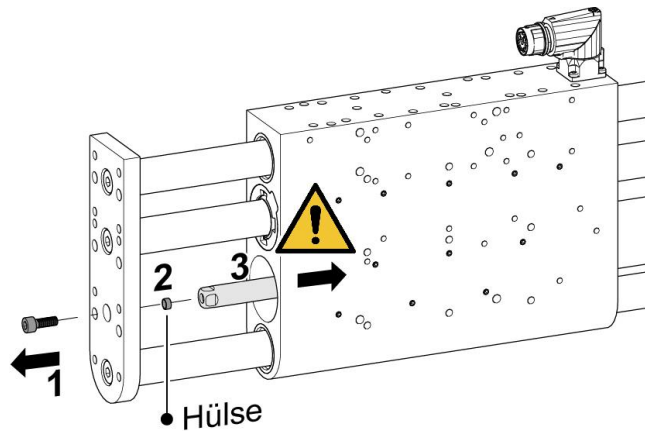
Item	Description	Item-No.
PL01-28x290/240-HP-SF	Slider for DM03-48, Stroke ¹⁾ / Stroke ²⁾ = 65 / (-) mm, L= 290 mm	0150-4077
PL01-28x350/300-HP-SF	Slider for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =125 / (-) mm, L= 350 mm	0150-4078
PL01-28x410/360-HP-SF	Slider for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =185 / 95 mm, L= 410 mm	0150-4079
PL01-28x500/450-HP-SF	Slider DM03-48, Stroke ¹⁾ / Stroke ²⁾ =275 / 185 mm, L= 500 mm	0150-4080
PL01-28x620/570-HP-SF	Slider for DM03-48, Stroke ¹⁾ / Stroke ²⁾ =(-) / 285 mm, L= 620 mm	0150-4081

1) Stroke with linear module DM03-48x150; 2) Stroke with linear module DM03-48x240

6.3.1 Installation



Always observe the safety instructions in chapter 2 during installation!



1. Release MagSpring slider

Loosen the screw of the MagSpring slider on the front mounting plate.

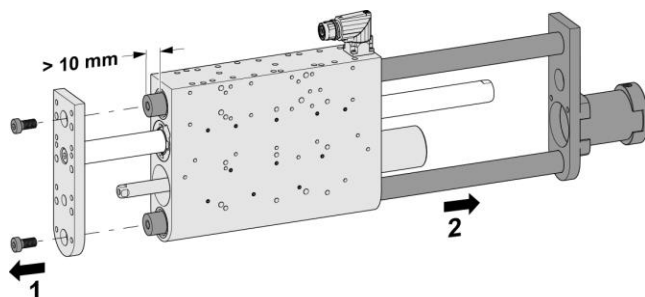


The MagSpring slider is locked against rotation. During disassembly, this anti-rotation device is released and this can result in sudden, uncontrolled movement of the slider. There is a considerable risk of injury!

All maintenance work and repairs should be carried out by NTI AG / LinMot. If maintenance and repairs are carried out by the user, the warranty is immediately void (see chapter 1.5).

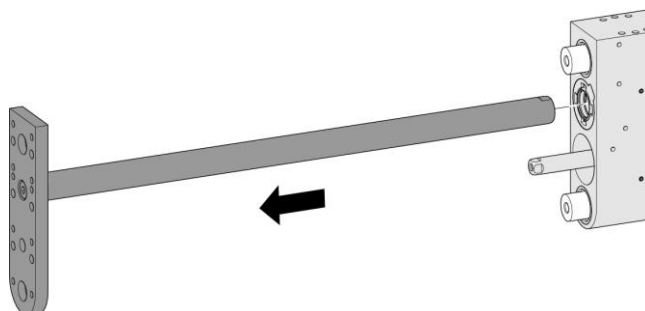


In order to avoid statically overdetermined bearing of the MagSpring slider, it is movably attached to the mounting plate. This is ensured by the built-in sleeve. Pay attention to this during disassembly and assembly!



2. Release guide shafts

Loosen the screws of the guide shafts on the front mounting plate. Then push the guide shafts into the guide block, but do not pull them out completely.

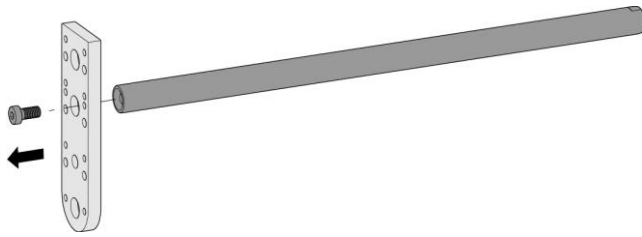


3. Remove the slider

Now the slider can be removed together with the front mounting plate.



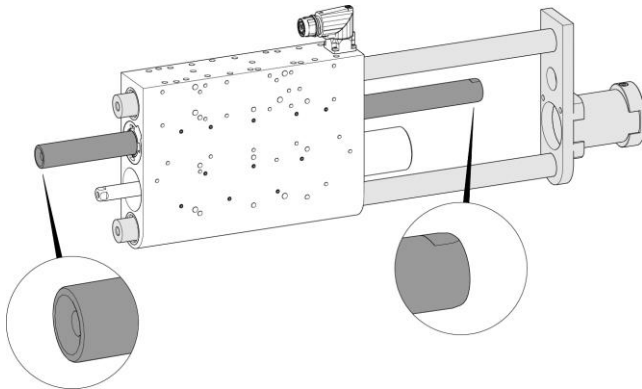
When handling with sliders, there are sometimes large magnetic forces of attraction. Observe the warnings in section 2! If necessary, cover nearby iron structures with non-magnetic material (e.g. wood).



- 4. Release mounting plate**
Loosen the screw of the slider from the mounting plate and remove the slider.



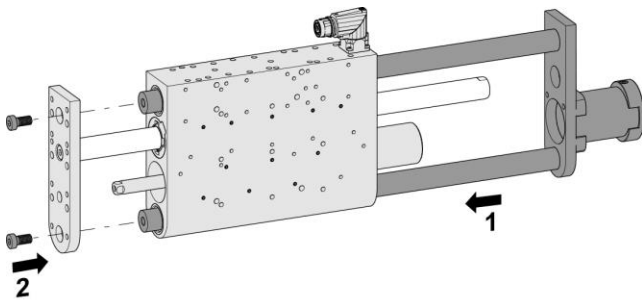
When handling with sliders, there are sometimes large magnetic forces of attraction. Observe the warnings in section 2! If necessary, cover nearby iron structures with non-magnetic material (e.g. wood).



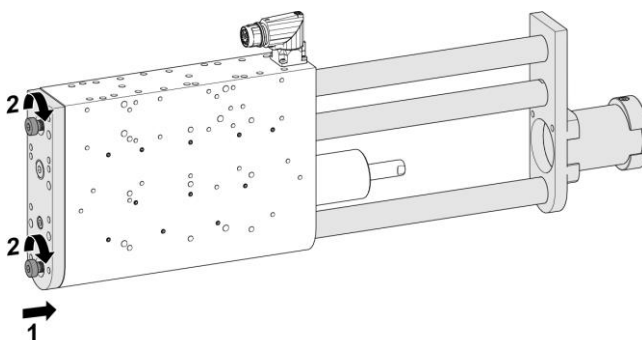
- 5. Insert new slider**
Insert the new slider into the stator of the linear module and insert it into the rear mounting plate. The installation direction is: the round side of the slider is on the front mounting plate and the side with the flat surfaces is on the rear mounting plate.



When handling with sliders, there are sometimes large magnetic forces of attraction. Observe the warnings in section 2! If necessary, cover nearby iron structures with non-magnetic material (e.g. wood).



- 6. Fix the guide shafts**
Put Loctite 243 into the threaded hole of the guide shaft. Then lightly screw the front mounting plate to the guide shafts.

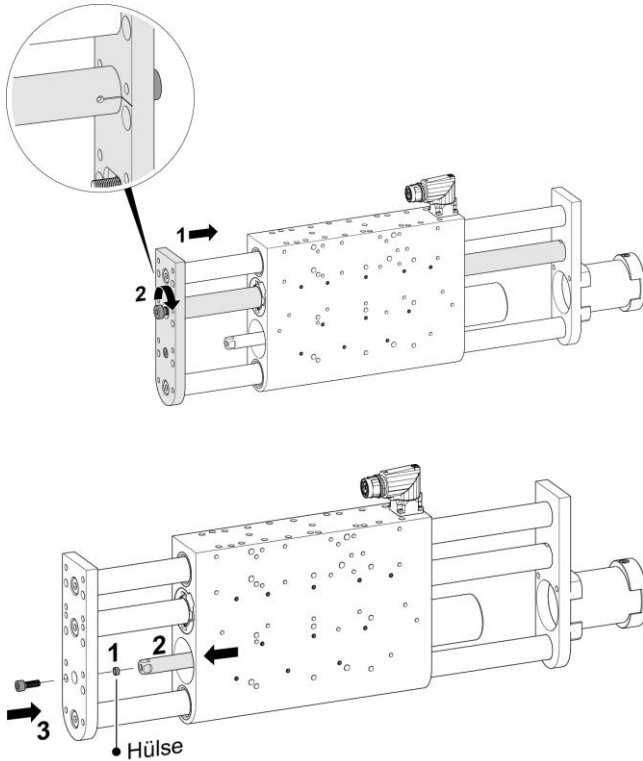


- 7. Screw guide shafts tight**
Push the guide shafts to the stop of the guide block and tighten the screws.

Tightening torque for DM03-23:	5 Nm
Tightening torque for DM03-37:	21 Nm
Tightening torque for DM03-48:	21 Nm



If the guide does not move smoothly, the screws should be loosened again and the previous step repeated.



8. Screw guide shafts tight

Put Loctite 243 into the threaded hole of the slider.

! The slider must be aligned correctly so that the mark on the slider matches the mark on the mounting plate!

Slide the mounting plate up to the stop of the guide block and tighten the screw.

- Tightening torque for DM03-23: 5 Nm
- Tightening torque for DM03-37: 21 Nm
- Tightening torque for DM03-48: 40 Nm

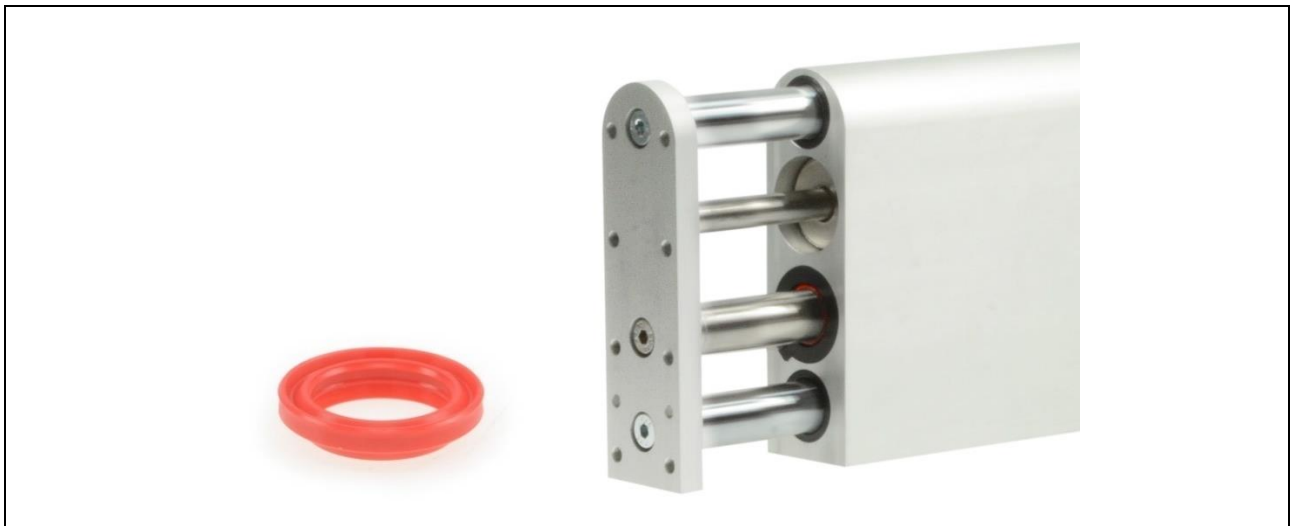
9. Screw MagSpring slider

Apply Loctite 243 threadlocker to the threaded hole in the MagSpring slider. Insert the screw with the spacer sleeve into the mounting plate and press the MagSpring slider against the front of the mounting plate from behind. Meanwhile, tighten the screw firmly.

- Tightening torque for DM03-23: 5 Nm
- Tightening torque for DM03-37: 8.6 Nm
- Tightening torque for DM03-48: 8.6 Nm

! The flattened surfaces of the MagSpring slider must lie in the groove of the mounting plate.

6.4 Wiper



The DM03 linear guides are equipped with wipers for the sliders. The inside of the stator is kept free of external foreign particles or contamination by means of the wiper rings.

Ordering information

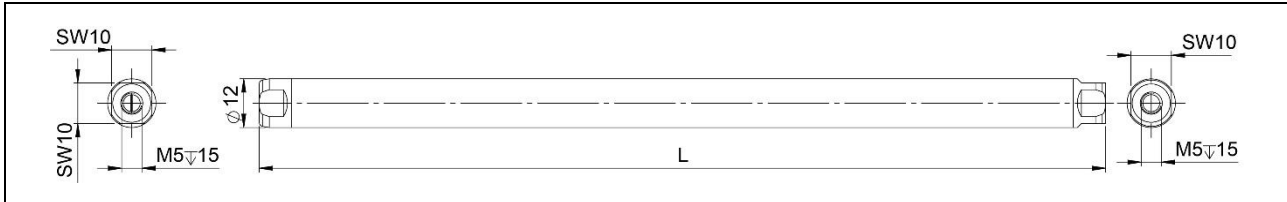
Item	Description	Item-No.
PAW01-12-LF	Wiper for DM03-23	0150-4086
PAW01-20-LF	Wiper for DM03-37	0150-4038
PAW01-28-LF	Wiper for DM03-48	0160-1885

6.4.1 Assembly

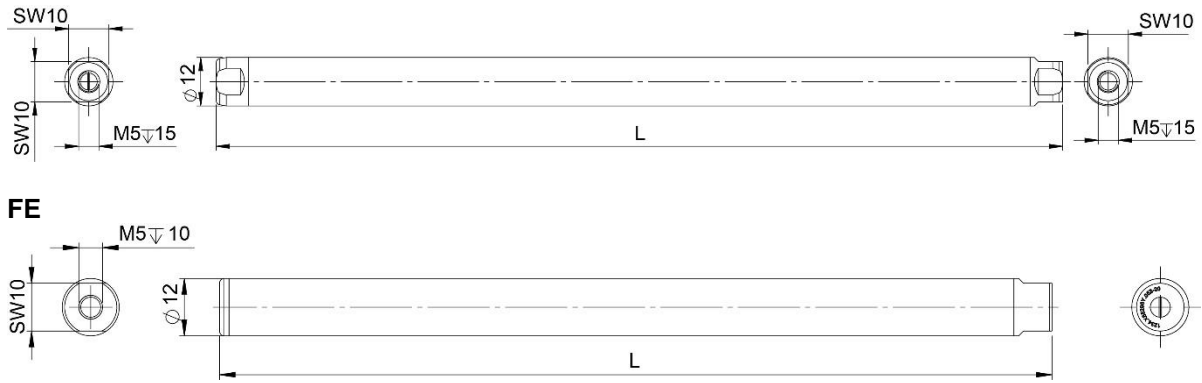
Follow the assembly steps 1 to 4 and 7 to 14 from chapter 6.1.1.

6.5 MagSpring slider

The MagSpring slider, a stainless steel tube, together with the MagSpring stator, provides passive weight compensation for the linear module. The drive is only used for actual positioning or dynamic force application and can be relieved accordingly. Sliders do not normally need to be replaced. They should only be replaced if they are damaged.



Item	Description	Item-No.
ML01-12x130/80-10 / 15 / 20	MS slider DM03-23x80, Stroke=60 mm	0250-2300 / 2308 / 2301
ML01-12x210/160-10 / 15 / 20	MS slider DM03-23x80, Stroke=100 mm	0250-2302 / 2309 / 2303
ML01-12x290/240-10 / 15 / 20	MS slider DM03-23x80, Stroke=160 mm	0250-2304 / 2310 / 2305
ML01-12x290/240-10 / 15 / 20	MS slider DM03-23x80, Stroke=220 mm	0250-2304 / 2310 / 2305
ML01-12x370/320-10 / 15 / 20	MS slider DM03-23x80, Stroke=290 mm	0250-2311 / 2312 / 2313
ML01-12x150/100-10 / 15 / 20	MS slider DM03-23x160, Stroke=80 mm	0250-1058 / 1059 / 1060
ML01-12x210/160-10 / 15 / 20	MS slider DM03-23x160, Stroke=140 mm	0250-2302 / 2309 / 2303
ML01-12x290/240-10 / 15 / 20	MS slider DM03-23x160, Stroke=210 mm	0250-2304 / 2310 / 2305
ML01-12x370/320-10 / 15 / 20	MS slider DM03-23x160, Stroke=270 mm	0250-2311 / 2312 / 2313



Item	Description	Item-No.
ML01-12x210/160-10 / 15 / 20	MS slider DM03-37, Stroke=95 mm	0250-2302 / 2309 / 2303
ML01-12x275/130_20_130-10 / 15 / 20_FE	MS slider DM03-37, Stroke=95 mm	0250-1054 / 1055 / 1037
ML01-12x415/200-20_200-10 / 15 / 20_FE	MS slider DM03-37, Stroke=185 mm	0250-1048 / 1047 / 1036
ML01-12x290/240-10 / 15 / 20	MS slider DM03-37, Stroke=195 mm	0250-2304 / 2310 / 2305
ML01-12x615/300-20_300-10 / 15 / 20_FE	MS slider DM03-37, Stroke=275 mm	0250-1053 / 1052 / 1038
ML01-12x370/320-10 / 15 / 20	MS slider DM03-37, Stroke=295 mm	0250-2311 / 2312 / 2313
ML01-12x675/200-15_225_230-20-SE	MS slider DM03-37, Stroke=395 mm	0250-1028
ML01-12x795/260-15_255_260-20_SE	MS slider DM03-37, Stroke=495 mm	0250-1029
ML01-12x940/310-15_300_310-20_SE	MS slider DM03-37, Stroke=595 mm	0250-1030
ML01-12x1135/370-15_375_370-20_SE	MS slider DM03-37, Stroke=695 mm	0250-1031

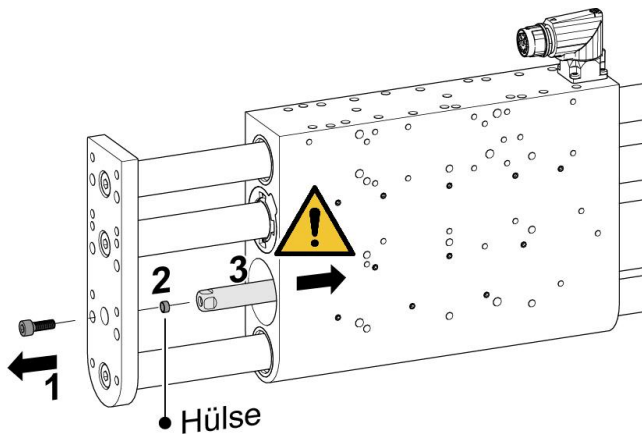
Item	Description	Item-No.
ML01-12x130/80-10 / 15 / 20	MS slider DM03-48x150, Stroke=65 mm	0250-2300 / 2308 / 2301
ML01-12x175/80-20_80-10 / 15 / 20_FE	MS slider DM03-48x150, Stroke=65 mm	0250-1051 / 1050 / 1035
ML01-12x210/160-10 / 15 / 20	MS slider DM03-48x150, Stroke=125 mm	0250-2302 / 2309 / 2303
ML01-12x335/160-20_160-10 / 15 / 20_FE	MS slider DM03-48x150, Stroke=125 mm	0250-1049 / 1046 / 1027
ML01-12x290/240-10 / 15 / 20	MS slider DM03-48x150, Stroke=185 mm	0250-2304 / 2310 / 2305
ML01-12x415/200-20_200-10 / 15 / 20_FE	MS slider DM03-48x150, Stroke=185 mm	0250-1048 / 1047 / 1036
ML01-12x370/320-10 / 15 / 20	MS slider DM03-48x150, Stroke=275 mm	0250-2311 / 2312 / 2313
ML01-12x615/300-20_300-10 / 15 / 20_FE	MS slider DM03-48x150, Stroke=275 mm	0250-1053 / 1052 / 1038

Item	Description	Item-No.
ML01-12x210/160-10 / 15 / 20	MS slider DM03-48x240, Stroke=95 mm	0250-2302 / 2309 / 2303
ML01-12x275/130-20_130-10 / 15 / 20_FE	MS slider DM03-48x240, Stroke=95 mm	0250-1054 / 1055 / 1037
ML01-12x290/240-10 / 15 / 20	MS slider DM03-48x240, Stroke=185 mm	0250-2304 / 2310 / 2305
ML01-12x415/200-20_200-10 / 15 / 20_FE	MS slider DM03-48x240, Stroke=185 mm	0250-1048 / 1047 / 1036
ML01-12x370/320-10 / 15 / 20	MS slider DM03-48x240, Stroke=285 mm	0250-2311 / 2312 / 2313
ML01-12x615/300-20_300-10 / 15 / 20_FE	MS slider DM03-48x240, Stroke=285 mm	0250-1053 / 1052 / 1038

6.5.1 Assembly



Always observe the safety instructions in chapter 2 during installation!



1. Release MagSpring slider

Loosen the screw of the MagSpring slider on the front mounting plate.

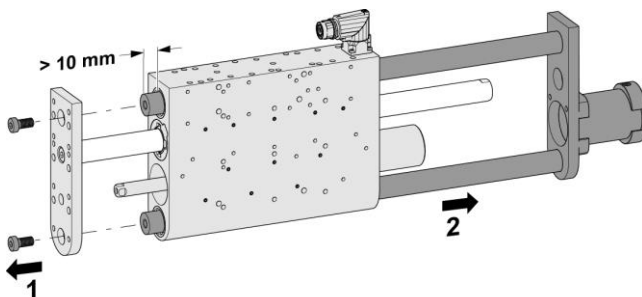


The MagSpring slider is locked against rotation. During disassembly, this anti-rotation device is released and this can result in sudden, uncontrolled movement of the slider. There is a considerable risk of injury!

All maintenance work and repairs should be carried out by NTI AG / LinMot. If maintenance and repairs are carried out by the user, the warranty is immediately void (see chapter 1.5).

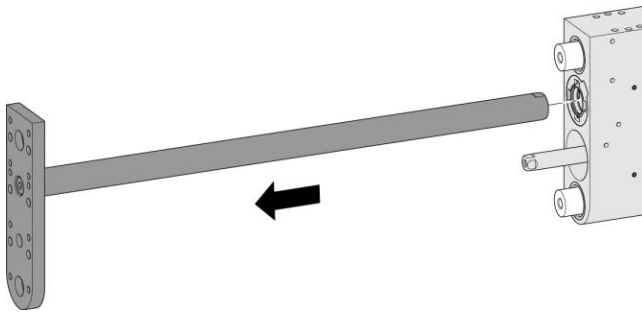


In order to avoid statically overdetermined bearing of the MagSpring slider, it is movably attached to the mounting plate. This is ensured by the built-in sleeve. Pay attention to this during disassembly and assembly!



2. Release guide shafts

Loosen the screws of the guide shafts on the front mounting plate. Then push the guide shafts into the guide block, but do not pull them out completely.

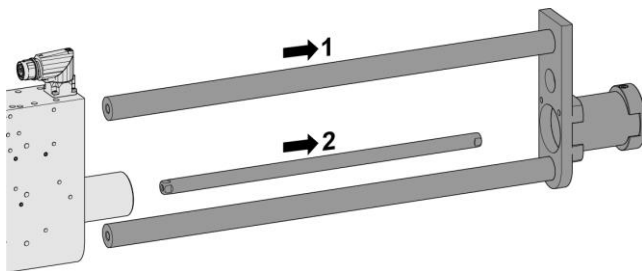


3. Remove the slider

Now the slider can be removed together with the front mounting plate.



When handling with sliders, there are sometimes large magnetic forces of attraction. Observe the warnings in section 2! If necessary, cover nearby iron structures with non-magnetic material (e.g. wood).

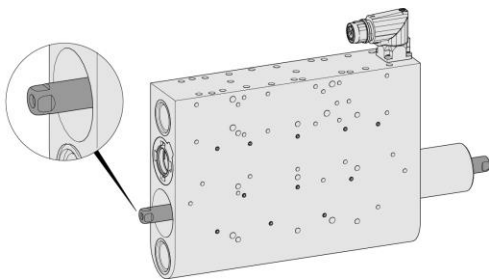


4. Remove guide shafts + MagSpring slider

The guide shafts and the MagSpring slider are pulled out one after the other.



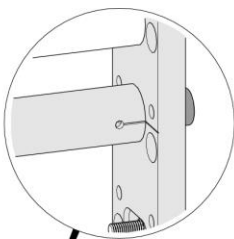
Then mark which side is front and rear so that the mounting plates can be reinstalled correctly.



5. Insert new MagSpring slider



The slider side with the flattened surfaces must point towards the front mounting plate.

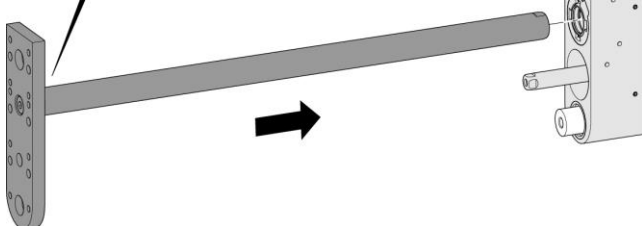


6. Insert the slider

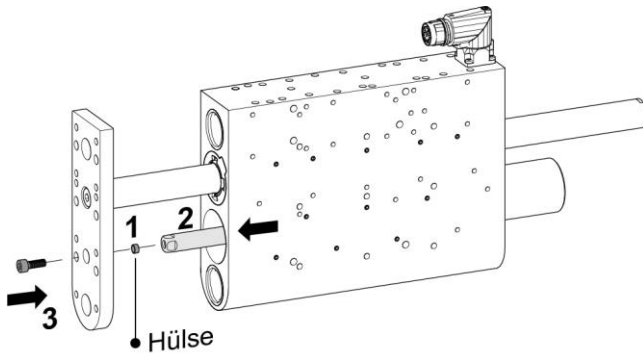
The slider is inserted with the front mounting plate on the front side.



Make sure that the markings on the slider match the markings on the mounting plate!



When handling with sliders, there are sometimes large magnetic forces of attraction. Observe the warnings in section 2! If necessary, cover nearby iron constructions with non-magnetic material (e.g. wood).



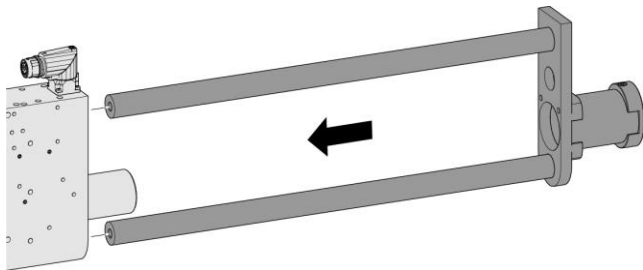
7. Screw MagSpring slider

Apply Loctite 243 threadlocker to the threaded hole in the MagSpring slider. Insert the screw with the spacer sleeve into the mounting plate and press the MagSpring slider against the front of the mounting plate from behind. Meanwhile, tighten the screw firmly.

Tightening torque for DM03-23: 5 Nm
 Tightening torque for DM03-37: 8.6 Nm
 Tightening torque for DM03-48: 8.6 Nm

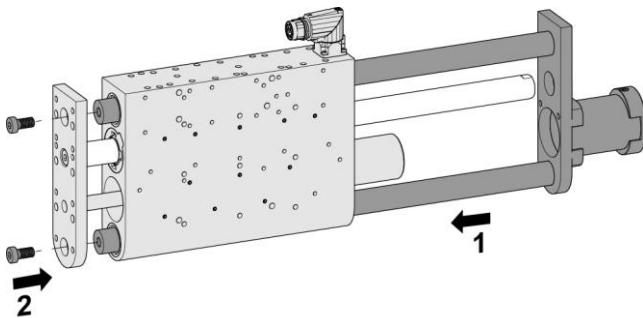


The flattened surfaces of the MagSpring slider must lie in the groove of the mounting plate.



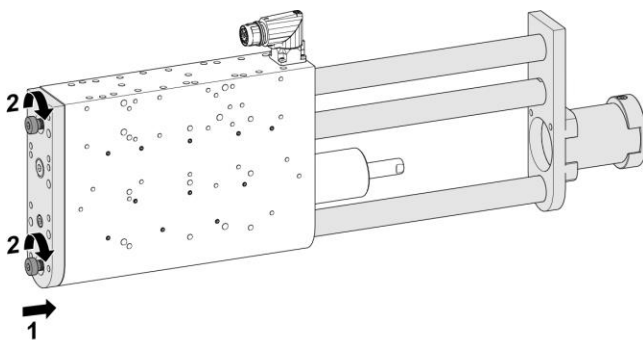
8. Insert guide shafts

The guide shafts are reinserted together with the rear mounting plate on the side with MagSpring stator.



9. Fix the guide shafts

Put Loctite 243 into the threaded hole of the guide shaft. Then lightly screw the front mounting plate to the guide shafts.



10. Screw guide shafts tight

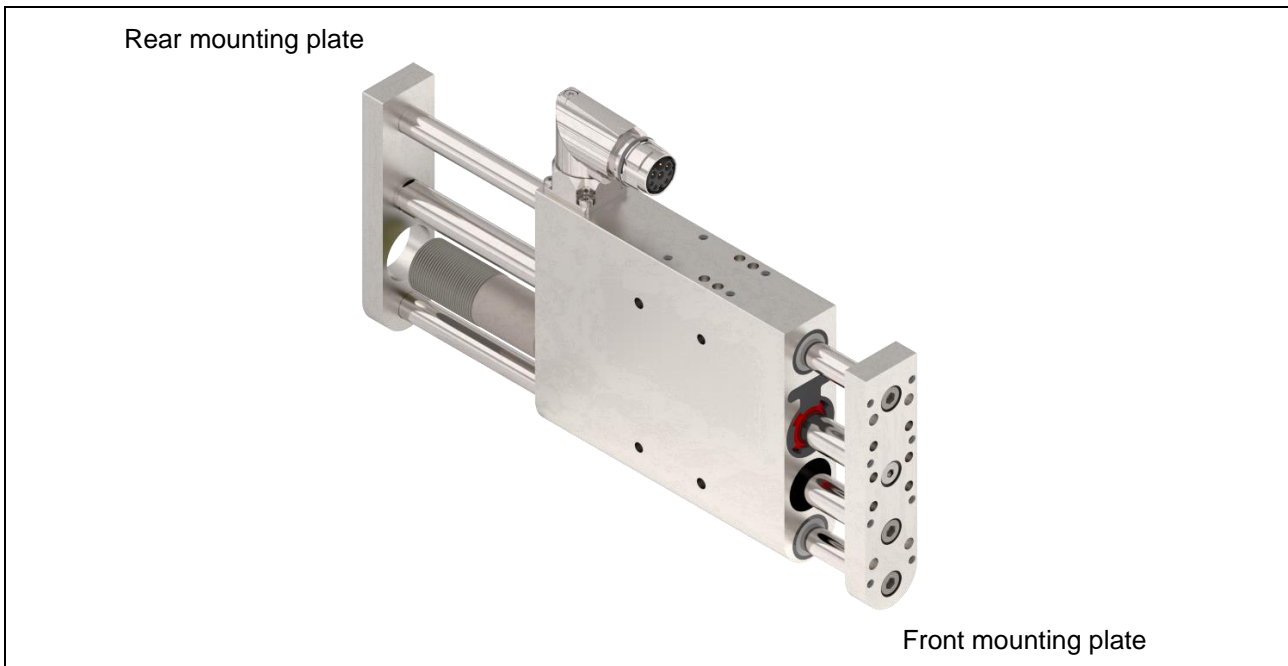
Push the guide shafts to the stop of the guide block and tighten the screws.

Tightening torque for DM03-23: 5 Nm
 Tightening torque for DM03-37: 21 Nm
 Tightening torque for DM03-48: 21 Nm



If the guide does not move smoothly, the screws should be loosened again and the previous step repeated.

6.6 Mounting Plates

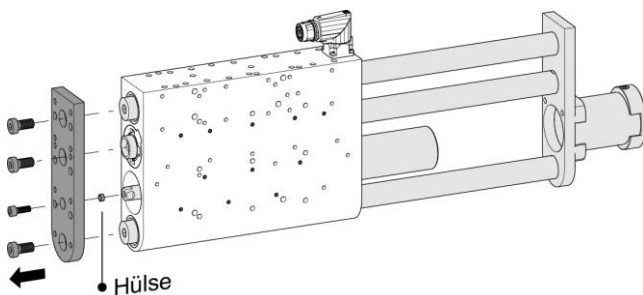


The front and rear mounting plates can be reordered in case of damage. LinMot offers the appropriate article for each DM03 linear module. The dimensions can be taken from chapter 11.

Ordering information

Item	Description	Item-No.
DM03k-23-MSV	Front mounting plate, MagSpring	0160-4230
DM03k-23-H	Rear mounting plate	0160-4231
DM03k-37-MSV	Front mounting plate with MagSpring	0160-4090
DM03k-37-H-V2	Rear mounting plate DM03-37, without MagSpring	0160-4543
DM03k-48-V	Front mounting plate DM03k-48	0160-4109
DM03k-48-H-V2	Rear mounting plate DM03-48, without MagSpring	0160-4379

6.6.1 Mounting the front mounting plate

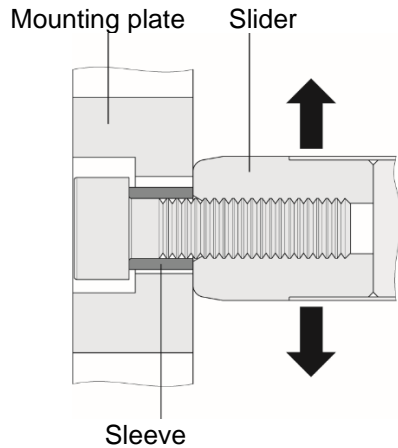


1. Remove the front mounting plate

Loosen the screws of the guide shafts, the slider and finally the MagSpring slider.



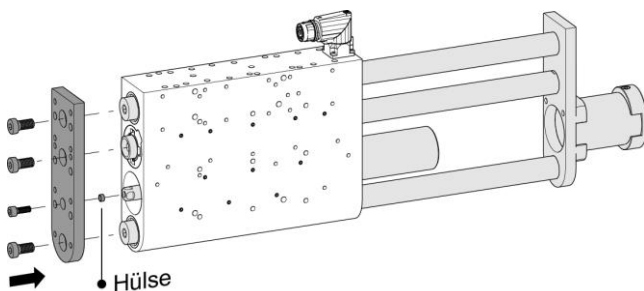
- After loosening the screw, the slider jumps abruptly into the interior of the linear module.
- When handling with sliders, large magnetic forces of attraction may be present. Observe the warnings in chapter 2!



- Note the sleeve of the MagSpring slider**
In order to avoid statically overdetermined bearing of the MagSpring slider, it is movably attached to the mounting plate. This is ensured by the built-in sleeve.



Make sure to reinstall the sleeve every time you assemble the unit!



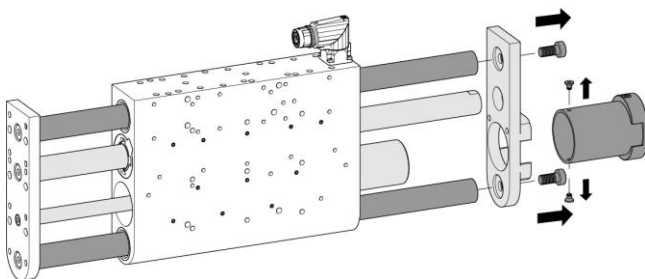
- Mount the front mounting plate**
Apply Loctite 243 threadlocker to the threaded holes of the guide shafts, the slider and the MagSpring slider. Screw the new front mounting plate tight.



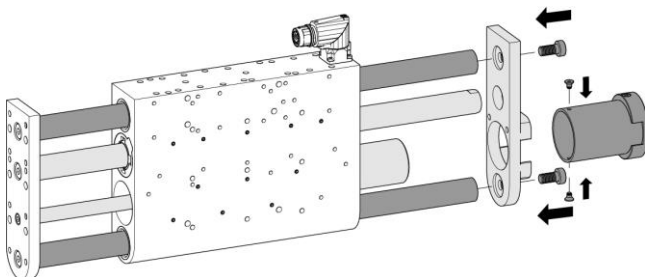
When screwing the slider in place, make sure that the markings on the slider match the markings on the mounting plate!

Tightening torque for DM03-23:	5 Nm
Tightening torque for DM03-37:	21 Nm
Tightening torque for DM03-48:	
- Guide shafts:	21 Nm
- Slider:	40 Nm

6.6.2 Mounting the rear mounting plate



- Remove the rear mounting plate**
Loosen the guide shaft screws and remove the plate. Also remove the protective tube and, if not damaged, refit it in the new plate.



- Mount the rear mounting plate**
Apply Loctite 243 threadlocker to the threaded hole in the guide shafts and the protective tube. Screw the new rear mounting plate tight and then hand-tighten the protective tube with the side screws on the mounting plate.

Tightening torque for DM03-23:	5 Nm
Tightening torque for DM03-37:	21 Nm
Tightening torque for DM03-48:	21 Nm

7 Accessories

7.1 Motor Cables for DM03-23



Standard Cable

Item	Description	Item-No.
K05-W/R-2	Motor Cable W/R, 2 m	0150-2119
K05-W/R-4	Motor Cable W/R, 4 m	0150-2120
K05-W/R-6	Motor Cable W/R, 6 m	0150-2121
K05-W/R-8	Motor Cable W/R, 8 m	0150-2122
K05-W/R-	Motor Cable K05-W/R, Custom length	0150-3262

Item	Description	Item-No.
K05-Y/R-2	Motor Cable Y/R, 2 m	0150-2421
K05-Y/R-4	Motor Cable Y/R, 4 m	0150-2422
K05-Y/R-6	Motor Cable Y/R, 6 m	0150-2423
K05-Y/R-8	Motor Cable Y/R, 8 m	0150-2424
K05-Y-Fe/R-	Motor Cable K05-Y-Fe/R, Custom length	0150-3501

Trailing Chain Cable

Item	Description	Item-No.
KS03-R/R-1.5	Trailing Chain Cable R/R, 1.5 m	0150-3566
KS03-R/R-2	Trailing Chain Cable R/R, 2 m	0150-3567
KS03-R/R-3	Trailing Chain Cable R/R, 3 m	0150-3568

Item	Description	Item-No.
KS05-W/R-4	Trailing Chain Cable W/R, 4 m	0150-2106
KS05-W/R-6	Trailing Chain Cable W/R, 6 m	0150-2131
KS05-W/R-8	Trailing Chain Cable W/R, 8 m	0150-2107
KS05-W/R-	Trailing Chain Cable KS05-W/R, Custom length	0150-3256

Item	Description	Item-No.
KS05-Y/R-4	Trailing Chain Cable Y/R, 4 m	0150-2433
KS05-Y/R-6	Trailing Chain Cable Y/R, 6 m	0150-2434
KS05-Y/R-8	Trailing Chain Cable Y/R, 8 m	0150-2435
KS05-Y-Fe/R-	Trailing Chain Cable KS05-Y-Fe/R, Custom length	0150-3507

Robot Cable

Item	Description	Item-No.
KR05-W/R-	Robot Cable KR05-W/R, Custom length	0150-3336
KR05-Y-Fe/R-	Robot Cable KR05-Y-Fe/R, Custom length	0150-3512

7.2 Motor Cables for DM03-37



Standard Cable

Item	Description	Item-No.
K05-W/R-2	Motor Cable W/R, 2 m	0150-2119
K05-W/R-4	Motor Cable W/R, 4 m	0150-2120
K05-W/R-6	Motor Cable W/R, 6 m	0150-2121
K05-W/R-8	Motor Cable W/R, 8 m	0150-2122
K05-W/R-	Motor Cable K05-W/R, Custom length	0150-3262

Item	Description	Item-No.
K05-Y/R-2	Motor Cable Y/R, 2 m	0150-2421
K05-Y/R-4	Motor Cable Y/R, 4 m	0150-2422
K05-Y/R-6	Motor Cable Y/R, 6 m	0150-2423
K05-Y/R-8	Motor Cable Y/R, 8 m	0150-2424
K05-Y-Fe/R-	Motor Cable K05-Y-Fe/R, Custom length	0150-3501

Trailing Chain Cable

Item	Description	Item-No.
KS05-09-R/R-1.5	Trailing Chain Cable R/R, 1.5 m	0150-3883
KS05-09-R/R-2	Trailing Chain Cable R/R, 2 m	0150-3884
KS05-09-R/R-3	Trailing Chain Cable R/R, 3 m	0150-3885

Item	Description	Item-No.
KS05-W/R-4	Trailing Chain Cable W/R, 4 m	0150-2106
KS05-W/R-6	Trailing Chain Cable W/R, 6 m	0150-2131
KS05-W/R-8	Trailing Chain Cable W/R, 8 m	0150-2107
KS05-W/R-	Trailing Chain Cable KS05-W/R, Custom length	0150-3256

Item	Description	Item-No.
KS05-Y/R-4	Trailing Chain Cable Y/R, 4 m	0150-2433
KS05-Y/R-6	Trailing Chain Cable Y/R, 6 m	0150-2434
KS05-Y/R-8	Trailing Chain Cable Y/R, 8 m	0150-2435
KS05-Y-Fe/R-	Trailing Chain Cable KS05-Y-Fe/R, Custom length	0150-3507

Robot Cable

Item	Description	Item-No.
KR05-W/R-	Robot Cable KR05-W/R, Custom length	0150-3336
KR05-Y-Fe/R-	Robot Cable KR05-Y-Fe/R, Custom length	0150-3512

7.3 Motor Cables for DM03-48



Standard Cable

Item	Description	Item-No.
K15-W/C-2	Motor Cable W/C, 2 m	0150-1811
K15-W/C-4	Motor Cable W/C, 4 m	0150-1801
K15-W/C-6	Motor Cable W/C, 6 m	0150-1802
K15-W/C-8	Motor Cable W/C, 8 m	0150-1803
K15-W/C-	Motor Cable W/C, Custom length	0150-3131

Item	Description	Item-No.
K15-Y/C-2	Motor Cable Y/R, 2 m	0150-2429
K15-Y/C-4	Motor Cable Y/R, 4 m	0150-2430
K15-Y/C-6	Motor Cable Y/R, 6 m	0150-2431
K15-Y/C-8	Motor Cable Y/R, 8 m	0150-2432
K15-Y-Fe/C-	Motor Cable Y-Fe/R, Custom length	0150-3506

Trailing Chain Cable

Item	Description	Item-No.
KS10-W/C-4	Trailing Chain Cable W/C, 4 m	0150-1807
KS10-W/C-6	Trailing Chain Cable W/C, 6 m	0150-1858
KS10-W/C-8	Trailing Chain Cable W/C, 8 m	0150-1808
KS10-W/C-	Trailing Chain Cable W/C, Custom length	0150-3139

Item	Description	Item-No.
KS10-Y/C-4	Trailing Chain Cable Y/C, 4 m	0150-2439
KS10-Y/C-6	Trailing Chain Cable Y/C, 6 m	0150-2440
KS10-Y/C-8	Trailing Chain Cable Y/C, 8 m	0150-2441
KS10-Y/C-	Trailing Chain Cable Y-Fe/C, Custom length	0150-3511

Robot Cable

Item	Description	Item-No.
KR10-W/C-	Robot Cable KR10-W/C, Custom length	0150-3199
KR10-Y-Fe/C-	Robot Cable KR10-Y-Fe/C, Custom length	0150-3515

7.4 Fan Kits

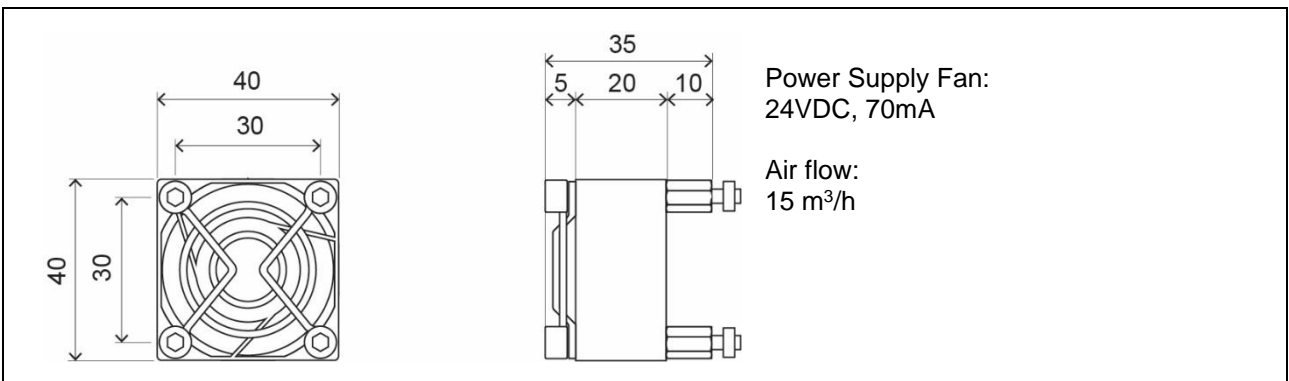


The fans are mounted using the threaded holes listed below. The positions are shown in the drawings in the "Dimensions & Weights" section.

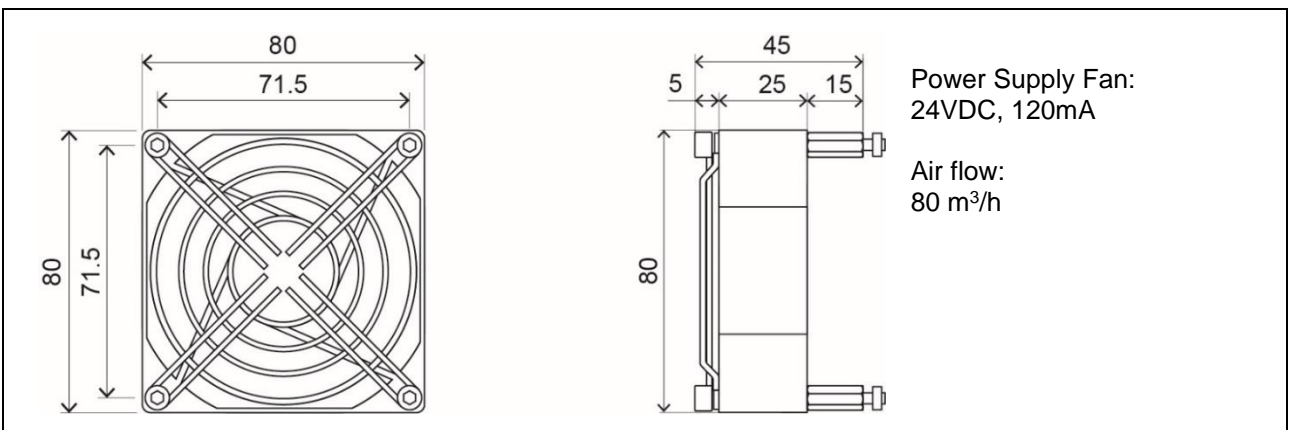
- DM03-37: A7, A8, A15, A16
- DM03-48x150: H1 – H4
- DM03-48x240: H1 – H4



Fans cannot be mounted directly on the DM03-23 linear modules. We recommend that customers design their own adapters for external mounting.



Item	Description	Item-No.
HV01-23	Fan kit 23	0150-5050



Item	Description	Item-No.
HV01-37/48	Fan kit 37/48	0150-5051

8 Maintenance and Test Instructions

The linear ball bearings of DM03 linear modules are provided with initial lubrication at the factory. Lubrication and inspection intervals depend mainly on the average travel speed, operating temperature and grease quality. The following table with the inspection intervals is based on normal industrial, central European conditions (5 days week with 8 hours operating time per day) and the use of the recommended bearing grease SKF LGFP 2.

Velocity [v]	Lubrication and inspection interval [km]
$v < 1 \text{ m/s}$	5000
$1 \text{ m/s} < v < 1.5 \text{ m/s}$	2500
$v > 1.5 \text{ m/s}$	1200

In principle, the inspection cycle of the drive unit must be shortened if there are heavy loads or deviating conditions. These are, for example:

- Permanent soiling
- Direct sunlight
- Low humidity
- Outdoor operation
- Strong shocks or vibrations
- Increased operating temperature

8.1 Inspection

According to the inspection intervals, the following tests must be carried out.

8.1.1 Linear Module

- Do the guide shafts have too much clearance? If yes -> Replace bearing.
- Do the guide shafts show signs of wear or grooves? -> If yes -> Replace guide shafts and the bearing.
- Have the shaft bearings been relubricated? If no -> Cleaning + Lubrication
- Is it easy to move the guide unit? If no -> Align mounting plates
- Is the wiper without visible wear? If no -> Replace wiper

8.1.2 MagSpring

- Is the slider covered with a light greasy film? If no -> Lubrication
- Does the slider show signs of wear or grooves? If yes -> Replace slider
- Does the MagSpring stator bearing show signs of wear? If yes -> Replace MagSpring
- Is it easy to move the MagSpring slider? If no -> Cleaning (stator, slider) + lubrication

8.1.3 Noise Signature for DM03-48 Linear Modules

Depending on the environmental conditions, DM03-48 guides may produce a 'clicking' sound when moving very slowly and in a quiet environment. This is due to the internal residual magnetic attraction on the unloaded balls of the linear ball bearings and can be amplified in resonance depending on the module length. This clicking noise is therefore system-related and has no influence on the technical functionality.

8.2 Cleaning

8.2.1 Guide Shafts

- Remove the guide shafts according to chapter 6.2.
- Clean the guide shafts with a soft disposable paper, possibly with the aid of a grease-dissolving cleaning agent (e.g. benzine).

8.2.2 MagSpring

- Remove the slider according to chapter 6.5.
Attention! High magnetic attraction forces (note warnings on chapter 2)! It may be necessary to cover nearby iron structures with non-magnetic material (e.g. wood).

- Clean the slider and stator with a soft disposable paper, ideally with the aid of LU06 cleaning spray (alternatively methylated spirits or alcohol).

8.3 Lubrication

8.3.1 Linear Ball Bearings

- Dismantle the linear module until the linear ball bearings are free. Then clean the bearings with soft disposable paper.
- Grease bearings with 2-3 g of grease SKF LGFP 2, whereby a brush can be used for even application. **Important!** Avoid overgreasing!
- The guide shafts are inserted into the guide without lubrication.

8.3.2 MagSpring

- First carry out cleaning instructions according to the above section.
- Then grease the stator bore with 2-3 g of LU02 grease, whereby only a light film of grease should be present on the inside. **Important!** Avoid overgreasing!
- Grease the slider lightly, whereby only a light film of grease should be present on the slider tube.

8.4 Cleaning agent / Lubricant

The LU06 cleaning spray is recommended for cleaning MagSpring stators and sliders. To improve the sliding properties between MagSpring slider and stator, the food-compatible LinMot grease LU02 is prescribed. The food-compatible lubricant SKF LGFP 2 is prescribed for greasing the linear ball bearings.

Ordering information

Item	Description	Item-No.
LU06-250	Klüberfood NH1 4-002 Spray* (250 ml)	0150-2394
LU02-50	Lubricant for linear motors** (50 g)	0150-1954
LU02-1000	Lubricant for linear motors** (1000 g)	0150-1955
SKF LGFP 2/1	Food Grade Lubricant*** (1 kg)	0260-0061

* 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.

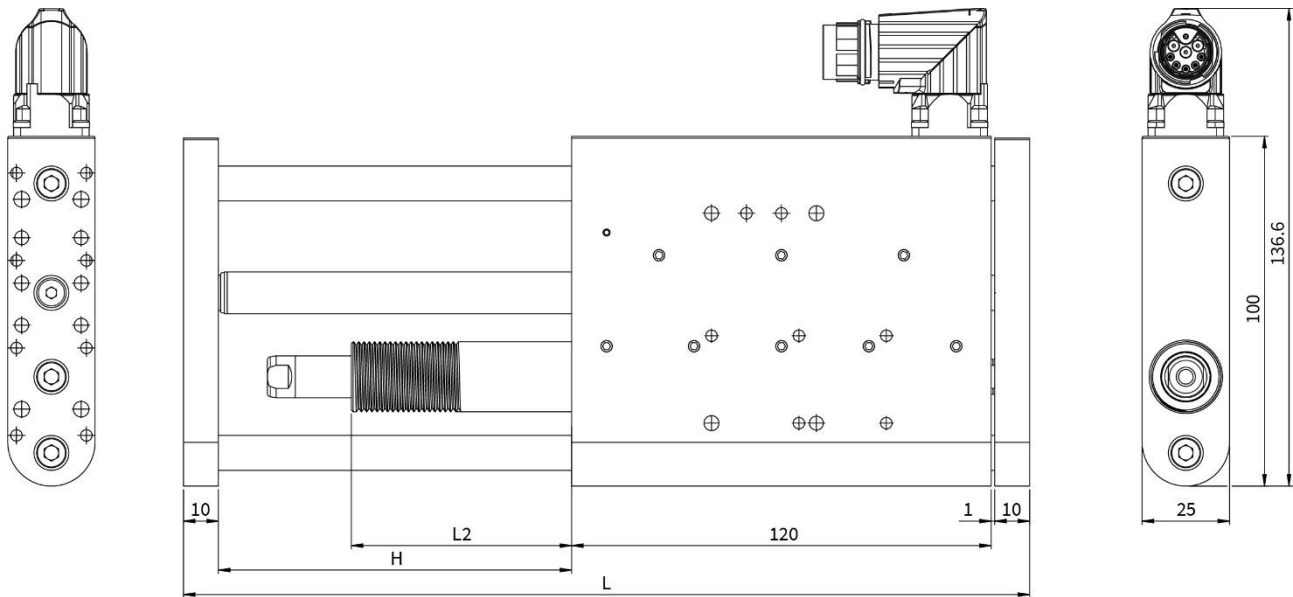
*** Food grade H1 approval

9 Transport and Storage

- LinMot linear guides may only be transported and stored in their original packaging.
- The linear guides should not be removed from their packaging until they are installed.
- The storage room must be dry, dust-free, frost-free and vibration-free.
- The relative humidity should be less than 60%.
- Prescribed storage temperature: -15 °C...70 °C
- The linear guides must be protected from extreme weather conditions.
- The room air must not contain any aggressive gases.

10 Dimensions & Weights

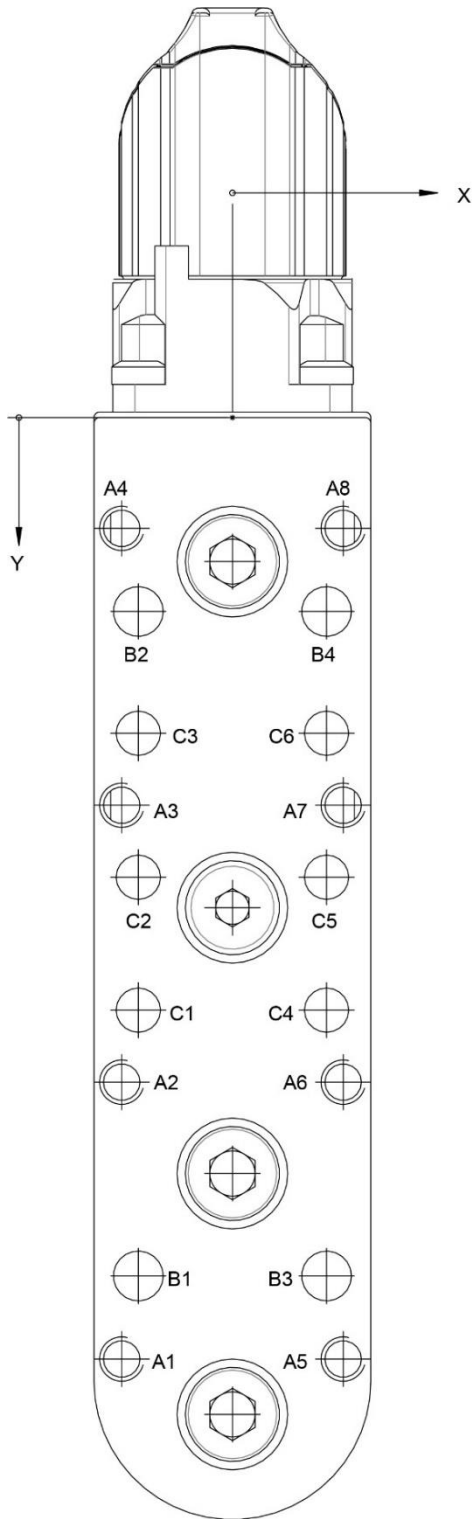
10.1 Linearmodule DM03-23x80_MSxx



Linear Module DM03-23x80F-XP-R...	Stroke H [mm (inch)]		MS Stator length L2 [mm (inch)]		Carriage length L [mm (inch)]		Moving mass ¹⁾ [g (lb)]		Total weight [g (lb)]	
...-60_MSxx ²⁾	60	(2.36)	0	(0)	202	(7.95)	580	(1.28)	1400	(3.09)
...-100_MSxx ²⁾	100	(3.93)	58	(2.28)	242	(9.53)	730	(1.61)	1620	(3.57)
...-160_MSxx ²⁾	160	(6.30)	138	(5.43)	302	(11.89)	920	(2.03)	1910	(4.21)
...-220_MSxx ²⁾	220	(8.66)	201	(7.91)	362	(14.25)	1040	(2.29)	2140	(4.72)
...-290_MSxx ²⁾	290	(11.42)	217	(8.54)	432	(17.0)	1250	(2.76)	2350	(5.18)

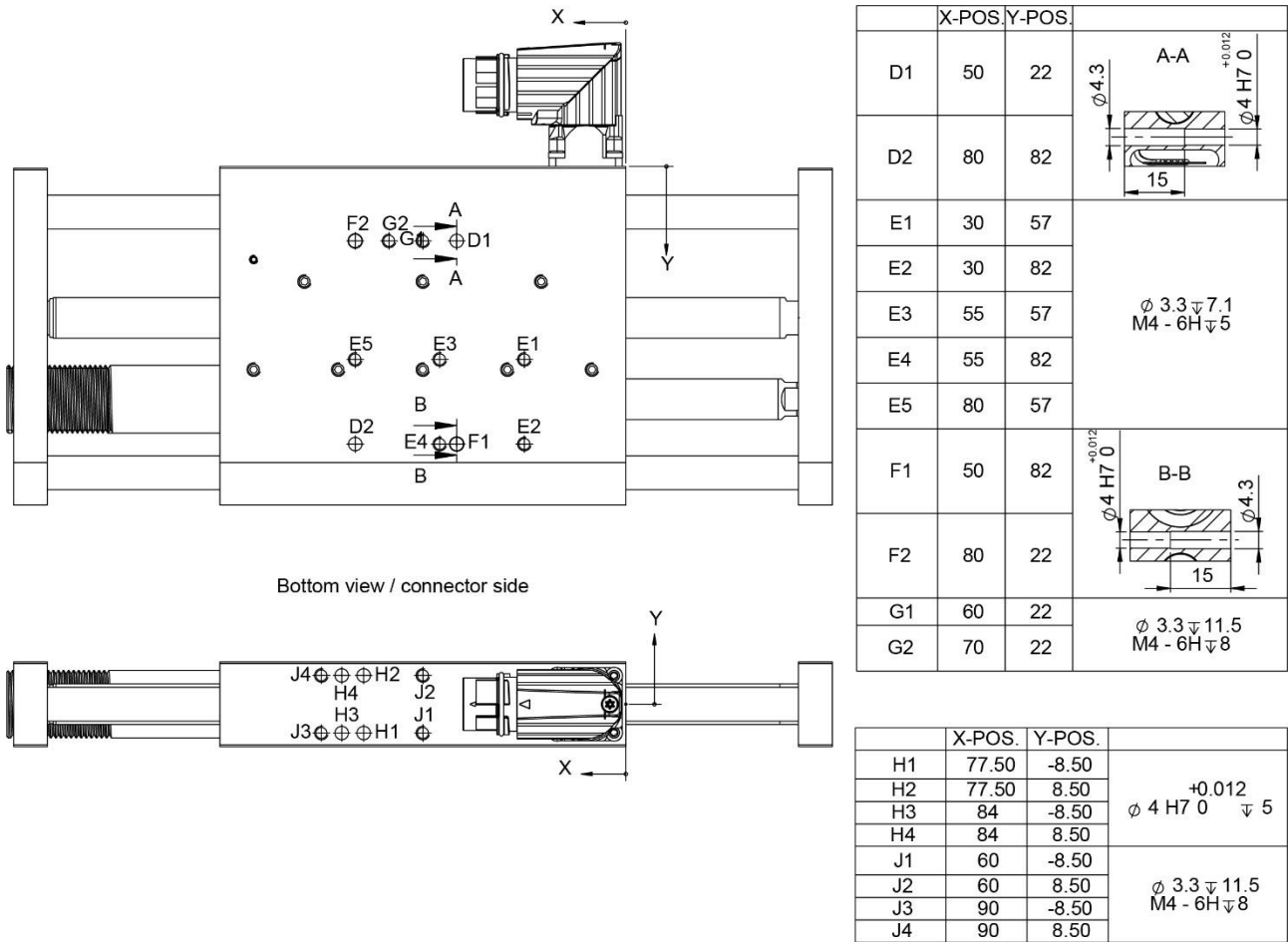
¹⁾ Mass: Slider, Shafts, Front mounting plate, Rear mounting plate, MagSpring slider
²⁾ MagSpring variants with different constant forces: MS11 (11N); MS12 (17N); MS13 (22N)

10.1.1 Mounting Plate

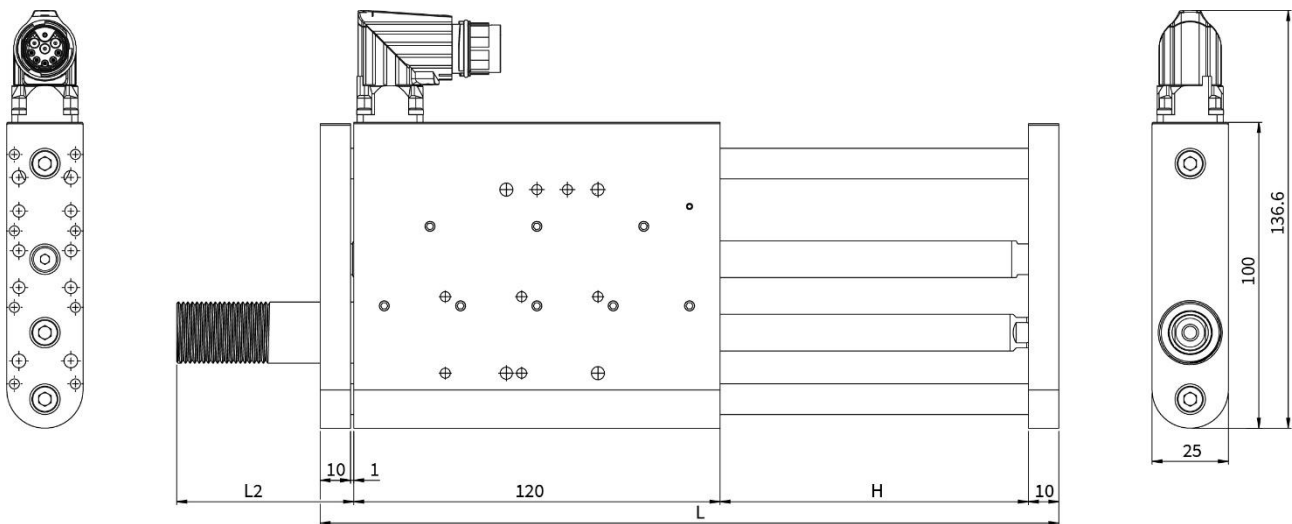


	X-POSITION	Y-POSITION	
A1	-10	85	∅ 3.3 Through all M4 - 6H Through all
A2	-10	60	
A3	-10	35	
A4	-10	10	
A5	10	85	
A6	10	60	
A7	10	35	
A8	10	10	
B1	-8.50	77.50	∅ 4.5 Through all └ ∅ 7.3 ▽ 4.4
B2	-8.50	17.50	
B3	8.50	77.50	
B4	8.50	17.50	
C1	-8.50	53.50	∅ 4 H7 ^{+0.012} 0 ▽ 7.1
C2	-8.50	41.50	
C3	-8.50	28.50	
C4	8.50	53.50	
C5	8.50	41.50	
C6	8.50	28.50	

10.1.2 Guide Block



10.2 Linearmodule DM03-23x80_CS10_MSxx



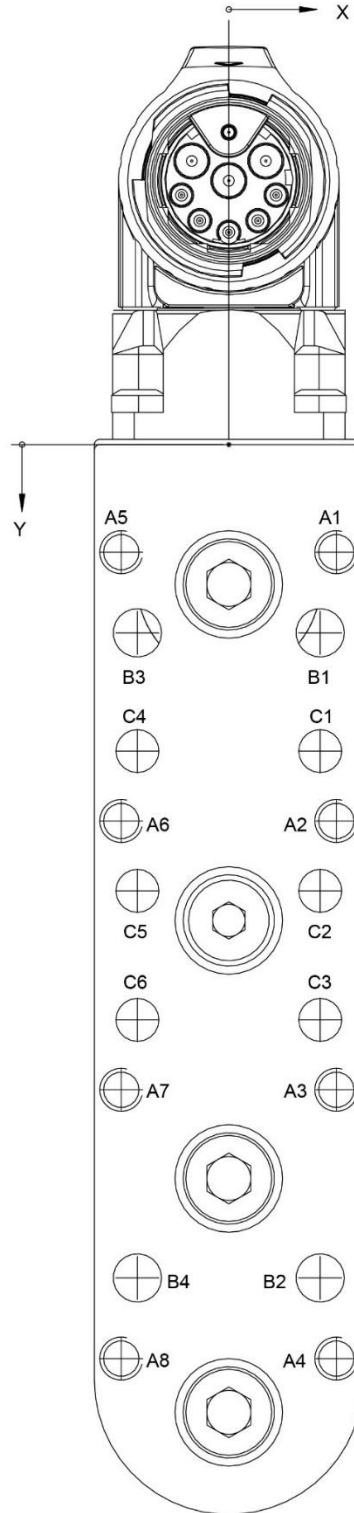
Linear Module DM03-23x80F-XP-R...	Stroke H [mm (inch)]	MS Stator length L2 [mm (inch)]	Carriage length L [mm (inch)]	Moving mass ¹⁾ [g (lb)]	Total weight [g (lb)]
...-60_CS10_MSxx ²⁾	60 (2.36)	0 (0)	202 (7.95)	580 (1.28)	1400 (3.09)
...-100_CS10_MSxx ²⁾	100 (3.93)	58 (2.28)	242 (9.53)	730 (1.61)	1620 (3.57)
...-160_CS10_MSxx ²⁾	160 (6.30)	138 (5.43)	302 (11.89)	920 (2.03)	1910 (4.21)
...-220_CS10_MSxx ²⁾	220 (8.66)	201 (7.91)	362 (14.25)	1040 (2.29)	2140 (4.72)

...-290_CS10_MSxx ²⁾	290	(11.42)	217	(8.54)	432	(17.0)	1250	(2.76)	2350	(5.18)
---------------------------------	-----	---------	-----	--------	-----	--------	------	--------	------	--------

¹⁾ Mass: Slider, Shafts, Front mounting plate, Rear mounting plate, MagSpring slider
²⁾ MagSpring variants with different constant forces: MS11 (11N); MS12 (17N); MS13 (22N)

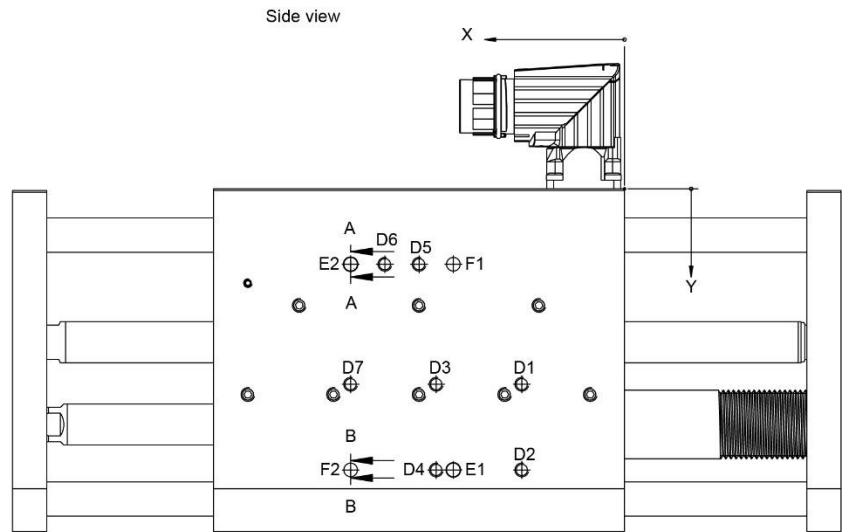
10.2.1 Mounting Plate

	X-POS.	Y-POS.	
A1	10	10	$\varnothing 3.3$ Drill through M4 - 6H Drill through
A2	10	35	
A3	10	60	
A4	10	85	
A5	-10	10	
A6	-10	35	
A7	-10	60	
A8	-10	85	
B1	8.50	17.50	$\square \varnothing 7.3 \nabla 4.4$ $\varnothing 4.5$ Drill through
B2	8.50	77.50	
B3	-8.50	17.50	
B4	-8.50	77.50	
C1	8.50	28.50	$\varnothing 4 H7$ $\begin{matrix} +0.012 \\ 0 \\ \nabla 7.1 \end{matrix}$
C2	8.50	41.50	
C3	8.50	53.50	
C4	-8.50	28.50	
C5	-8.50	41.50	
C6	-8.50	53.50	

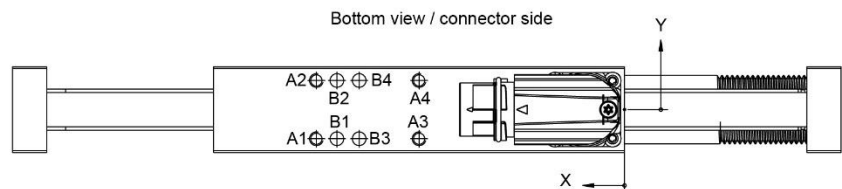


10.2.2 Guide Block

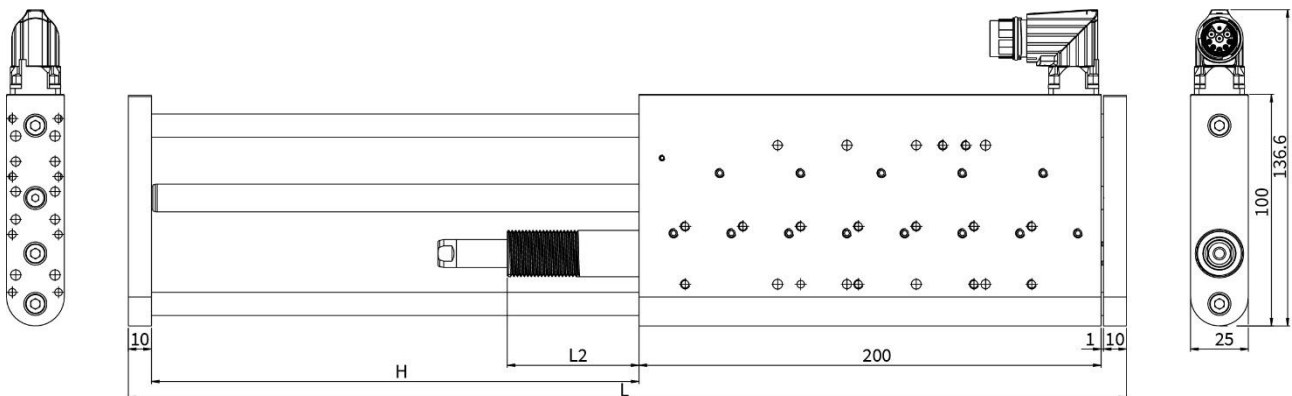
	X-POS.	Y-POS.	
D1	30	57	$\phi 3.3 \sqrt{7.1}$ M4 - 6H $\sqrt{5}$
D2	30	82	
D3	55	57	
D4	55	82	
D5	60	22	
D6	70	22	
D7	80	57	
E1	50	82	
E2	80	22	
F1	50	22	
F2	80	82	



	X-POS.	Y-POS.	
A1	90	-8.50	$\phi 3.3 \sqrt{11.5}$ M4 - 6H $\sqrt{8}$
A2	90	8.50	
A3	60	-8.50	
A4	60	8.50	
B1	84	-8.50	$\phi 4 H7 0$ $\sqrt{5}$ $\sqrt{+0.012}$
B2	84	8.50	
B3	77.50	-8.50	
B4	77.50	8.50	



10.3 Linearmodule DM03-23x160_MSxx

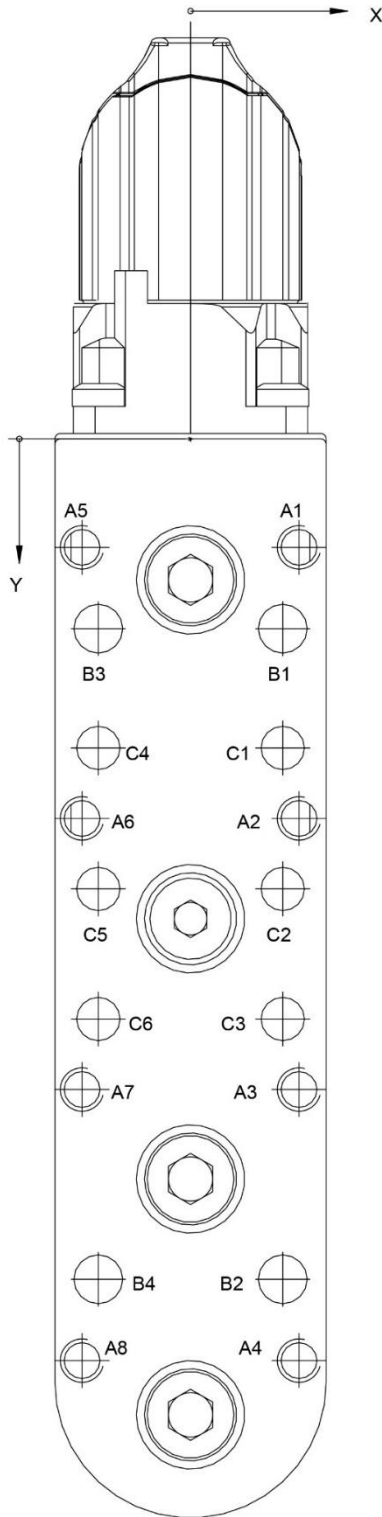


Linear Module DM03-23x160F-XP-R...	Stroke H [mm (inch)]		MS Stator length L2 [mm (inch)]		Carriage length L [mm (inch)]		Moving mass ¹⁾ [g (lb)]		Total weight [g (lb)]	
...-80_MSxx ²⁾	80	(3.15)	0	(0)	302	(11.89)	800	(1.76)	2140	(4.72)
...-140_MSxx ²⁾	140	(5.51)	0	(0)	362	(14.25)	980	(2.16)	2350	(5.18)
...-210_MSxx ²⁾	210	(8.27)	57	(2.24)	432	(17.0)	1180	(2.60)	2620	(5.78)
...-270_MSxx ²⁾	270	(10.63)	143	(5.63)	492	(19.37)	1370	(3.02)	2920	(6.44)

¹⁾ Mass: Slider, Shafts, Front mounting plate, Rear mounting plate, MagSpring slider
²⁾ MagSpring variants with different constant forces: MS11 (11N); MS12 (17N); MS13 (22N)

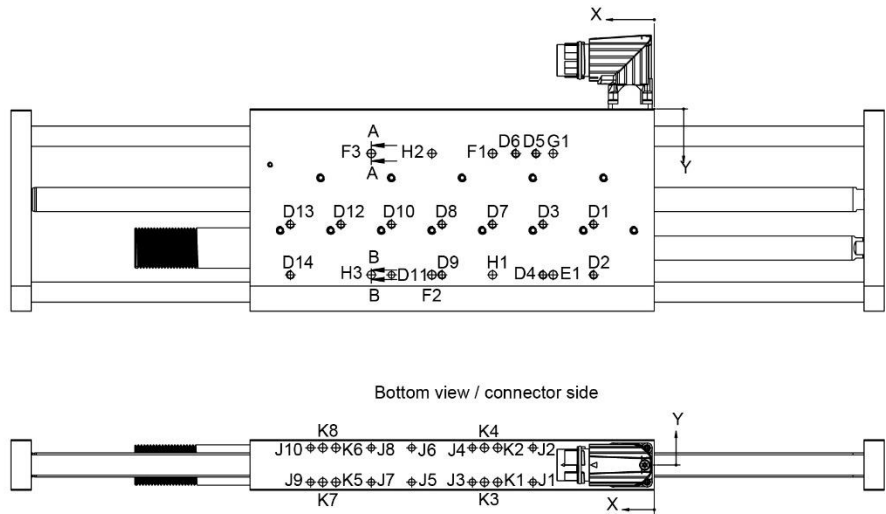
10.3.1 Mounting Plate

	X-POS.	Y-POS.	
A1	10	10	$\varnothing 3.30$ Durchbohren M4 - 6H Durchbohren
A2	10	35	
A3	10	60	
A4	10	85	
A5	-10	10	
A6	-10	35	
A7	-10	60	
A8	-10	85	
B1	8.50	17.50	$\varnothing 7.3 \nabla 4.4$ $\varnothing 4.50$ Durchbohren
B2	8.50	77.50	
B3	-8.50	17.50	
B4	-8.50	77.50	
C1	8.50	28.50	$\varnothing 4 H7$ $\begin{matrix} +0.012 \\ 0 \end{matrix}$ $\nabla 7.10$
C2	8.50	41.50	
C3	8.50	53.50	
C4	-8.50	28.50	
C5	-8.50	41.50	
C6	-8.50	53.50	



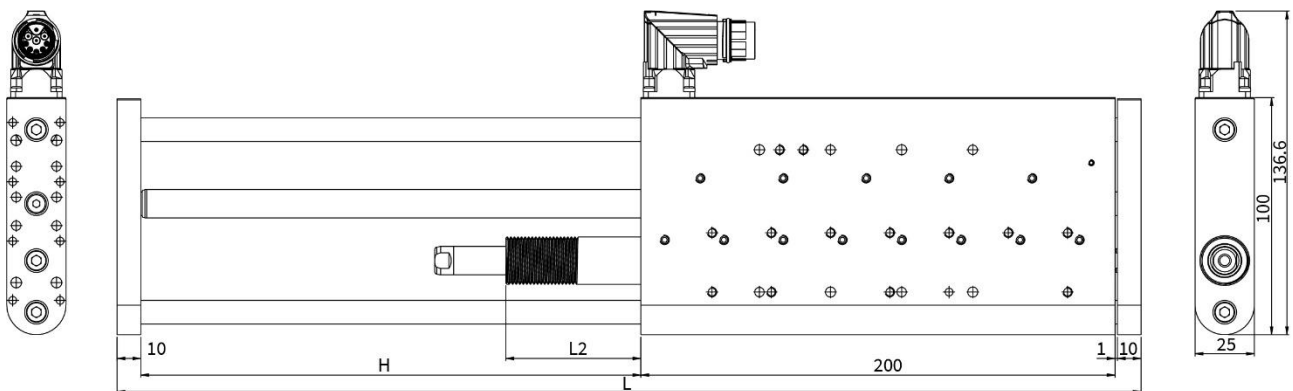
10.3.2 Guide Block

	X-POS.	Y-POS.	
D1	30	57	∅3.3 _{±7.1} M4 - 6H _{±5}
D2	30	82	
D3	55	57	
D4	55	82	
D5	58.50	22	
D6	68.50	22	
D7	80	57	
D8	105	57	
D9	105	82	
D10	130	57	
D11	130	82	
D12	155	57	
D13	180	57	
D14	180	82	
E1	50	82	∅ 4 Through all ∅4.30 _{±15}
F1	80	22	
F2	110	82	
F3	140	22	
G1	50	22	∅ 4 Through all ∅ 4.30 _{±15}
H1	80	82	
H2	110	22	
H3	140	82	



	X-POS.	Y-POS.	
J1	60	-8.50	∅ 3.30 _{±11.50} M4 - 6H _{±8}
J2	60	8.50	
J3	90	-8.50	
J4	90	8.50	
J5	120	-8.50	
J6	120	8.50	
J7	140	-8.50	
J8	140	8.50	
J9	170	-8.50	
J10	170	8.50	
K1	77.50	-8.50	∅ 4 H7/0 _{±0.012} ±5
K2	77.50	8.50	
K3	84	-8.50	
K4	84	8.50	
K5	157.50	-8.50	
K6	157.50	8.50	
K7	164	-8.50	
K8	164	8.50	

10.4 Linearmodule DM03-23x160_CS10_MSxx

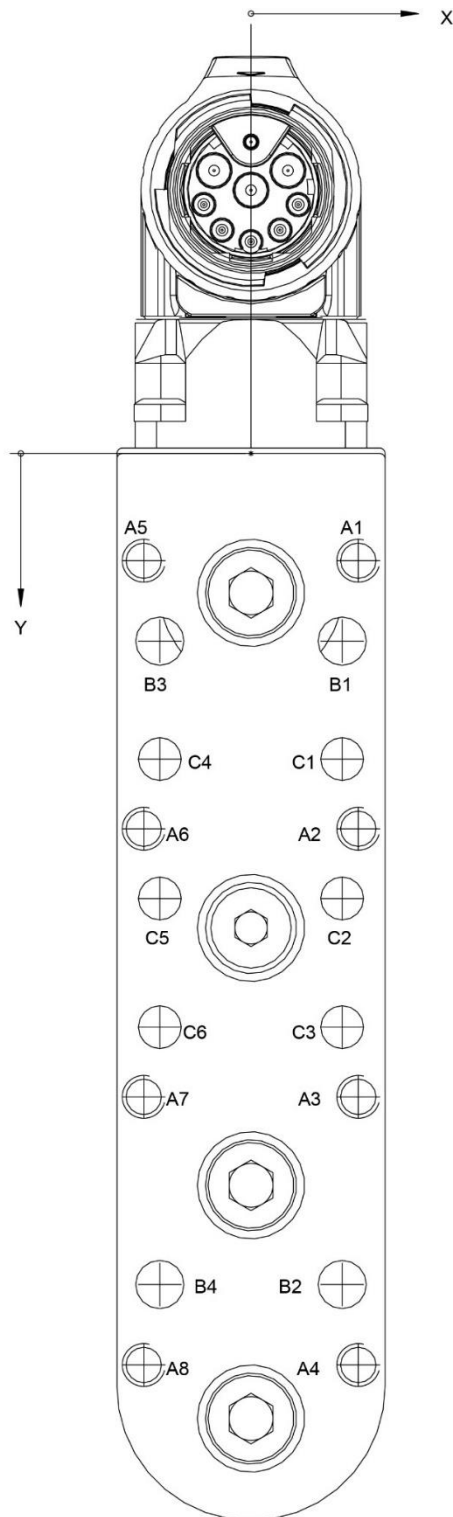


Linear Module DM03-23x160F-XP-R...	Stroke H [mm (inch)]		MS Stator length L2 [mm (inch)]		Carriage length L [mm (inch)]		Moving mass ¹⁾ [g (lb)]		Total weight [g (lb)]	
...-80_CS10_MSxx ²⁾	80	(3.15)	0	(0)	302	(11.89)	800	(1.76)	2140	(4.72)
...-140_CS10_MSxx ²⁾	140	(5.51)	0	(0)	362	(14.25)	980	(2.16)	2350	(5.18)
...-210_CS10_MSxx ²⁾	210	(8.27)	49	(1.93)	432	(17.0)	1180	(2.60)	2620	(5.78)
...-270_CS10_MSxx ²⁾	270	(10.63)	143	(5.63)	492	(19.37)	1370	(3.02)	2920	(6.44)

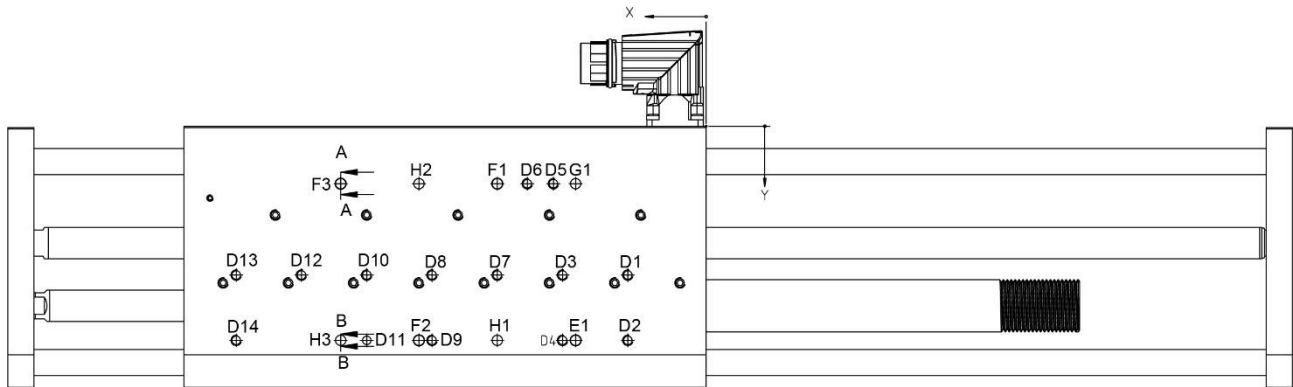
- 1) Mass: Slider, Shafts, Front mounting plate, Rear mounting plate, MagSpring slider
 2) MagSpring variants with different constant forces: MS11 (11N); MS12 (17N); MS13 (22N)

10.4.1 Mounting Plate

	X-POS.	Y-POS.	
A1	10	10	M4 - 6H Durchbohren
A2	10	35	
A3	10	60	
A4	10	85	
A5	-10	10	
A6	-10	35	
A7	-10	60	
A8	-10	85	
B1	8.50	17.50	$\square \begin{matrix} \phi 7.3 \downarrow 4.4 \\ \phi 4.5 \downarrow 10 \end{matrix}$
B2	8.50	77.50	
B3	-8.50	17.50	
B4	-8.50	77.50	
C1	8.50	28.50	$\phi 4 \text{ H7 } \begin{matrix} +0.012 \\ 0 \end{matrix} \downarrow 7.1$
C2	8.50	41.50	
C3	8.50	53.50	
C4	-8.50	28.50	
C5	-8.50	41.50	
C6	-8.50	53.50	

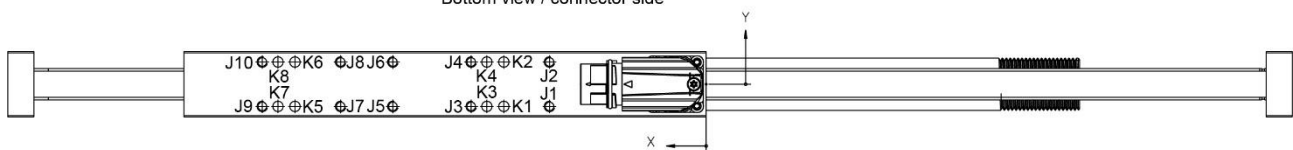


10.4.2 Guide Block



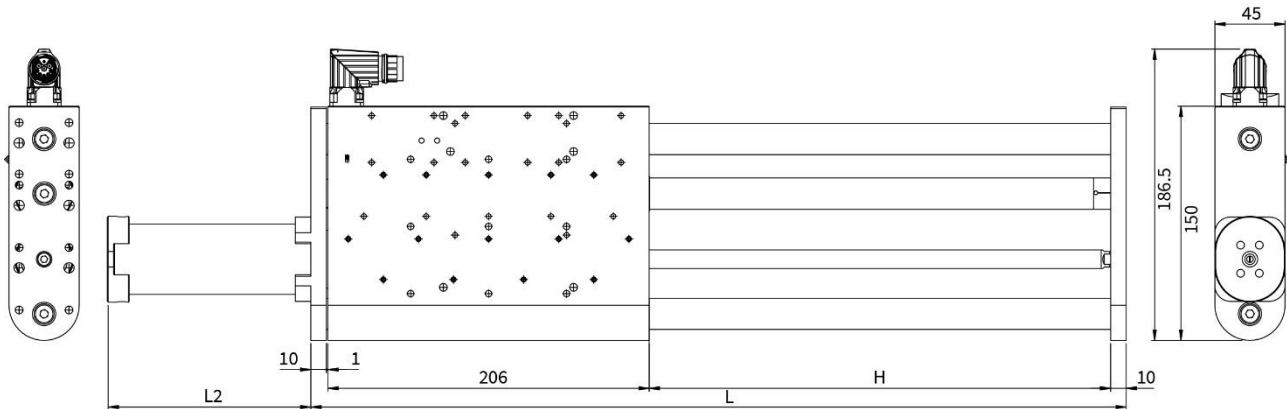
	X-POS.	Y-POS.	
D1	30	57	$\varnothing 3.3 \nabla 7.1$ M4 - 6H $\nabla 5$
D2	30	82	
D3	55	57	
D4	55	82	
D5	58.50	22	
D6	68.50	22	
D7	80	57	
D8	105	57	
D9	105	82	
D10	130	57	
D11	130	82	
D12	155	57	
D13	180	57	
D14	180	82	
E1	50	82	$\varnothing 4$ Through all $\varnothing 4.30 \nabla 15$
F1	80	22	A-A
F2	110	82	
F3	140	22	
G1	50	22	$\varnothing 4$ Through all $\varnothing 4.30 \nabla 15$
H1	80	82	B-B
H2	110	22	
H3	140	82	

Bottom view / connector side



	X-POS.	Y-POS.	
J1	60	-8.50	$\varnothing 3.30 \nabla 11.50$ M4 - 6H $\nabla 8$
J2	60	8.50	
J3	90	-8.50	
J4	90	8.50	
J5	120	-8.50	
J6	120	8.50	
J7	140	-8.50	
J8	140	8.50	
J9	170	-8.50	
J10	170	8.50	
K1	77.50	-8.50	$\varnothing 4$ H7 $\nabla 5$
K2	77.50	8.50	
K3	84	-8.50	
K4	84	8.50	
K5	157.50	-8.50	
K6	157.50	8.50	
K7	164	-8.50	
K8	164	8.50	

10.5 Linearmodule DM03-37x120_MSxx



Linear Module DM03-37x120F-HP-R...	Stroke H [mm (inch)]		MS Stator length L2 [mm (inch)]		Carriage length L [mm (inch)]		Moving mass ¹⁾ [g (lb)]		Total weight [g (lb)]	
...-95_MS02 / 03 / 04 ²⁾	95	(3.74)	0	(0)	323	(12.72)	1970	(4.34)	5440	(12.0)
...-95_MS06 / 07 / 09 ²⁾	95	(3.74)	0	(0)	323	(12.72)	1970	(4.34)	5440	(12.0)
...-95_MS31 / 34 / 37 ²⁾	95	(3.74)	66.5	(2.62)	323	(12.72)	2080	(4.59)	5550	(12.24)
...-185_MS06 / 07 / 09 ²⁾	185	(7.28)	10	(0.39)	423	(16.65)	2670	(5.89)	6710	(14.79)
...-185_MS31 / 34 / 37 ²⁾	185	(7.28)	234.5	(9.23)	423	(16.65)	2670	(5.89)	6710	(14.79)
...-195_MS02 / 03 / 04 ²⁾	195	(7.68)	66.5	(2.62)	423	(16.65)	2630	(5.80)	6670	(14.70)
...-275_MS06 / 07 / 09 ²⁾	275	(10.83)	130.5	(5.14)	523	(20.59)	3500	(7.72)	8040	(17.73)
...-295_MS02 / 03 / 04 ²⁾	295	(11.61)	130.5	(5.14)	523	(20.59)	3170	(6.99)	7710	(17.0)
...-395_MS03 ²⁾	395	(15.55)	84.5	(3.33)	623	(24.53)	3750	(8.27)	7750	(17.09)
...-495_MS03 ²⁾	495	(19.49)	130.5	(5.14)	723	(28.46)	4360	(9.61)	8500	(18.74)
...-595_MS03 ²⁾	595	(23.43)	154.5	(6.08)	823	(32.40)	4910	(10.82)	9450	(20.83)
...-695_MS03 ²⁾	695	(27.36)	234.5	(9.23)	923	(36.34)	5570	(12.28)	10400	(22.93)

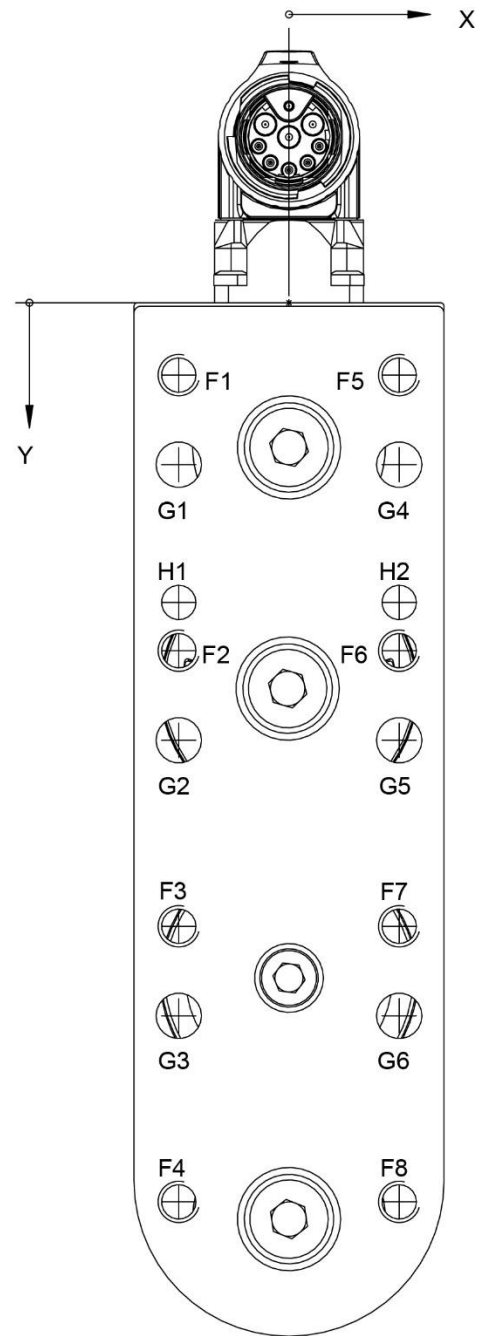
¹⁾ Mass: Slider, Shafts, Front mounting plate, Rear mounting plate, MagSpring slider

²⁾ MagSpring variants with different constant forces

- MS02: Constant force 40N (Effective load compensation depending on moving mass)
- MS03: Constant force 50N (Effective load compensation depending on moving mass)
- MS04: Constant force 60N (Effective load compensation depending on moving mass)
- MS06: Constant force 100N (Effective load compensation depending on moving mass)
- MS07: Constant force 70N (Effective load compensation depending on moving mass)
- MS09: Constant force 90N (Effective load compensation depending on moving mass)
- MS31: Constant force 110N (Effective load compensation depending on moving mass)
- MS34: Constant force 140N (Effective load compensation depending on moving mass)
- MS37: Constant force 170N (Effective load compensation depending on moving mass)

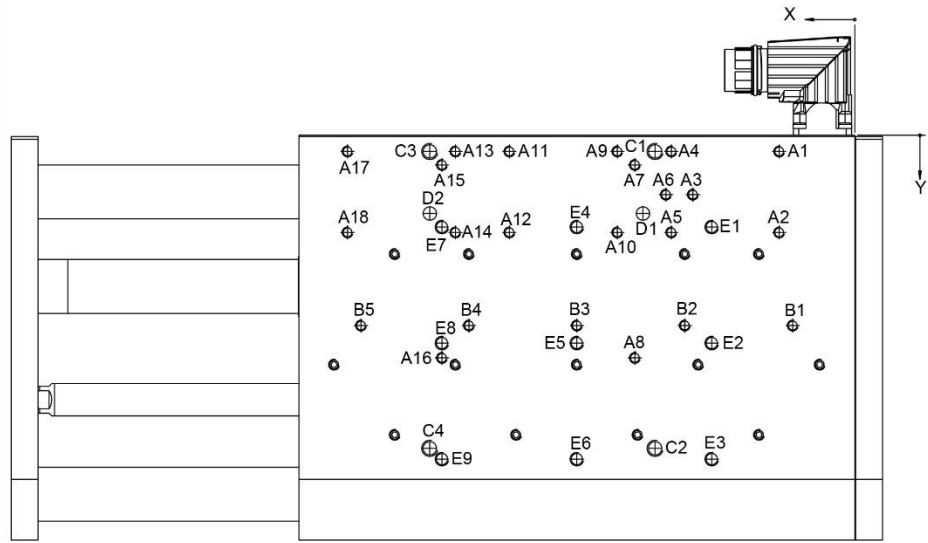
10.5.1 Mounting Plate

	X-POS.	Y-POS.	
F1	-16	10.50	\varnothing 5 DURCH ALLES M6 - 6H DURCH ALLES
F2	-16	50.50	
F3	-16	90.50	
F4	-16	130.50	
F5	16	10.50	
F6	16	50.50	
F7	16	90.50	
F8	16	130.50	
G1	-16	23.50	\varnothing 6.60 DURCH ALLES \square \varnothing 10.50 ∇ 6.40
G2	-16	63.50	
G3	-16	103.50	
G4	16	23.50	
G5	16	63.50	
G6	16	103.50	
H1	-16	43.50	\varnothing 5 H7 $\begin{matrix} +0.012 \\ 0 \\ \nabla 8 \end{matrix}$
H2	16	43.50	

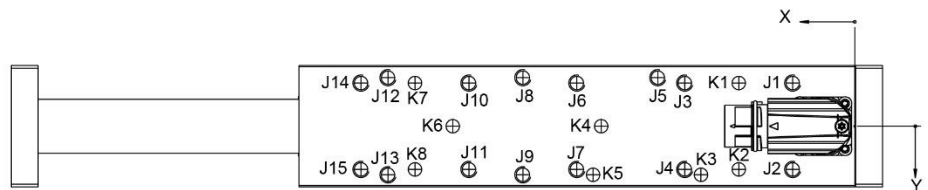


10.5.2 Guide Block

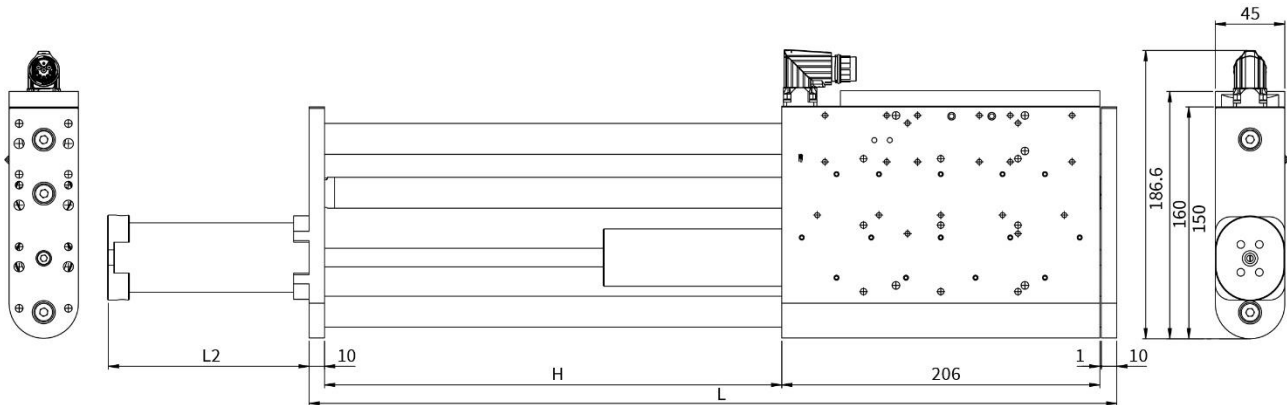
	X-POS.	Y-POS.	
A1	28	6	∅ 3.30 ∇ 9 M4 - 6H ∇ 7
A2	28	36	
A3	60	22	
A4	68	6	
A5	68	36	
A6	70	22	
A7	81.50	11	
A8	81.50	82.50	
A9	88	6	
A10	88	36	
A11	128	6	
A12	128	36	
A13	148	6	
A14	148	36	
A15	153	11	
A16	153	82.50	
A17	188	6	
A18	188	36	
B1	23	70.50	∅ 3.30 ∇ 7.50 M4 - 6H ∇ 6
B2	63	70.50	
B3	103	70.50	
B4	143	70.50	
B5	183	70.50	
C1	74	6	∅ 5 ∇ 12 M6 - 6H ∇ 8
C2	74	116	
C3	157.50	6	
C4	157.50	116	
D1	78.50	29	∅ 5 H70 ∇ 10 +0.012 ∇
D2	157.50	29	
E1	53	34	∅ 4.20 ∇ 14 M5 - 6H ∇ 10
E2	53	77	
E3	53	120	
E4	103	34	
E5	103	77	
E6	103	120	
E7	153	34	
E8	153	77	
E9	153	120	



	X-POS.	Y-POS.	
J1	23	-16	∅ 5 ∇ 17 M6 - 6H ∇ 12
J2	23	16	
J3	63	-16	
J4	63	16	
J5	73	-18	
J6	103	-16	
J7	103	16	
J8	123	-18	
J9	123	18	
J10	143	-16	
J11	143	16	
J12	173	-18	
J13	173	18	
J14	183	-16	
J15	183	16	
K1	43	-16	∅ 5 H70 ∇ 10 +0.012 ∇
K2	43	16	
K3	57	18	
K4	94	0	
K5	97	18	
K6	149	0	
K7	163	-16	
K8	163	16	



10.6 Linearmodule DM03-37x120_MSxx_EN02



Linear Module DM03-37x120F-HP-R...	Stroke H [mm (inch)]		MS Stator length L2 [mm (inch)]		Carriage length L [mm (inch)]		Moving mass ¹⁾ [g (lb)]		Total weight [g (lb)]	
...-95_MS02 / 03 / 04_EN02 ²⁾	95	(3.74)	0	(0)	323	(12.72)	1970	(4.34)	5730	(12.63)
...-95_MS06 / 07 / 09_EM02 ²⁾	95	(3.74)	0	(0)	323	(12.72)	1970	(4.34)	5730	(12.63)
...-95_MS31 / 34 / 37_EN02 ²⁾	95	(3.74)	66.5	(2.62)	323	(12.72)	2080	(4.59)	6540	(14.42)
...-185_MS06 / 07 / 09_EN02 ²⁾	185	(7.28)	10	(0.39)	423	(16.65)	2670	(5.89)	7000	(15.43)
...-185_MS31 / 34 / 37_EN02 ²⁾	185	(7.28)	234.5	(9.23)	423	(16.65)	2670	(5.89)	8070	(17.79)
...-195_MS02 / 03 / 04_EN02 ²⁾	195	(7.68)	66.5	(2.62)	423	(16.65)	2630	(5.80)	6960	(15.34)
...-275_MS06 / 07 / 09_EN02 ²⁾	275	(10.83)	130.5	(5.14)	523	(20.59)	3500	(7.72)	8330	(18.36)
...-295_MS02 / 03 / 04_EN02 ²⁾	295	(11.61)	130.5	(5.14)	523	(20.59)	3170	(6.99)	8000	(17.64)
...-395_MS03_EN02 ²⁾	395	(15.55)	84.5	(3.33)	623	(24.53)	3750	(8.27)	7990	(17.61)
...-495_MS03_EN02 ²⁾	495	(19.49)	130.5	(5.14)	723	(28.46)	4360	(9.61)	8750	(19.29)
...-595_MS03_EN02 ²⁾	595	(23.43)	154.5	(6.08)	823	(32.40)	4910	(10.82)	9700	(21.38)
...-695_MS03_EN02 ²⁾	695	(27.36)	234.5	(9.23)	923	(36.34)	5570	(12.28)	10640	(23.46)

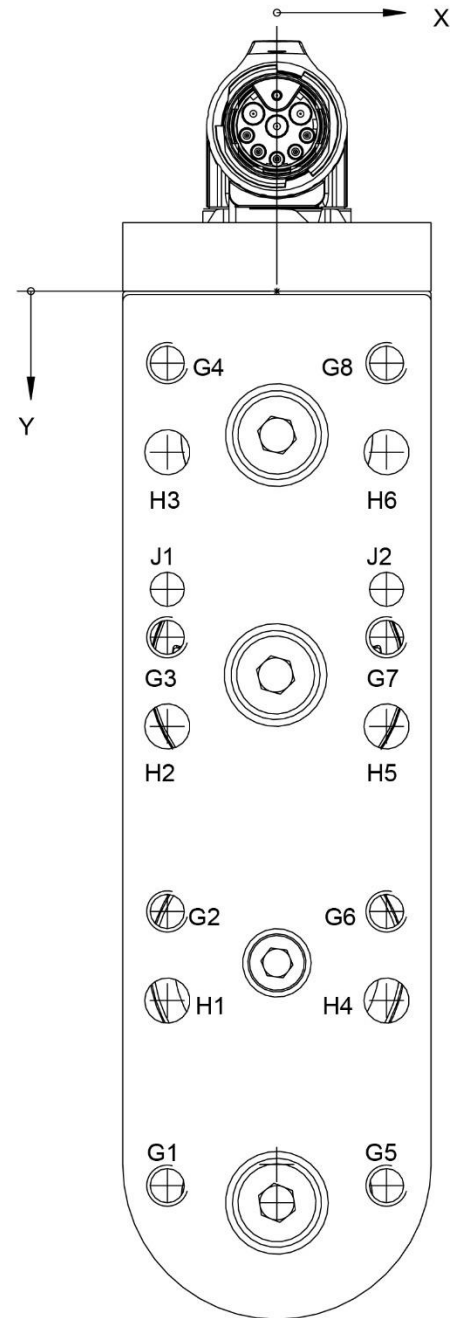
¹⁾ Mass: Slider, Shafts, Front mounting plate, Rear mounting plate, MagSpring slider

²⁾ MagSpring variants with different constant forces :

- MS02: Constant force 40N (Effective load compensation depending on moving mass)
- MS03: Constant force 50N (Effective load compensation depending on moving mass)
- MS04: Constant force 60N (Effective load compensation depending on moving mass)
- MS06: Constant force 100N (Effective load compensation depending on moving mass)
- MS07: Constant force 70N (Effective load compensation depending on moving mass)
- MS09: Constant force 90N (Effective load compensation depending on moving mass)
- MS31: Constant force 110N (Effective load compensation depending on moving mass)
- MS34: Constant force 140N (Effective load compensation depending on moving mass)
- MS37: Constant force 170N (Effective load compensation depending on moving mass)

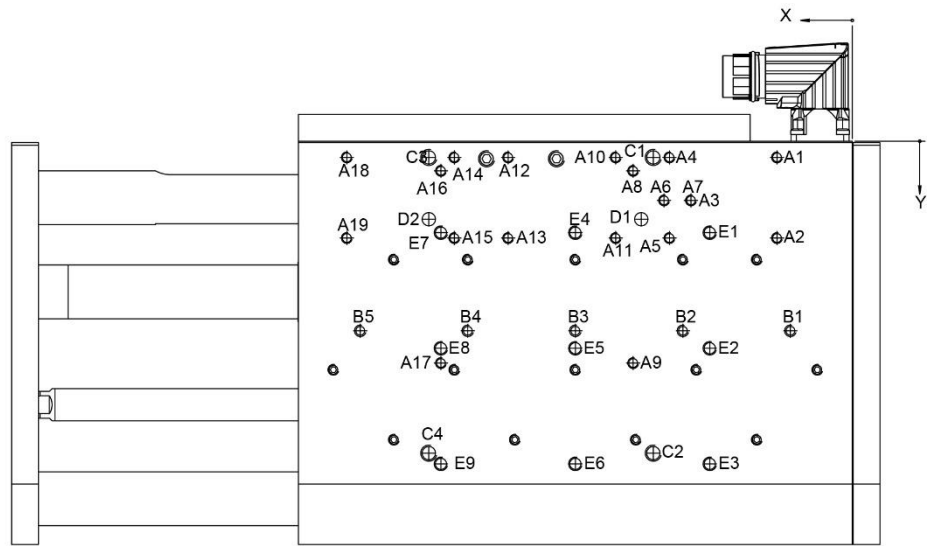
10.6.1 Mounting Plate

ETIKETT	X-POS.	Y-POS.	GRÖSSE
G1	-16	130.50	\varnothing 5 DURCH ALLES M6 - 6H DURCH ALLES
G2	-16	90.50	
G3	-16	50.50	
G4	-16	10.50	
G5	16	130.50	
G6	16	90.50	
G7	16	50.50	
G8	16	10.50	
H1	-16	103.50	\varnothing 6.60 DURCH ALLES \square \varnothing 10.50 ∇ 6.40
H2	-16	63.50	
H3	-16	23.50	
H4	16	103.50	
H5	16	63.50	
H6	16	23.50	
J1	-16	43.50	\varnothing 5 H7 $\begin{matrix} +0.012 \\ 0 \\ \nabla 8 \end{matrix}$
J2	16	43.50	

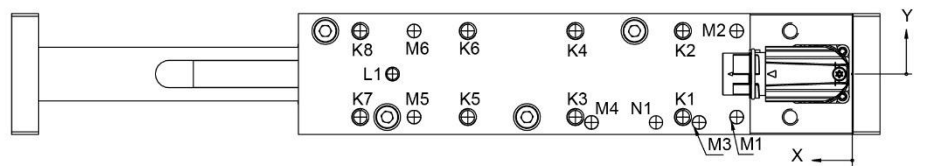


10.6.2 Guide Block

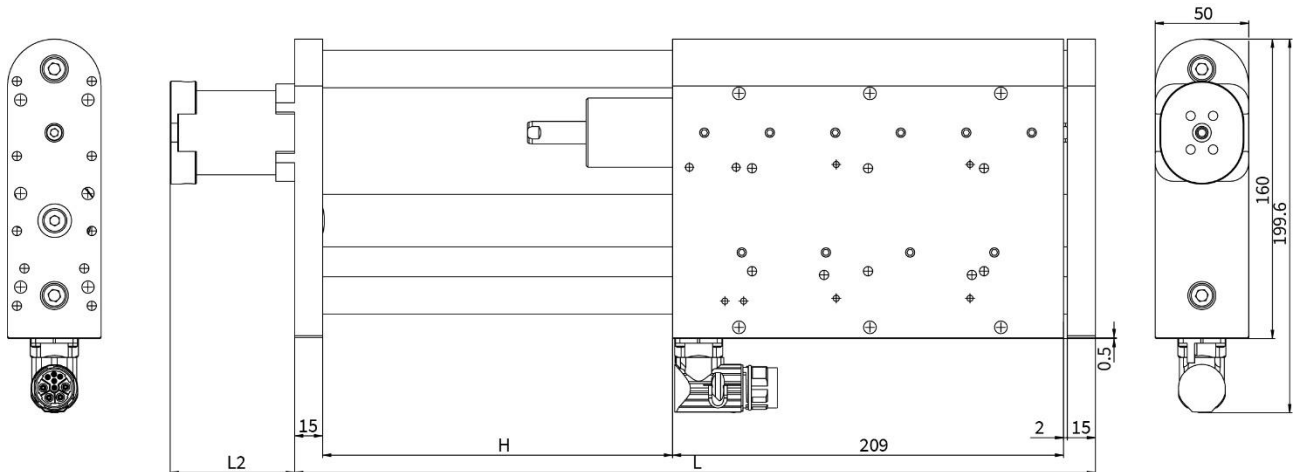
	X-POS.	Y-POS.	
A1	28	6	∅ 3.30 ∇ 9 M4 - 6H ∇ 7
A2	28	36	
A3	60	22	
A4	68	6	
A5	68	36	
A6	70	22	
A7	70	22	
A8	81.50	11	
A9	81.50	82.50	
A10	88	6	
A11	88	36	
A12	128	6	
A13	128	36	
A14	148	6	
A15	148	36	
A16	153	11	
A17	153	82.50	
A18	188	6	
A19	188	36	
B1	23	70.50	∅ 3.30 ∇ 7.50 M4 - 6H ∇ 6
B2	63	70.50	
B3	103	70.50	
B4	143	70.50	
B5	183	70.50	
C1	74	6	∅ 5 ∇ 12 M6 - 6H ∇ 8
C2	74	116	
C3	157.50	6	
C4	157.50	116	
D1	78.50	29	∅ 5 H7 ∇ 10
D2	157.50	29	
E1	53	34	∅ 4.20 ∇ 14 M5 - 6H ∇ 10
E2	53	77	
E3	53	120	
E4	103	34	
E5	103	77	
E6	103	120	
E7	153	34	
E8	153	77	
E9	153	120	



	X-POS.	Y-POS.	
K1	63	-16	∅ 5 ∇ 17 M6 - 6H ∇ 12
K2	63	16	
K3	103	-16	
K4	103	16	
K5	143	-16	
K6	143	16	
K7	183	-16	
K8	183	16	
L1	171	0	∅ 4.20 ∇ 9 M5 - 6H ∇ 7.50
M1	43	-16	
M2	43	16	∅ 5 H7 ∇ 10 +0.012
M3	57	-18	
M4	97	-18	
M5	163	-16	
M6	163	16	
N1	73	-18	



10.7 Linearmodule DM03-48x150_MSxx



Linear Module DM03-48x150G-HP-C...	Stroke H [mm (inch)]		MS Stator length L2 [mm (inch)]		Carriage length L [mm (inch)]		Moving mass ¹⁾ [g (lb)]		Total weight [g (lb)]	
	mm	inch	mm	inch	mm	inch	g	lb	g	lb
...-65_MS02 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2690	(5.80)	6850	(15.10)
...-65_MS03 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2690	(5.80)	6850	(15.10)
...-65_MS04 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2690	(5.80)	6850	(15.10)
...-65_MS06 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2740	(6.04)	6900	(15.21)
...-65_MS07 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2740	(6.04)	6900	(15.21)
...-65_MS09 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2740	(6.04)	6900	(15.21)
...-65_MS31 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2740	(6.04)	7450	(16.42)
...-65_MS34 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2740	(6.04)	7450	(16.42)
...-65_MS36 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2740	(6.04)	7450	(16.42)
...-125_MS02 ²⁾	125	(4.92)	0	(0)	368	(14.49)	3180	(7.01)	7750	(17.09)
...-125_MS03 ²⁾	125	(4.92)	0	(0)	368	(14.49)	3180	(7.01)	7750	(17.09)
...-125_MS04 ²⁾	125	(4.92)	0	(0)	368	(14.49)	3180	(7.01)	7750	(17.09)
...-125_MS06 ²⁾	125	(4.92)	0	(0)	368	(14.49)	3300	(7.28)	7870	(17.35)
...-125_MS07 ²⁾	125	(4.92)	0	(0)	368	(14.49)	3300	(7.28)	7870	(17.35)
...-125_MS09 ²⁾	125	(4.92)	0	(0)	368	(14.49)	3300	(7.28)	7870	(17.35)
...-125_MS31 ²⁾	125	(4.92)	130.5	(5.14)	368	(14.49)	3420	(7.54)	8950	(19.73)
...-125_MS34 ²⁾	125	(4.92)	130.5	(5.14)	368	(14.49)	3420	(7.54)	8950	(19.73)
...-125_MS36 ²⁾	125	(4.92)	130.5	(5.14)	368	(14.49)	3420	(7.54)	8950	(19.73)
...-185_MS02 ²⁾	185	(7.28)	66.5	(2.62)	428	(16.85)	3750	(8.27)	8780	(19.36)
...-185_MS03 ²⁾	185	(7.28)	66.5	(2.62)	428	(16.85)	3750	(8.27)	8780	(19.36)
...-185_MS04 ²⁾	185	(7.28)	66.5	(2.62)	428	(16.85)	3750	(8.27)	8780	(19.36)
...-185_MS06 ²⁾	185	(7.28)	10	(0.39)	428	(16.85)	3790	(8.36)	8820	(19.44)
...-185_MS07 ²⁾	185	(7.28)	10	(0.39)	428	(16.85)	3790	(8.36)	8820	(19.44)
...-185_MS09 ²⁾	185	(7.28)	10	(0.39)	428	(16.85)	3790	(8.36)	8820	(19.44)
...-185_MS31 ²⁾	185	(7.28)	222.5	(8.76)	428	(16.85)	3950	(8.71)	10050	(22.16)

...-185_MS34 ²⁾	185	(7.28)	222.5	(8.76)	428	(16.85)	3950	(8.71)	10050	(22.16)
...-185_MS36 ²⁾	185	(7.28)	222.5	(8.76)	428	(16.85)	3950	(8.71)	10050	(22.16)
...-275_MS02 ²⁾	275	(10.83)	66.5	(2.62)	518	(20.39)	4450	(9.81)	9980	(22.00)
...-275_MS03 ²⁾	275	(10.83)	130.5	(5.14)	518	(20.39)	4450	(9.81)	9980	(22.00)
...-275_MS04 ²⁾	275	(10.83)	130.5	(5.14)	518	(20.39)	4450	(9.81)	9980	(22.00)
...-275_MS06 ²⁾	275	(10.83)	130.5	(5.14)	518	(20.39)	4720	(10.41)	10250	(22.60)
...-275_MS07 ²⁾	275	(10.83)	130.5	(5.14)	518	(20.39)	4720	(10.41)	10250	(22.60)
...-275_MS09 ²⁾	275	(10.83)	130.5	(5.14)	518	(20.39)	4720	(10.41)	10250	(22.60)

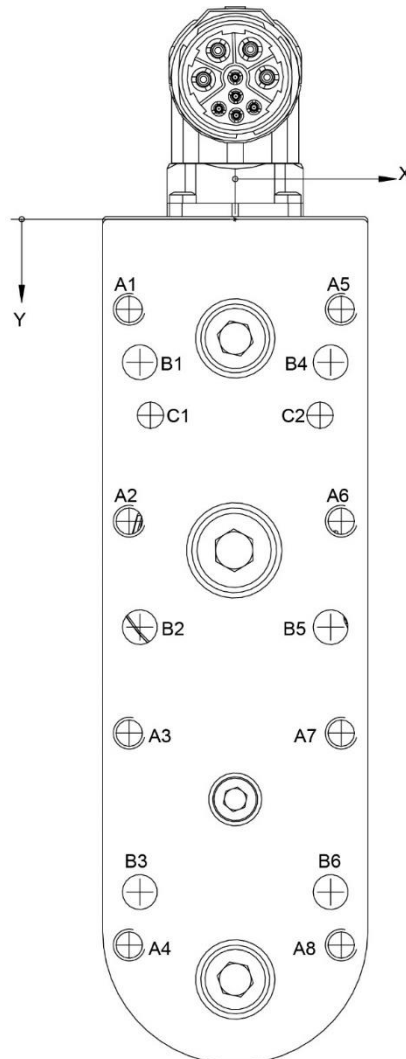
¹⁾ Mass: Slider, Shafts, Front mounting plate, Rear mounting plate, MagSpring slider

²⁾ MagSpring variants with different constant forces :

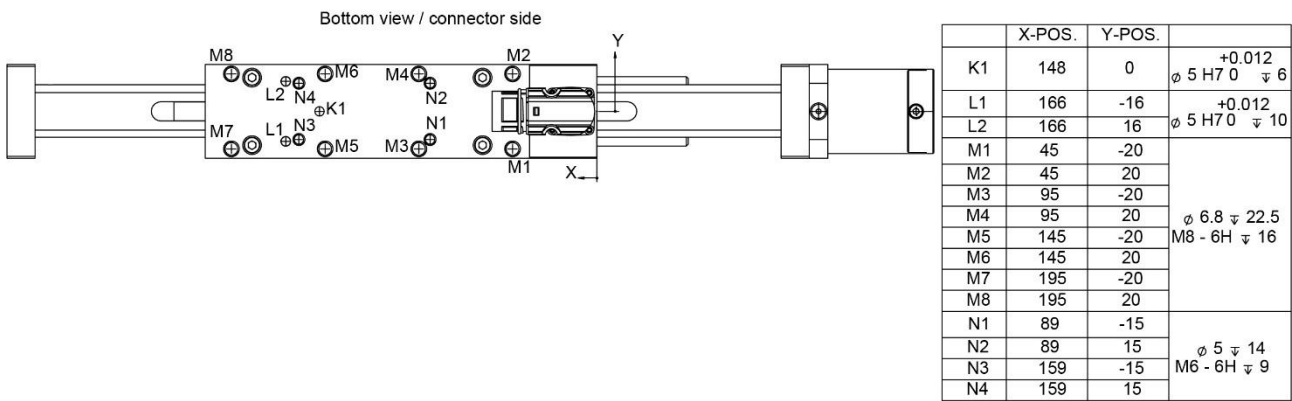
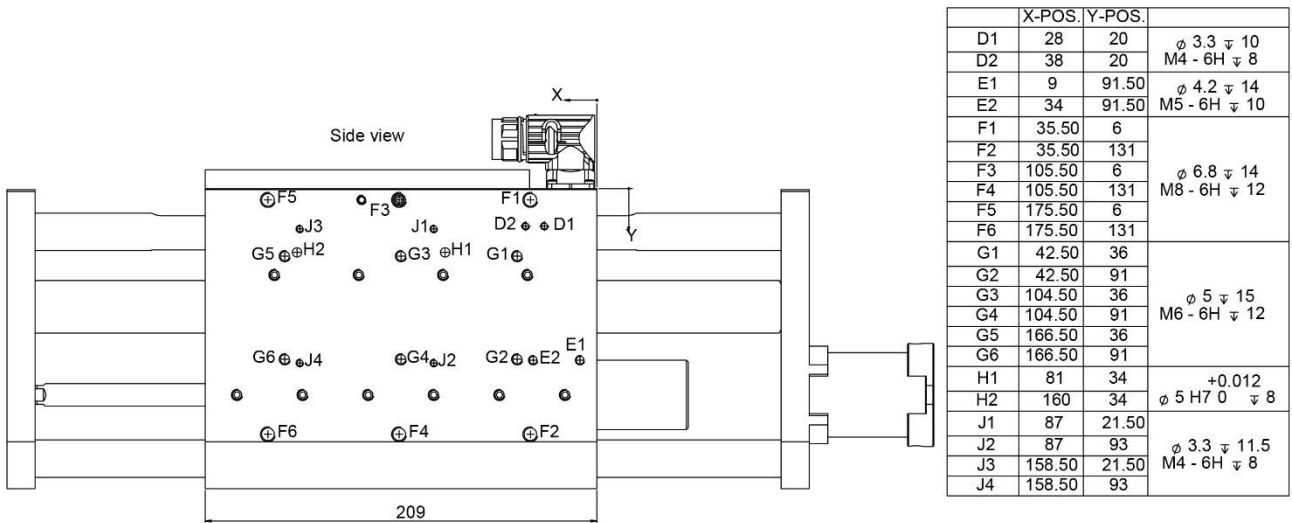
- MS02: Constant force 40N (Effective load compensation depending on moving mass)
- MS03: Constant force 50N (Effective load compensation depending on moving mass)
- MS04: Constant force 60N (Effective load compensation depending on moving mass)
- MS06: Constant force 100N (Effective load compensation depending on moving mass)
- MS07: Constant force 70N (Effective load compensation depending on moving mass)
- MS09: Constant force 90N (Effective load compensation depending on moving mass)
- MS31: Constant force 110N (Effective load compensation depending on moving mass)
- MS34: Constant force 140N (Effective load compensation depending on moving mass)
- MS36: Constant force 160N (Effective load compensation depending on moving mass)

10.7.1 Mounting Plate

	X-POS.	Y-POS.	
A1	-20	17	\varnothing 5 Through all M6 - 6H Through all
A2	-20	57	
A3	-20	97	
A4	-20	137	
A5	20	17	
A6	20	57	
A7	20	97	
A8	20	137	
B1	-18	27	\varnothing 6.6 Through all \square \varnothing 11 ∇ 6.4
B2	-18	77	
B3	-18	127	
B4	18	27	
B5	18	77	
B6	18	127	
C1	-16	37	\varnothing 5 H7 $\begin{matrix} +0.012 \\ 0 \\ \nabla 10 \end{matrix}$
C2	16	37	

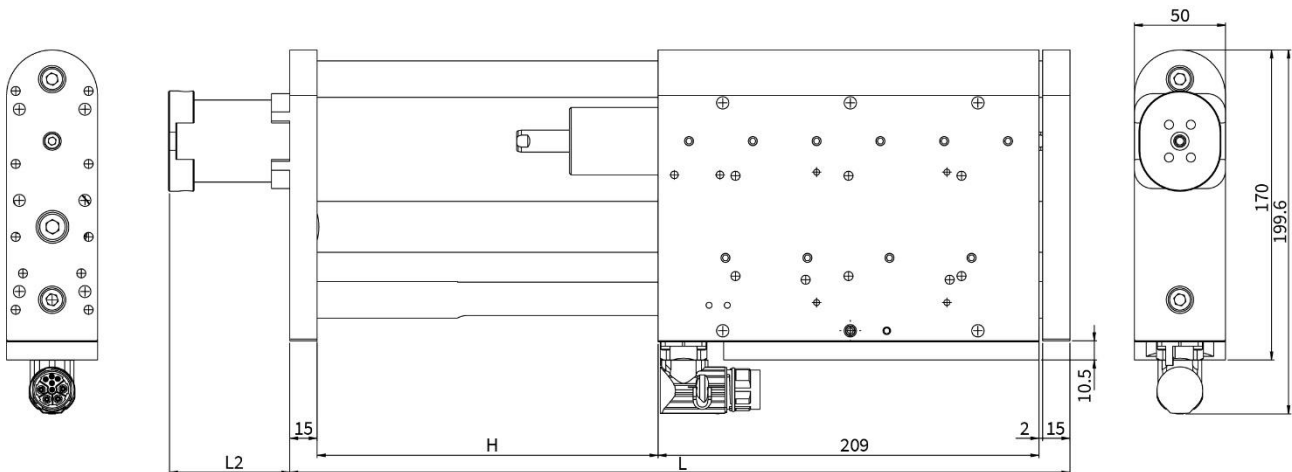


10.7.2 Guide Block



Lay out size of fastening element
+10mm due to cover plate

10.8 Linearmodule DM03-48x150_MSxx_EN02



Linear Module DM03-48x150G-HP-C...	Stroke H [mm (inch)]	MS Stator length L2 [mm (inch)]	Carriage length L [mm (inch)]	Moving mass ¹⁾ [g (lb)]	Total weight [g (lb)]
...-65_MS02_EN02 ²⁾	65 (2.56)	0 (0)	308 (12.13)	2690 (5.80)	6850 (15.10)
...-65_MS03_EN02 ²⁾	65 (2.56)	0 (0)	308 (12.13)	2690 (5.80)	6850 (15.10)
...-65_MS04_EN02 ²⁾	65 (2.56)	0 (0)	308 (12.13)	2690 (5.80)	6850 (15.10)

...-65_MS06_EN02 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2740	(6.04)	6900	(15.21)
...-65_MS07_EN02 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2740	(6.04)	6900	(15.21)
...-65_MS09_EN02 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2740	(6.04)	6900	(15.21)
...-65_MS31_EN02 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2740	(6.04)	7450	(16.42)
...-65_MS34_EN02 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2740	(6.04)	7450	(16.42)
...-65_MS36_EN02 ²⁾	65	(2.56)	0	(0)	308	(12.13)	2740	(6.04)	7450	(16.42)
...-125_MS02_EN02 ²⁾	125	(4.92)	0	(0)	368	(14.49)	3180	(7.01)	7750	(17.09)
...-125_MS03_EN02 ²⁾	125	(4.92)	0	(0)	368	(14.49)	3180	(7.01)	7750	(17.09)
...-125_MS04_EN02 ²⁾	125	(4.92)	0	(0)	368	(14.49)	3180	(7.01)	7750	(17.09)
...-125_MS06_EN02 ²⁾	125	(4.92)	0	(0)	368	(14.49)	3300	(7.28)	7870	(17.35)
...-125_MS07_EN02 ²⁾	125	(4.92)	0	(0)	368	(14.49)	3300	(7.28)	7870	(17.35)
...-125_MS09_EN02 ²⁾	125	(4.92)	0	(0)	368	(14.49)	3300	(7.28)	7870	(17.35)
...-125_MS31_EN02 ²⁾	125	(4.92)	130.5	(5.14)	368	(14.49)	3420	(7.54)	8950	(19.73)
...-125_MS34_EN02 ²⁾	125	(4.92)	130.5	(5.14)	368	(14.49)	3420	(7.54)	8950	(19.73)
...-125_MS36_EN02 ²⁾	125	(4.92)	130.5	(5.14)	368	(14.49)	3420	(7.54)	8950	(19.73)
...-185_MS02_EN02 ²⁾	185	(7.28)	66.5	(2.62)	428	(16.85)	3750	(8.27)	8780	(19.36)
...-185_MS03_EN02 ²⁾	185	(7.28)	66.5	(2.62)	428	(16.85)	3750	(8.27)	8780	(19.36)
...-185_MS04_EN02 ²⁾	185	(7.28)	66.5	(2.62)	428	(16.85)	3750	(8.27)	8780	(19.36)
...-185_MS06_EN02 ²⁾	185	(7.28)	10	(0.39)	428	(16.85)	3790	(8.36)	8820	(19.44)
...-185_MS07_EN02 ²⁾	185	(7.28)	10	(0.39)	428	(16.85)	3790	(8.36)	8820	(19.44)
...-185_MS09_EN02 ²⁾	185	(7.28)	10	(0.39)	428	(16.85)	3790	(8.36)	8820	(19.44)
...-185_MS31_EN02 ²⁾	185	(7.28)	222.5	(8.76)	428	(16.85)	3950	(8.71)	10050	(22.16)
...-185_MS34_EN02 ²⁾	185	(7.28)	222.5	(8.76)	428	(16.85)	3950	(8.71)	10050	(22.16)
...-185_MS36_EN02 ²⁾	185	(7.28)	222.5	(8.76)	428	(16.85)	3950	(8.71)	10050	(22.16)
...-275_MS02_EN02 ²⁾	275	(10.83)	66.5	(2.62)	518	(20.39)	4450	(9.81)	9980	(22.00)
...-275_MS03_EN02 ²⁾	275	(10.83)	130.5	(5.14)	518	(20.39)	4450	(9.81)	9980	(22.00)
...-275_MS04_EN02 ²⁾	275	(10.83)	130.5	(5.14)	518	(20.39)	4450	(9.81)	9980	(22.00)
...-275_MS06_EN02 ²⁾	275	(10.83)	130.5	(5.14)	518	(20.39)	4720	(10.41)	10250	(22.60)
...-275_MS07_EN02 ²⁾	275	(10.83)	130.5	(5.14)	518	(20.39)	4720	(10.41)	10250	(22.60)
...-275_MS09_EN02 ²⁾	275	(10.83)	130.5	(5.14)	518	(20.39)	4720	(10.41)	10250	(22.60)

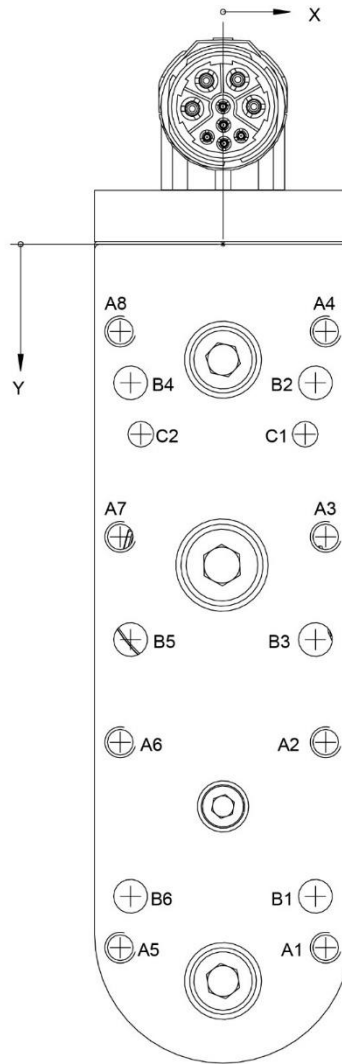
¹⁾ Mass: Slider, Shafts, Front mounting plate, Rear mounting plate, MagSpring slider

²⁾ MagSpring variants with different constant forces :

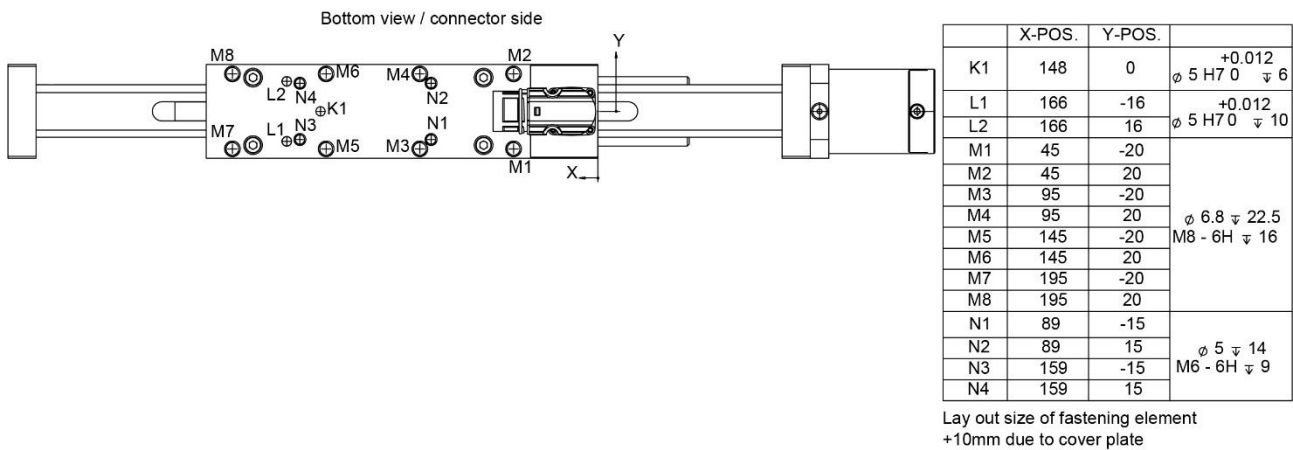
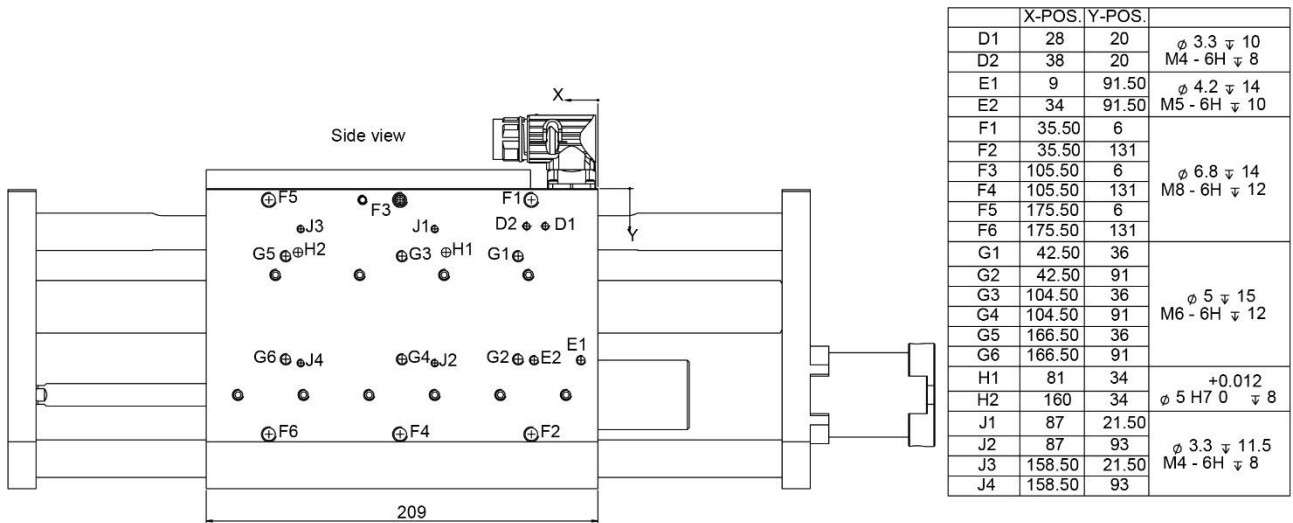
- MS02: Constant force 40N (Effective load compensation depending on moving mass)
- MS03: Constant force 50N (Effective load compensation depending on moving mass)
- MS04: Constant force 60N (Effective load compensation depending on moving mass)
- MS06: Constant force 100N (Effective load compensation depending on moving mass)
- MS07: Constant force 70N (Effective load compensation depending on moving mass)
- MS09: Constant force 90N (Effective load compensation depending on moving mass)
- MS31: Constant force 110N (Effective load compensation depending on moving mass)
- MS34: Constant force 140N (Effective load compensation depending on moving mass)
- MS36: Constant force 160N (Effective load compensation depending on moving mass)

10.8.1 Mounting Plate

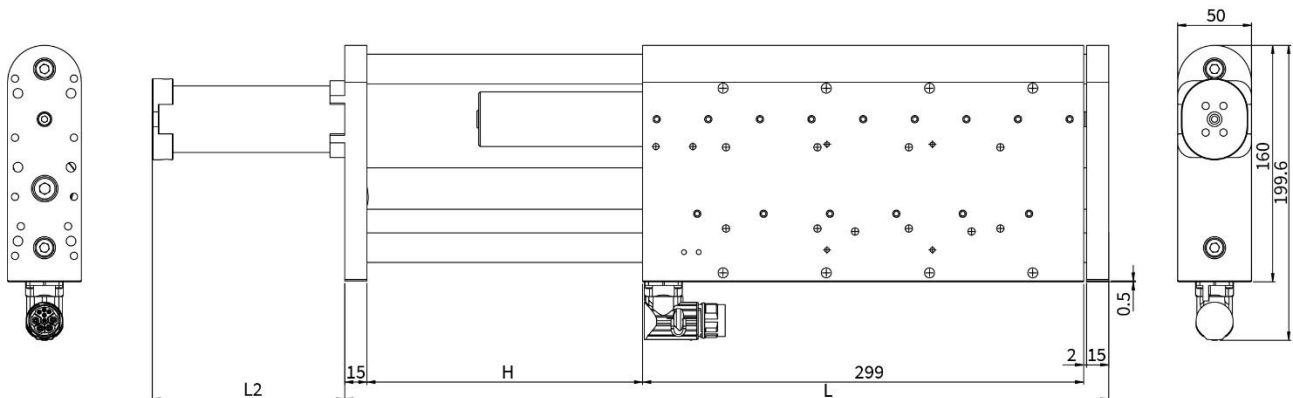
	X-POS.	Y-POS.	
A1	20	137	$\varnothing 5$ Through all M6 - 6H Through all
A2	20	97	
A3	20	57	
A4	20	17	
A5	-20	137	
A6	-20	97	
A7	-20	57	
A8	-20	17	
B1	18	127	$\varnothing 6.6$ Through all $\square \varnothing 11 \nabla 6.4$
B2	18	27	
B3	18	77	
B4	-18	27	
B5	-18	77	
B6	-18	127	
C1	16	37	$\varnothing 5$ H7 $\begin{matrix} +0.012 \\ 0 \\ \nabla 10 \end{matrix}$
C2	-16	37	



10.8.2 Guide Block



10.9 Linearmodule DM03-48x240_MSxx



Linear Module DM03-48x240F-HP-C...	Stroke H [mm (inch)]	MS Stator length L2 [mm (inch)]	Carriage length L [mm (inch)]	Moving mass ¹⁾ [g (lb)]	Total weight [g (lb)]
...-95_MS02 ²⁾	95 (3.74)	0 (0)	428 (16.85)	3610 (7.96)	9700 (21.38)
...-95_MS03 ²⁾	95 (3.74)	0 (0)	428 (16.85)	3610 (7.96)	9700 (21.38)
...-95_MS04 ²⁾	95 (3.74)	0 (0)	428 (16.85)	3610 (7.96)	9700 (21.38)
...-95_MS06 ²⁾	95 (3.74)	0 (0)	428 (16.85)	3610 (7.96)	9700 (21.38)
...-95_MS07 ²⁾	95 (3.74)	0 (0)	428 (16.85)	3610 (7.96)	9700 (21.38)

...-95_MS09 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	9700	(21.38)
...-95_MS31 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	10400	(22.93)
...-95_MS34 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	10400	(22.93)
...-95_MS36 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	10400	(22.93)
... -185_MS02 ²⁾	185	(7.28)	0	(0)	518	(20.39)	4320	(9.52)	10980	(24.21)
... -185_MS03 ²⁾	185	(7.28)	0	(0)	518	(20.39)	4320	(9.52)	10980	(24.21)
... -185_MS04 ²⁾	185	(7.28)	0	(0)	518	(20.39)	4320	(9.52)	10980	(24.21)
... -185_MS06 ²⁾	185	(7.28)	0	(0)	518	(20.39)	4430	(9.77)	11090	(24.45)
... -185_MS07 ²⁾	185	(7.28)	0	(0)	518	(20.39)	4430	(9.77)	11090	(24.45)
... -185_MS09 ²⁾	185	(7.28)	0	(0)	518	(20.39)	4430	(9.77)	11090	(24.45)
... -185_MS31 ²⁾	185	(7.28)	130.5	(5.14)	518	(20.39)	4560	(10.05)	12290	(27.09)
... -185_MS34 ²⁾	185	(7.28)	130.5	(5.14)	518	(20.39)	4560	(10.05)	12290	(27.09)
... -185_MS36 ²⁾	185	(7.28)	130.5	(5.14)	518	(20.39)	4560	(10.05)	12290	(27.09)
... -285_MS02 ²⁾	285	(11.22)	66.5	(2.62)	638	(25.12)	5300	(11.68)	12460	(27.47)
... -285_MS03 ²⁾	285	(11.22)	66.5	(2.62)	638	(25.12)	5300	(11.68)	12460	(27.47)
... -285_MS04 ²⁾	285	(11.22)	66.5	(2.62)	638	(25.12)	5300	(11.68)	12460	(27.47)
... -285_MS06 ²⁾	285	(11.22)	10	(0.39)	638	(25.12)	5510	(12.15)	12670	(27.93)
... -285_MS07 ²⁾	285	(11.22)	10	(0.39)	638	(25.12)	5510	(12.15)	12670	(27.93)
... -285_MS09 ²⁾	285	(11.22)	10	(0.39)	638	(25.12)	5510	(12.15)	12670	(27.93)

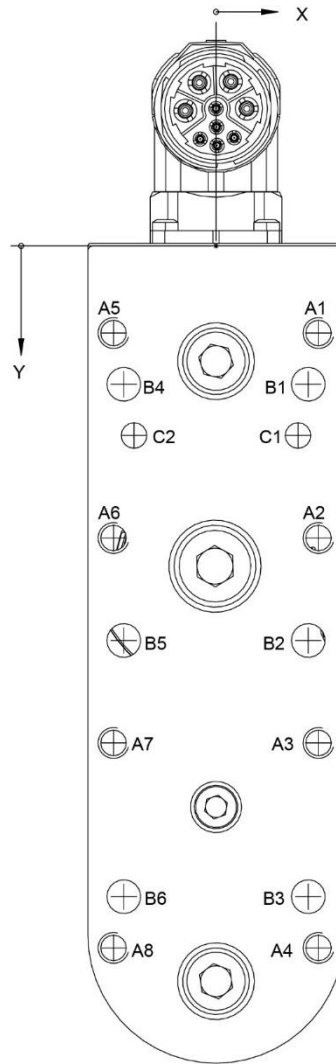
¹⁾ Mass: Slider, Shafts, Front mounting plate, Rear mounting plate, MagSpring slider

²⁾ MagSpring variants with different constant forces :

MS02: Constant force 40N (Effective load compensation depending on moving mass)
MS03: Constant force 50N (Effective load compensation depending on moving mass)
MS04: Constant force 60N (Effective load compensation depending on moving mass)
MS06: Constant force 100N (Effective load compensation depending on moving mass)
MS07: Constant force 70N (Effective load compensation depending on moving mass)
MS09: Constant force 90N (Effective load compensation depending on moving mass)
MS31: Constant force 110N (Effective load compensation depending on moving mass)
MS34: Constant force 140N (Effective load compensation depending on moving mass)
MS36: Constant force 160N (Effective load compensation depending on moving mass)

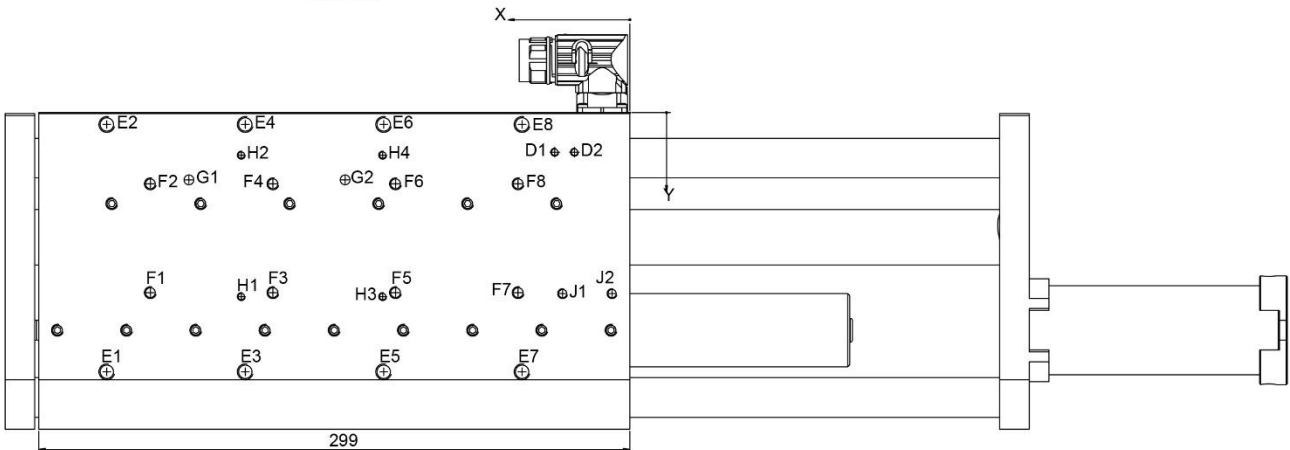
10.9.1 Mounting Plate

	X-POS.	Y-POS.	
A1	20	17	ϕ 5 Through all M6 - 6H Through all
A2	20	57	
A3	20	97	
A4	20	137	
A5	-20	17	
A6	-20	57	
A7	-20	97	
A8	-20	137	
B1	18	27	ϕ 6.6 Through all \square ϕ 11 ∇ 6.4
B2	18	77	
B3	18	127	
B4	-18	27	
B5	-18	77	
B6	-18	127	
C1	16	37	ϕ 5 H7 +0.012 0 ∇ 10
C2	-16	37	



10.9.2 Guide Block

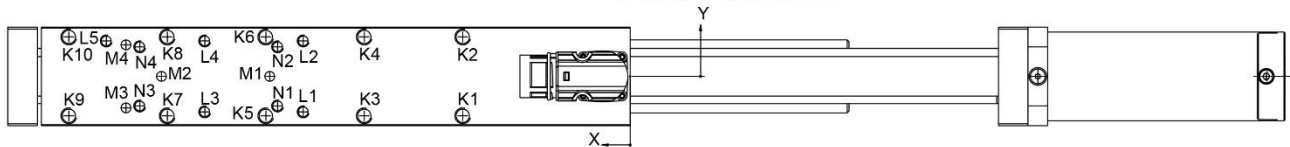
Side view



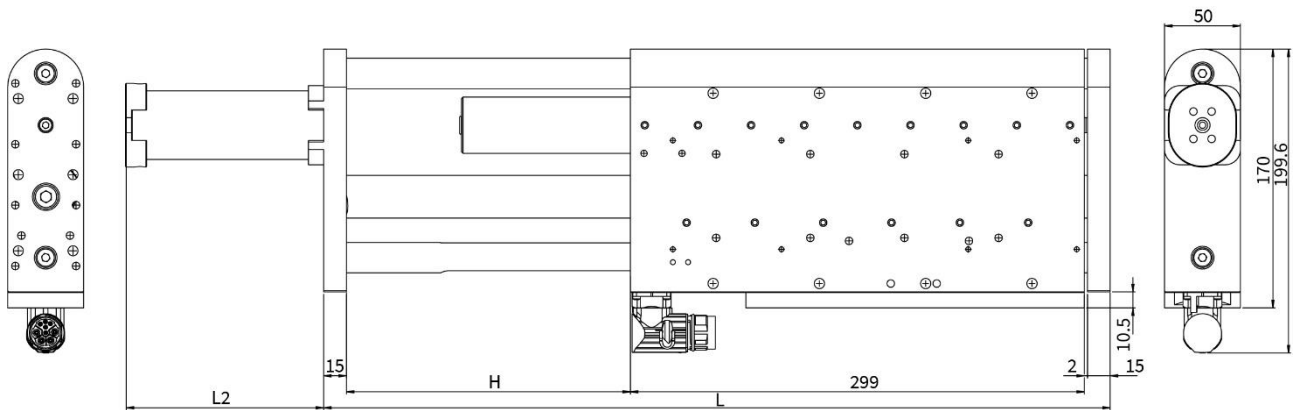
	X-POS.	Y-POS.	
D1	38	20	ϕ 3.3 ∇ 10
D2	28	20	M4 - 6H ∇ 8
E1	264.50	131	ϕ 6.8 ∇ 16.25 M8 - 6H ∇ 12
E2	264.50	6	
E3	194.50	131	
E4	194.50	6	
E5	124.50	131	
E6	124.50	6	
E7	54.50	131	
E8	54.50	6	
F1	242.50	91	ϕ 5 ∇ 15 M6 - 6H ∇ 12
F2	242.50	36	
F3	180.50	91	
F4	180.50	36	
F5	118.50	91	
F6	118.50	36	
F7	56.50	91	
F8	56.50	36	
G1	223	34	+0.012
G2	144	34	ϕ 5 H7 0 ∇ 10
H1	196.50	93	ϕ 3.3 ∇ 11.5 M4 - 6H ∇ 8
H2	196.50	21.50	
H3	125	93	
H4	125	21.50	
J1	34	91.50	ϕ 4.2 ∇ 14
J2	9	91.50	M5 - 6H ∇ 10

	X-POS.	Y-POS.		
K1	85	-20	ϕ 6.8 ∇ 22.5 M8 - 6H ∇ 16	
K2	85	20		
K3	135	-20		
K4	135	20		
K5	185	-20		
K6	185	20		
K7	235	-20		
K8	235	20		
K9	285	-20		
K10	285	20		
L1	166	-18	ϕ 5 ∇ 18 M6 - 6H ∇ 12	
L2	166	18		
L3	216	-18		
L4	216	18		
L5	266	18		
M1	183	0	+0.012	
M2	238	0		
M3	256	-16		ϕ 5 H7 0 ∇ 10
M4	256	16		
N1	179	-15	ϕ 5 ∇ 17 M6 - 6H ∇ 12	
N2	179	15		
N3	249	-15		
N4	249	15		

Bottom view / connector side



10.10 Linearmodule DM03-48x240_MSxx_EN02



Linear Module DM03-48x240F-HP-C...	Stroke H [mm (inch)]		MS Stator length L2 [mm (inch)]		Carriage length L [mm (inch)]		Moving mass ¹⁾ [g (lb)]		Total weight [g (lb)]	
...-95_MS02_EN02 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	9700	(21.38)
...-95_MS03_EN02 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	9700	(21.38)
...-95_MS04_EN02 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	9700	(21.38)
...-95_MS06_EN02 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	9700	(21.38)
...-95_MS07_EN02 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	9700	(21.38)
...-95_MS09_EN02 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	9700	(21.38)
...-95_MS31_EN02 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	10400	(22.93)
...-95_MS34_EN02 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	10400	(22.93)
...-95_MS36_EN02 ²⁾	95	(3.74)	0	(0)	428	(16.85)	3610	(7.96)	10400	(22.93)
... -185_MS02_EN02 ²⁾	185	(7.28)	0	(0)	518	(20.39)	4320	(9.52)	10980	(24.21)
... -185_MS03_EN02 ²⁾	185	(7.28)	0	(0)	518	(20.39)	4320	(9.52)	10980	(24.21)
... -185_MS04_EN02 ²⁾	185	(7.28)	0	(0)	518	(20.39)	4320	(9.52)	10980	(24.21)
... -185_MS06_EN02 ²⁾	185	(7.28)	0	(0)	518	(20.39)	4430	(9.77)	11090	(24.45)
... -185_MS07_EN02 ²⁾	185	(7.28)	0	(0)	518	(20.39)	4430	(9.77)	11090	(24.45)
... -185_MS09_EN02 ²⁾	185	(7.28)	0	(0)	518	(20.39)	4430	(9.77)	11090	(24.45)
... -185_MS31_EN02 ²⁾	185	(7.28)	130.5	(5.14)	518	(20.39)	4560	(10.05)	12290	(27.09)
... -185_MS34_EN02 ²⁾	185	(7.28)	130.5	(5.14)	518	(20.39)	4560	(10.05)	12290	(27.09)
... -185_MS36_EN02 ²⁾	185	(7.28)	130.5	(5.14)	518	(20.39)	4560	(10.05)	12290	(27.09)
... -285_MS02_EN02 ²⁾	285	(11.22)	66.5	(2.62)	638	(25.12)	5300	(11.68)	12460	(27.47)
... -285_MS03_EN02 ²⁾	285	(11.22)	66.5	(2.62)	638	(25.12)	5300	(11.68)	12460	(27.47)
... -285_MS04_EN02 ²⁾	285	(11.22)	66.5	(2.62)	638	(25.12)	5300	(11.68)	12460	(27.47)
... -285_MS06_EN02 ²⁾	285	(11.22)	10	(0.39)	638	(25.12)	5510	(12.15)	12670	(27.93)
... -285_MS07_EN02 ²⁾	285	(11.22)	10	(0.39)	638	(25.12)	5510	(12.15)	12670	(27.93)
... -285_MS09_EN02 ²⁾	285	(11.22)	10	(0.39)	638	(25.12)	5510	(12.15)	12670	(27.93)

¹⁾ Mass: Slider, Shafts, Front mounting plate, Rear mounting plate, MagSpring slider

²⁾ MagSpring variants with different constant forces :

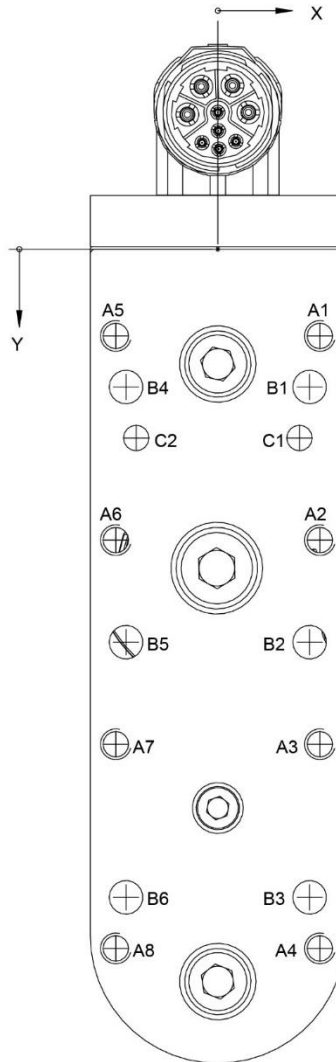
MS02: Constant force 40N (Effective load compensation depending on moving mass)

MS03: Constant force 50N (Effective load compensation depending on moving mass)

MS04: Constant force 60N (Effective load compensation depending on moving mass)
 MS06: Constant force 100N (Effective load compensation depending on moving mass)
 MS07: Constant force 70N (Effective load compensation depending on moving mass)
 MS09: Constant force 90N (Effective load compensation depending on moving mass)
 MS31: Constant force 110N (Effective load compensation depending on moving mass)
 MS34: Constant force 140N (Effective load compensation depending on moving mass)
 MS36: Constant force 160N (Effective load compensation depending on moving mass)

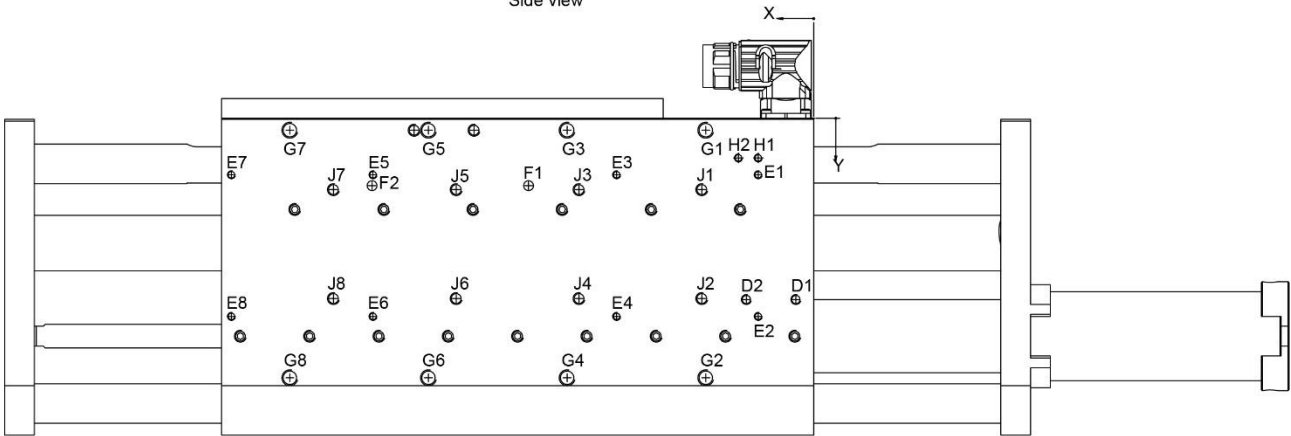
10.10.1 Mounting Plate

	X-POS.	Y-POS.	
A1	20	17	\varnothing 5 Through all M6 - 6H Through all
A2	20	57	
A3	20	97	
A4	20	137	
A5	-20	17	
A6	-20	57	
A7	-20	97	
A8	-20	137	
B1	18	27	\varnothing 6.6 Through all \square \varnothing 11 ∇ 6.4
B2	18	77	
B3	18	127	
B4	-18	27	
B5	-18	77	
B6	-18	127	
C1	16	37	\varnothing 5 H7 $\begin{matrix} +0.012 \\ 0 \end{matrix}$ ∇ 10
C2	-16	37	



10.10.2 Guide Block

Side view

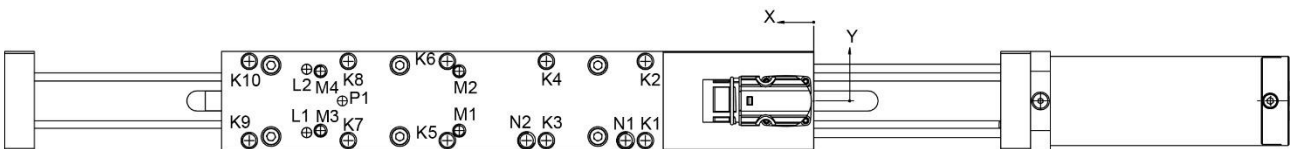


	X-POS.	Y-POS.	
D1	9	91.50	∅ 4.2 ∓ 14 M5 - 6H ∓ 10
D2	34	91.50	
E1	28	28.50	∅ 3.3 ∓ 8 M4 - 6H ∓ 6
E2	28	100	
E3	99.50	28.50	
E4	99.50	100	
E5	222.50	28.50	
E6	222.50	100	
E7	294	28.50	
E8	294	100	
F1	144	34	+0.012 ∅ 5 H7 0 ∓ 8
F2	223	34	
G1	54.50	6	∅ 6.8 ∓ 16.25 M8 - 6H ∓ 12
G2	54.50	131	
G3	124.50	6	
G4	124.50	131	
G5	194.50	6	
G6	194.50	131	
G7	264.50	6	
G8	264.50	131	
H1	28	20	∅ 3.3 ∓ 10 M4 - 6H ∓ 8
H2	38	20	
J1	56.50	36	∅ 5 ∓ 15 M6 - 6H ∓ 12
J2	56.50	91	
J3	118.50	36	
J4	118.50	91	
J5	180.50	36	
J6	180.50	91	
J7	242.50	36	
J8	242.50	91	




	X-POS.	Y-POS.	
K1	85	-20	∅ 6.8 ∓ 22.25 M8 - 6H ∓ 16
K2	85	20	
K3	135	-20	
K4	135	20	
K5	185	-20	
K6	185	20	
K7	235	-20	
K8	235	20	
K9	285	-20	
K10	285	20	
L1	256	-16	+0.012 ∅ 5 H7 0 ∓ 10
L2	256	16	
M1	179	-15	∅ 5 ∓ 14 M6 - 6H ∓ 9
M2	179	15	
M3	249	-15	
M4	249	15	
N1	95	-20	∅ 6.8 ∓ 15 M8 - 6H ∓ 11
N2	145	-20	
P1	238	0	+0.012 ∅ 5 H7 0 ∓ 6

Laying out fastening elements
+10mm due to cover plate

Bottom view / connector side



11 International Certificates

<p>Europe</p> 	<p>See chapter “EU Declaration of Conformity CE-Marking”</p>
<p>UK</p> 	<p>See chapter “UK Declaration of Conformity UKCA-Marking”</p>
<p>IECEE CB SCHEME</p>	<p>Ref. Certif. Nr. CH-8521 Ref. Certif. Nr. CH-11537</p>
<p>USA / Canada</p> 	<p>File Number E354430 Refers to cURus marked motors</p>



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	Bodenackerstrasse 2 SWITZERLAND 8957 Spreitenbach
Name and address of the manufacturer	NTI AG	Bodenackerstrasse 2 SWITZERLAND 8957 Spreitenbach
Name and address of the factory	NTI AG	Bodenackerstrasse 2 SWITZERLAND 8957 Spreitenbach
<i>Note: When more than one factory, please report on page 2</i>	<input type="checkbox"/> 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)	---	
A sample of product was tested and found to be in conformity with IEC	<input type="checkbox"/> Additional Information on page 2	
National differences	IEC 61000-6-2:2016 IEC 61000-6-4:2006, IEC 61000-6-4:2006/AMD1:2010 IEC 61000-6-7:2014 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	



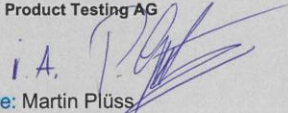


This CB Test Certificate is issued by the National Certification Body

Electrosuisse
Luppenstrasse 1
8320 Fehraltorf
SWITZERLAND

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



	Ref. Certif. No. CH-11537																
IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME																	
<table style="width: 100%; border: none;"> <tr> <td colspan="2" style="border: none;">CB TEST CERTIFICATE</td> </tr> <tr> <td style="border: none; width: 35%; vertical-align: top;"> <p>Product</p> <p>Name and address of the applicant</p> <p>Name and address of the manufacturer</p> <p>Name and address of the factory</p> <p><small>Note: When more than one factory, please report on page 2</small></p> <p>Ratings and principal characteristics</p> <p>Trademark / Brand (if any)</p> <p>Customer Test Facility (CTF) Stage used</p> <p>Model / Type Ref.</p> <p>Additional information (if necessary may also be reported on page 2)</p> <p>A sample of the product was tested and found to be in conformity with</p> <p>As shown in the Test Report Ref. No. which forms part of this Certificate</p> </td> <td style="border: none; vertical-align: top;"> <p>Linear motor</p> <p>NTI AG Bodenackerstrasse 2, 8957 Spreitenbach Switzerland</p> <p>NTI AG Bodenackerstrasse 2, 8957 Spreitenbach Switzerland</p> <p>NTI AG Bodenackerstrasse 2, 8957 Spreitenbach Switzerland</p> <table style="width: 100%; border: none;"> <tr> <td>PS01-48x240F-HP-C-2S:</td> <td>72V / 5.7A</td> <td>PS01-48x240F-C-2S:</td> <td>72V / 4.7A</td> </tr> <tr> <td>PS01-48x150G-HP-C-2S:</td> <td>72V / 5.0A</td> <td>PS01-37x120F-HP-C-2S:</td> <td>72V / 2.1A</td> </tr> <tr> <td>PS01-23x160H-HP-R-2S:</td> <td>72V / 1.8A</td> <td>PS01-23x80F-HP-R-2S:</td> <td>72V / 1.2A</td> </tr> </table> <p>LinMot</p> <p>./.</p> <p>PS01-48x240F-HP-C-2S PS01-48x240F-C-2S PS01-48x150G-HP-C-2S PS01-37x120F-HP-C-2S PS01-23x160H-HP-R-2S PS01-23x80F-HP-R-2S</p> <p>National Differences specified in the CB Test Report</p> <p>IEC 61000-3-2:2018 IEC 61000-3-2:2018/AMD1:2020 IEC 61000-3-3:2013 IEC 61000-3-3:2013/AMD1:2017 IEC 61000-6-2:2016 IEC 61000-6-4:2018 IEC 61326-3-1:2017</p> <p>21CH-00310.E01, .Z02</p> </td> </tr> </table>		CB TEST CERTIFICATE		<p>Product</p> <p>Name and address of the applicant</p> <p>Name and address of the manufacturer</p> <p>Name and address of the factory</p> <p><small>Note: When more than one factory, please report on page 2</small></p> <p>Ratings and principal characteristics</p> <p>Trademark / Brand (if any)</p> <p>Customer Test Facility (CTF) Stage used</p> <p>Model / Type Ref.</p> <p>Additional information (if necessary may also be reported on page 2)</p> <p>A sample of the product was tested and found to be in conformity with</p> <p>As shown in the Test Report Ref. No. which forms part of this Certificate</p>	<p>Linear motor</p> <p>NTI AG Bodenackerstrasse 2, 8957 Spreitenbach Switzerland</p> <p>NTI AG Bodenackerstrasse 2, 8957 Spreitenbach Switzerland</p> <p>NTI AG Bodenackerstrasse 2, 8957 Spreitenbach Switzerland</p> <table style="width: 100%; border: none;"> <tr> <td>PS01-48x240F-HP-C-2S:</td> <td>72V / 5.7A</td> <td>PS01-48x240F-C-2S:</td> <td>72V / 4.7A</td> </tr> <tr> <td>PS01-48x150G-HP-C-2S:</td> <td>72V / 5.0A</td> <td>PS01-37x120F-HP-C-2S:</td> <td>72V / 2.1A</td> </tr> <tr> <td>PS01-23x160H-HP-R-2S:</td> <td>72V / 1.8A</td> <td>PS01-23x80F-HP-R-2S:</td> <td>72V / 1.2A</td> </tr> </table> <p>LinMot</p> <p>./.</p> <p>PS01-48x240F-HP-C-2S PS01-48x240F-C-2S PS01-48x150G-HP-C-2S PS01-37x120F-HP-C-2S PS01-23x160H-HP-R-2S PS01-23x80F-HP-R-2S</p> <p>National Differences specified in the CB Test Report</p> <p>IEC 61000-3-2:2018 IEC 61000-3-2:2018/AMD1:2020 IEC 61000-3-3:2013 IEC 61000-3-3:2013/AMD1:2017 IEC 61000-6-2:2016 IEC 61000-6-4:2018 IEC 61326-3-1:2017</p> <p>21CH-00310.E01, .Z02</p>	PS01-48x240F-HP-C-2S:	72V / 5.7A	PS01-48x240F-C-2S:	72V / 4.7A	PS01-48x150G-HP-C-2S:	72V / 5.0A	PS01-37x120F-HP-C-2S:	72V / 2.1A	PS01-23x160H-HP-R-2S:	72V / 1.8A	PS01-23x80F-HP-R-2S:	72V / 1.2A
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This CB Test Certificate is issued by the National Certification Body																	
 <p>Date: 2022-02-28</p>	<p>Eurofins Electric & Electronic Product Testing AG Luppenstrasse 3 8320 Fehraltorf SWITZERLAND</p> <p style="text-align: right;">i.A.  Signature: Martin Plüss</p>																

T01_V04

CERTIFICATE OF COMPLIANCE

Certificate Number E354430
Report Reference E354430-20200923
Issue Date 2020-SEPTEMBER-29

Issued to: NTI AG
Bodenaeckerstr 2
8957 SPREITENBACH SWITZERLAND

This certificate confirms that representative samples of COMPONENT - INCOMPLETE ROTATING MACHINES AND ROTATING MACHINE PARTS
Class A Insulated Linear Motor Series DM01.

Have been investigated by UL in accordance with the component requirements in the Standard(s) indicated on this Certificate. UL Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for installation in complete equipment submitted for investigation to UL LLC.

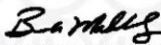
Standard(s) for Safety: UL 1004-1 Rotating electrical machines
CSA C22.2 No. 100 Motors and Generators

Additional Information: See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Recognized Component Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Recognized Component 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/about/ullicense/>.



12 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 Modules of the Series **DM03-23**
- Linear Modules of the Series **DM03-37**
- Linear Modules of the Series **DM03-37 EN02**
- Linear Modules of the Series **DM03-48**
- Linear Modules of the Series **DM03-48 EN02**

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, 27.09.2024



Dr.-Ing. Ronald Rohner
CEO NTI AG

13 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

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

Applied designated standards:

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Company: NTI AG
Spreitenbach, 27.09.2024



Dr.-Ing. Ronald Rohner
CEO NTI AG

ALL LINEAR MOTION FROM A SINGLE SOURCE

Europe / Asia Headquarters

NTI AG - LinMot & MagSpring

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CH-8957 Spreitenbach
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Tech. Support: +41 56 544 71 00
support@linmot.com

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

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Lake Geneva, WI 53147
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Sales / Administration: 262.743.2555
usasales@linmot.com

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usasupport@linmot.com

Web: <https://www.linmot-usa.com/>