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Symbols, safety



Important information



Observe directions for disposal



Observe directions for disposal



Maintenance



Note! Failure to observe this safety instruction can result in material damage



Caution! Failure to observe this safety instruction can result in material damage or injury

General safety information

The details and information in this installation guide are provided for the purposes of describing the product and its assembly only. This information does not discharge users from the obligation to conduct their own assessments and checks. It is also important to bear in mind that our products are subject to a natural process of wear and ageing.

This guide contains important information that will enable you to use the product safely and appropriately. When this product is sold, rented out or otherwise passed on to another party, it must be handed over with this guide. You must therefore read and follow the safety instructions set out below.

- All work on and with Linear Guides 6 60 PS and 6 60 PS Transverse Carriage must be performed with “safety first” in mind.
- If possible, switch off the power to the system before carrying out any work on a Linear Guide.
- Observe the regulations pertaining to accident prevention and environmental protection that apply in the country and place of work where the product is being used.
- Use only item products that are in perfect working order.
- Failure to use original spare parts will invalidate the product warranty!
- Check the product for obvious defects.
- Use the product only within the performance range described in the technical data.
- Ensure all the safety equipment associated with the product is present, properly installed and in full working order.
- Do not alter the position of safety equipment, circumvent it or render it ineffective.

The Linear Guide 6 60 PS and Linear Guide 6 60 PS Transverse Carriage documented here correspond to the state of the art and take into account the general principles of safety applicable at the time this guide was published. Nevertheless, failure to observe the safety instructions and warning notices in this guide may result in personal injury and damage to property. We will assume no liability for any resulting damage or injury. We reserve the right to make changes that represent technical advances. Keep this guide in a place where it can be accessed by all users at any time. The general safety information applies to the entire lifecycle of the Linear Guides.

Correct use

Linear Guide 6 60 PS is a component and must only be used in accordance with the technical data and safety requirements set out in this document. Combining Linear Guide 6 60 PS with a drive system, motor and controller creates a partly completed machine as defined in Machinery Directive 2006/42/EC. Internal company requirements and the regulations that apply in the country where the product is being used must be observed. You must not make any design modifications to Linear Guide 6 60 PS yourself. We will assume no liability for any resulting damage or injury. You may only install, operate and maintain Linear Guide 6 60 PS if:

- Linear Guide 6 60 PS has been integrated into its surroundings in a proper and safe manner.
- You have carefully read and understood this guide.
- You are appropriately qualified.
- You are authorised to do so by your company.
- You are using only original equipment from the manufacturer.

Linear Guide 6 60 PS is designed for indoor use.

Improper use

Improper use is defined as any use of the product for purposes other than those authorised in this guide and under the definition of correct use. The Linear Guides must be used only in accordance with their operating data. They are not suitable for transporting people.

No liability shall be accepted for damage or injuries resulting from improper use.

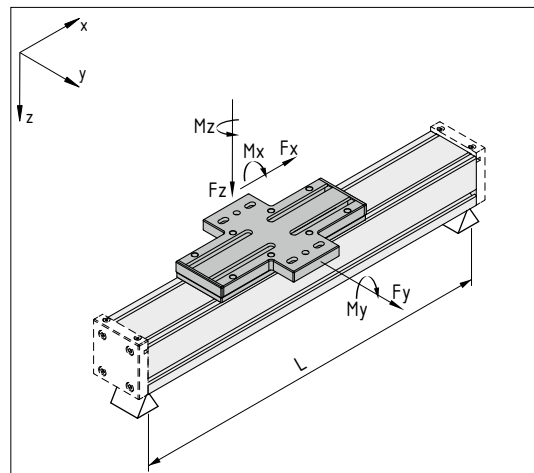
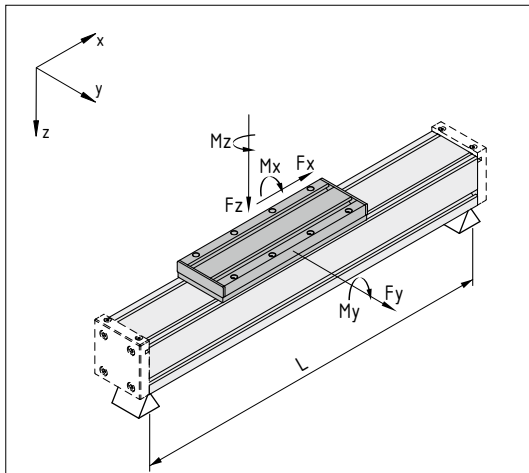
Product description

Linear Guide 6 60 PS consists of two torsion-resistant profile rails and two heavy-duty bearing carriages. The guide is suitable for precise, low-friction movements. Linear Guide 6 60 PS adds a compact and complete encapsulated guidance solution to the item linear technology portfolio. As a parallel-running guide, it supports the overall solution when it comes to accommodating large loads and torques. Thanks to its installation dimensions of just 60x60 mm and two Line 6 grooves on its side flanks, the Linear Guide is very easy to integrate into constructions. The version with the standard carriage plate is complemented by a version with a transverse carriage plate for building parallel linear technology solutions.

Technical data

0.0.701.69 Linear Guide 6 60 PS (zero stroke)

0.0.708.77 Linear Guide 6 60 PS Transverse Carriage (zero stroke)



	Support width L_{\max} at $F_{z_{\max}}$ [mm]	Support width L_{\max} at $F_{y_{\max}}$ [mm]	$F_{y_{\max}}$ [N]	$F_{z_{\max}}$ [N]	$M_{x_{\max}}$ [Nm]	$M_{y_{\max}}$ [Nm]	$M_{z_{\max}}$ [Nm]
Linear Guide 6 60 PS	650	850	2000	2000	15	120	120
Linear Guide 6 60 PS Transverse Carriage	650	850	2000	2000	15	120	120



If the Linear Guide is being used in parallel with a Linear Unit, the safety clearance of the Linear Unit must be factored in when designing the stroke.

The stroke of the Linear Guide must be extended accordingly. $H = H_{LU} + X$

Linear Unit suitable for combination	Art. No.	H_{LU} [mm]	X [mm]
Linear Unit KLE 6 60x60 LR	0.0.605.07	0 - 2644	172
Linear Unit KGT 6 60 P20	0.0.706.00	0 - 1000	95
		1001 - 1560	127
		1561 - 2120	159
		2121 - 2600	191

Maximum stroke: 2816 mm
 Basic mass: 2.2 kg
 Mass per mm of stroke: 3.4 g/mm
 Maximum acceleration: 15 m/s²
 Maximum speed: 1 m/s
 Mounting dimension: 60 mm x 60 mm

Ambient conditions:

Storage temperature: -20°C to +70°C

Relative humidity: 5% to 85%

Linear Guide 6 60 PS and Linear Guide 6 60 PS Transverse Carriage are intended as a permanent fixture to be used in an area that is protected from the weather.

Do not install or use in close proximity to industrial plants that produce chemical emissions.

Do not install or use in an area that is regularly exposed to high-energy surges such as those caused by presses or heavy machinery, for example.

In case of doubt regarding resistance to certain chemicals such as test oil, alloyed oils, aggressive cleaning substances, solvents or brake fluid, we advise that you consult your specialist representative.

If using in very salty air, consult your specialist representative.

Deflection in the Linear Guides should not exceed 1 mm over an axis of 1000 mm. In scenarios where high demands are placed on the system dynamics, supports should be added every 300 mm to 600 mm.

Preparing for assembly



Switch off the power to the system before carrying out any installation, cleaning or maintenance work on Linear Guide 6 60 PS.

Preparations for assembly:

- | | |
|------------------------|---|
| ▪ Profile 6 60 LE: | Profile length = $H+204$ |
| ▪ Profile, guide rail: | 20 mm shorter than Profile 6 60 LE |
| ▪ Magnetic strip: | Approx. 5 mm longer than Profile 6 60 LE |
| ▪ Steel strip: | Approx. 12 mm longer than Profile 6 60 LE |



The first step is to countersink the core bores of Support Profile 6 60 KGT on both sides and give them an M5x15 thread. The tap should have a helix to prevent it from canting in the core hole.



Fitting the linear guide rail

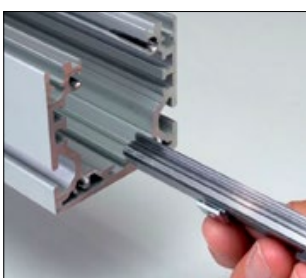


Anti-slip aids should be placed underneath the axis during assembly.

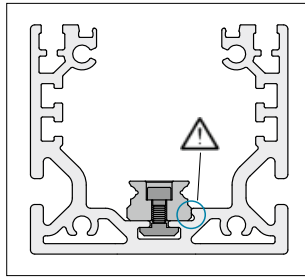
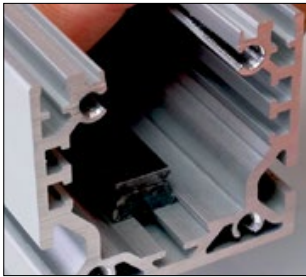


The next step is to fit the linear guide rail. Start by checking the sawn ends of the rail are burrless and rework them if necessary.

Fit the rail with all the necessary Hexagon Socket Head Cap Screws and T-Slot Nuts. Make sure the Hexagon Socket Head Cap Screws are screwed approximately one to a maximum of two full turns into the T-Slot Nuts. This makes it easier to then push the rail into the Support Profile.



Push the rail, fitted with the Hexagon Socket Head Cap Screws and T-Slot Nuts, into the Support Profile. The T-Slot Nuts must be correctly aligned when sliding the rail into its groove.



The rail is a total of 20 mm shorter than the Support Profile and must be centred, that is to say 10 mm from each edge. Furthermore, manual pressure must be applied to keep the rail pressed permanently against the stop edge while the screws are being tightened.

Tightening torque $M_T = 1.2 \text{ Nm}$



When tightening the screws, use your hand to keep the rail pressed against the stop edge.

Fitting the magnetic strips

The next step is to fit the magnetic strips that have been cut to size. These strips will subsequently hold the Linear Guide's steel strip in place. They should be approximately 5 mm longer than the Support Profile. Push the magnetic strips into the Support Profile on the right-hand and left-hand sides.



Use an appropriate tool to remove any burrs from the edge of the profile where the strip is being inserted. Applying soapy water makes it easier to push in the strips.

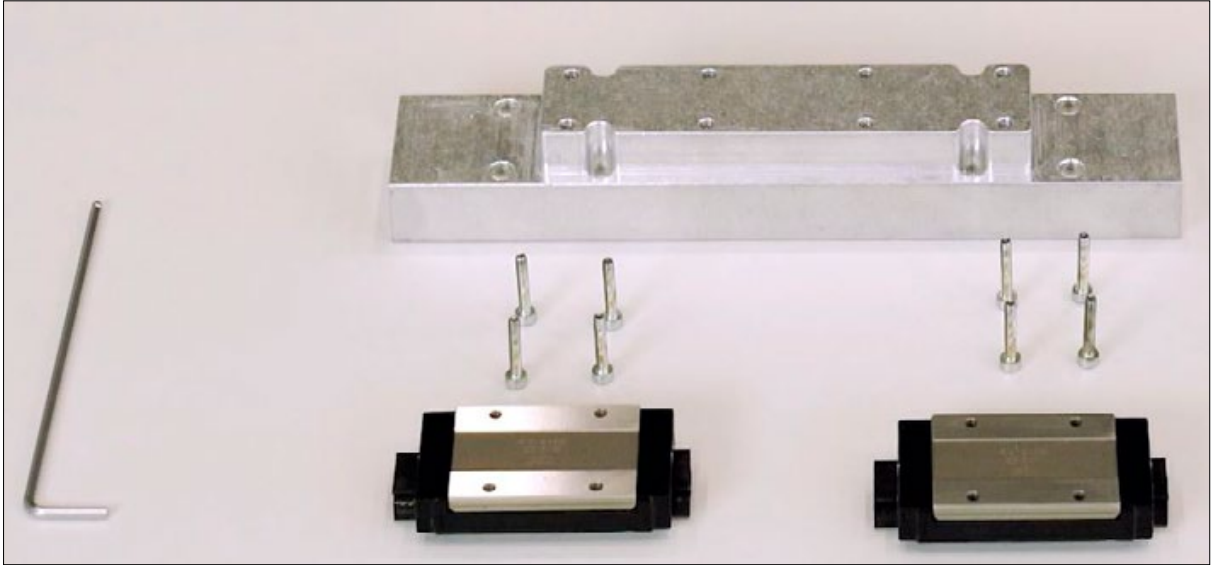


Once they have been fitted, the magnetic strips protrude by approximately 2.5 mm at both ends of the profile.

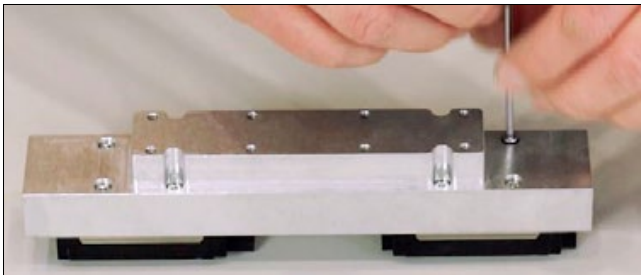


The fine groove in the magnetic strip should be facing up when it is being fitted.

Fitting the carriage

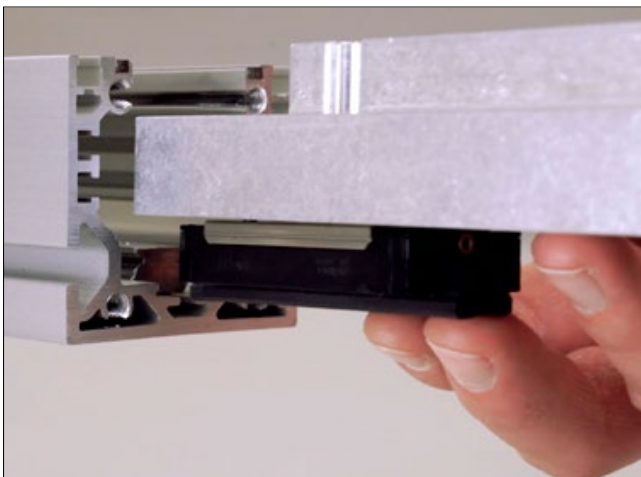


Ensure the relevant assembly aid of the Bearing Carriages (recirculating ball guide carriages) does not slip out. If this happens, balls could be lost.



Place the two Bearing Carriages underneath the carriage and also screw these in place.

Tightening torque M_T : Tighten by hand and then loosen again by a $\frac{1}{4}$ turn



Now carefully push the body of the carriage into the Support Profile, with the Bearing Carriages sliding off their assembly aids and directly onto the linear guide rail.



Make sure no balls are lost. If they are, the Bearing Carriage will be unusable.
The assembly aids should be pressed against the linear guide rail continuously during installation.



Next, screw the intermediate carriage plate securely onto the body of the carriage using the eight Counter-sunk Screws M4x10.

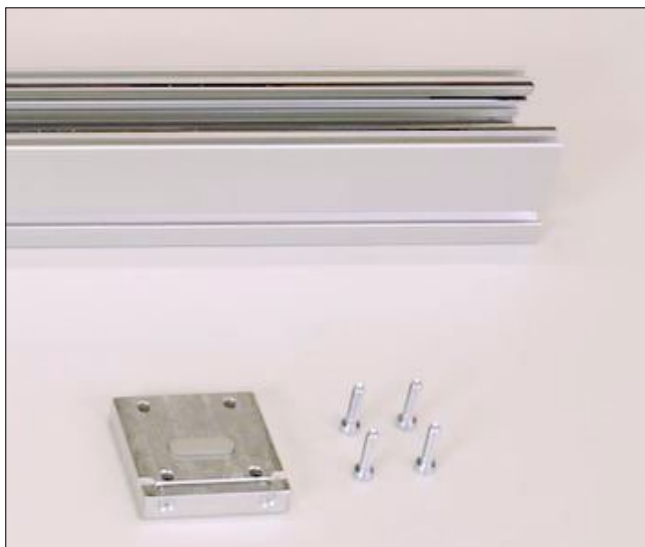
Tightening torque $M_T = 3 \text{ Nm}$



Use the installed intermediate carriage plate to align the moving carriage so that it is parallel with and centred in relation to the Support Profile. Then securely tighten the Bearing Carriage's eight Hexagon Socket Head Cap Screws.

Tightening torque $M_T = 1.5 \text{ Nm}$

Fitting the end caps



Use four Hexagon Socket Head Cap Screws M5x20 each to screw the two end caps to the right and left ends of the profile. Ensure the end caps are centred on and parallel with the Support Profile then tighten the screw fixings.

Tightening torque $M_T: 2.5 \text{ Nm}$



Once everything has been properly fitted and screwed into place, move the carriage over the entire length of the axis by hand, checking the operation and smooth running of the guide.

Fitting the steel strip



Caution: Wear cut-resistant gloves to prevent injuries when installing the steel strip.



Fit the steel strip, which covers the spindle in the profile. This strip should be approximately 12 mm longer than the Support Profile.



Start by threading the steel strip from either end, from below, through the opening in the intermediate carriage plate and pull it through approximately 200 mm.



Fit the two guides – correctly aligned – onto the steel strip. The correct alignment of the steel strip guides is important and must be ensured.

Next, feed the steel strip through the two openings in the intermediate carriage plate and pull it as far as the end of the Support Profile.



Secure the ends of the steel strip in the end caps. The clamping plate screws need to be loosened by three to four turns for this purpose.

Once the steel strip has been inserted, the Countersunk Screws of the clamping plates can be tightened again.

$$M_T = 0.6 \text{ Nm}$$



Ensure the strip is smoothed down over the entire length of the profile. There must be no creases or dents.



After that, screw on the carriage plate. First, use a mallet to fit the Caps X 6 60x12. Working by hand, centre the carriage plate on the intermediate carriage plate, ensuring both are parallel.

Tightening torque $M_T = 1.5 \text{ Nm}$



Alternatively, Transverse Carriage Plate can also be used to build a Linear Guide 6 60 PS Transverse Carriage.



First, use a mallet to fit the Caps X 6 60x12. Centre the transverse carriage plate on the intermediate carriage plate, ensuring both are parallel.

Tightening torque $M_T = 1.5 \text{ Nm}$

Fitting Cover Profile LE 6

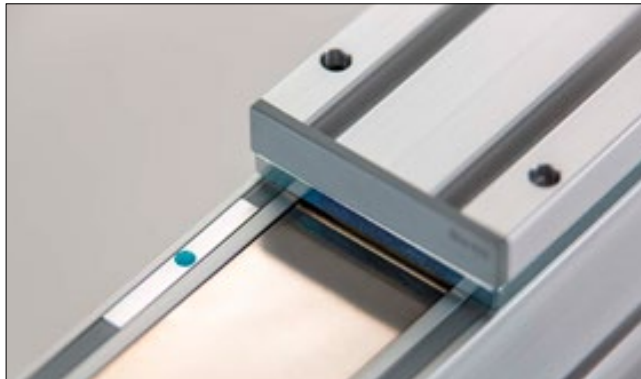
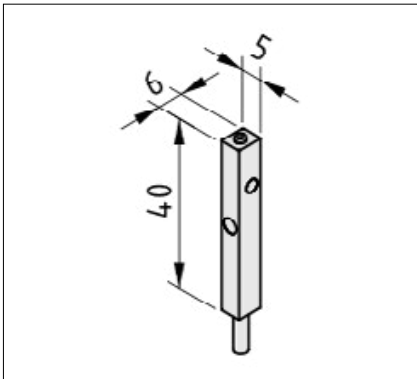
Lastly, install Cover Profile LE 6.

Cut the plastic profile to the appropriate length and slide it under the carriage to cover the special groove that can be used to accommodate Proximity Switches and their wiring.



Now move the carriage over the entire length of the profile. Listen/look out for any noises, rubbing or constrictions to check whether the carriage is running and being guided on the axis free from any play.

Accessories for Linear Guide 6 60 PS



Proximity Switch KLE 6 60x60 - 1NC (0.0.604.41)

Proximity Switch KLE 6 60x60 - 1NO (0.0.609.31)

Inductive proximity switch, positive switching

Housing Al, anodized, natural

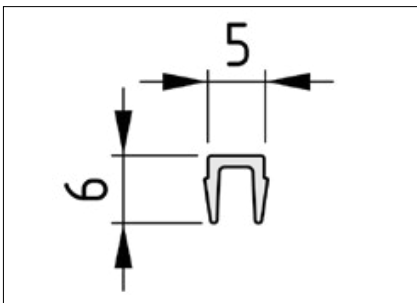
Fixing mechanism, fixing screws

Voltage = 10...30 V DC

Maximum switching current = 150 mA

Sensing range = 2 mm

Cable, grey, l = 10 m; d = 3 mm



Cover Profile 6 LE, grey similar to RAL 7042 (0.0.603.88)

Checklist

Assembly of Linear Guide 6 60 PS

Checks	Checked	Comment
Visual inspection		
Screws tightened		
Carriage aligned		
Unusual running noises during manual test run		
Rubbing		

Date:

Signature:

Repair and maintenance

Linear Guide 6 60 PS is virtually maintenance-free.



The initial greasing has to be renewed after around six months or every 2500 km.
Please only use the lithium complex soap grease Divinol Lithogrease G 421.



If operating conditions are unusual, e.g. special type of installation, dust, short stroke, influence of solvents etc., the lubrication intervals must be adapted accordingly.
This information does not discharge users from the obligation to conduct their own assessments and checks.
It is also important to bear in mind that our products are subject to a natural process of wear and ageing.



A minimum stroke length must be observed in order to ensure adequate lubrication of the carriage.
Minimum stroke: 180 mm

Care and cleaning



Incorrect care and/or cleaning risks causing damage.

A cloth and a standard domestic cleaning agent are adequate for cleaning Linear Guide 6 60 PS. Check that the substances you are using are suitable for use on paints and plastics. Aggressive cleaning agents and pressure washers may damage the product.

Disposal

The product can be recycled or re-used (after any necessary refurbishment and replacement of parts). The use of appropriate materials and easy dismantling ensure the product can be recycled. Improper disposal of Linear Guide 6 60 PS can pollute the environment.



You should therefore dispose of Linear Guide 6 60 PS in full accordance with the laws of your country. Inappropriate disposal poses a hazard to the environment.



Transport packaging:

Dispose of the packaging using the return and collection systems that are available to you.

Product development and documentation

A process of continuous product development ensures that products from item Industrietechnik GmbH always exhibit a high standard of innovation. Consequently, there could be inconsistencies between this guide and the product you have acquired. item Industrietechnik GmbH can also not exclude the possibility of errors.

We therefore ask for your understanding that the information, illustrations and descriptions provided here cannot constitute an entitlement to any claims. You can find the latest version of this guide at www.item24.com.

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