item

Linear Guide System PS 2-15

Notes on Use and Installation

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

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General safety information

The details and information in this 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 these Notes on Use and Installation. You must therefore read and follow the safety instructions set out below.

All work on and with Linear Guide System PS 2-15 must be performed with “safety first” in mind.

- Always switch off the linear axis before you start working on Linear Guide System PS 2-15.
- 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.

Linear Guide System PS 2-15, as described here, corresponds to the state of the art and takes into account the general principles of safety applicable at the time these Notes on Use and Installation were 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. This general safety information applies to the entire lifecycle of Linear Guide System PS 2-15.

Correct use

Linear Guide System PS 2-15 is a component and must only be used in accordance with the technical data and safety requirements set out in this document. Installing Linear Guide System PS 2-15 in a driven linear axis 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 System PS 2-15 yourself. We will assume no liability for any resulting damage or injury. You may only install, operate and maintain Linear Guide System PS 2-15 if:

- Linear Guide System PS 2-15 has been integrated into its surroundings in a proper and safe manner.
- You have carefully read and understood the 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 System PS 2-15 is designed for indoor use.

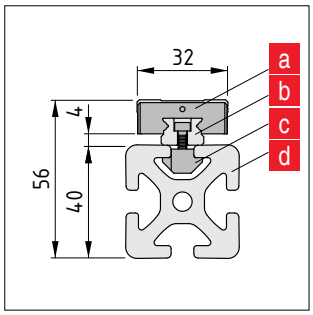
Improper use

Improper use is defined as any use of the product for purposes other than those authorised in these Notes on Use and Installation and under the definition of correct use. We will assume no liability for any resulting damage or injury.

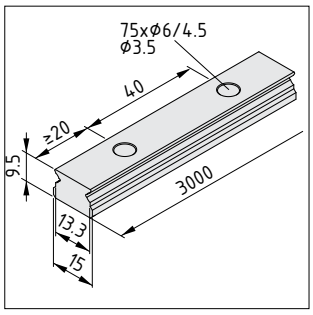
Product description

Compact, precise and dynamic. Linear Guide System PS 2-15 combines a maximum stroke of up to 2940 mm with a strong carriage, and does so in the smallest of installation spaces.

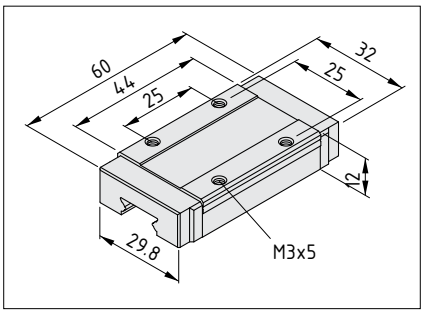
Linear Guide Rail PS 2-15 (0.0.694.68) and Bearing Carriage PS 2-15 (0.0.694.38) create an exceptionally low-profile and compact linear guide. The low-friction Bearing Carriage is designed for a load of 750 N. Linear Guide Rail PS 2-15 is fastened to the Line 8 groove of the support profile using Assembly Set 8 PS 2-15 Rail (0.0.708.78).



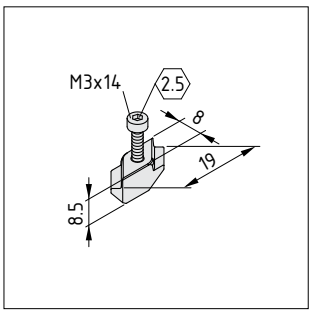
a Bearing Carriage PS 2-15, 0.0.694.68
b Linear Guide Rail PS 2-15, 0.0.694.38
c Assembly Set 8 PS 2-15 Rail, 0.0.708.78
d Line 8 profiles



Linear Guide Rail PS 2-15

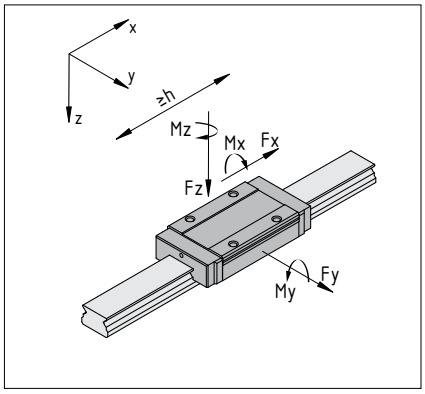


Bearing Carriage PS 2-15



Assembly Set 8 PS 2-15 Rail

Technical data



Static load rating:	C = 5350 N
Dynamic load rating:	C_0 = 9080 N
Permissible static moment:	M_x = 8 Nm
	$M_y = M_z$ = 7 Nm
Permissible load:	$F_y = F_z$ = 750 N
Maximum stroke:	2600 mm
Maximum acceleration:	40 m/s²
Maximum speed:	3 m/s
Temperature range:	-40°C - +80°C
Minimum stroke:	h_{min} = 120 mm

Note: The static and dynamic load rating and moment are key characteristics of the rolling-ball contact between the Carriage and Rail and can be used to calculate the service life.

The permissible load for a linear guide system depends on the load-carrying capacity of the guiding elements, the strength of the screw connections and the design of the profile frame.

The minimum stroke length (h_{min}) is required to ensure that the rolling-ball contact is sufficiently lubricated. The Carriage is charged with semi-fluid grease at the factory.

Due to the contact pressure of the wipers, a displacement force of 5 N per Bearing Carriage must be taken into account, irrespective of the load.

The load rating is identical for loads on all spatial axes.

Linear Guide System PS 2-15 is intended as a permanent fixture to be used in an area that is protected from the weather.

Do not set up 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.

Consult the manufacturer if using in very salty air.

Deflection in a linear axis should be less than 1 mm over an axis length of 1000 mm. In scenarios where high demands are placed on the system dynamics, supports should be added every 300 mm to 600 mm.

Installing the Linear Guide Rail

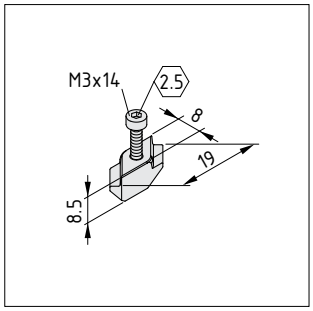
Important: Care and cleanliness during assembly of a linear guide system are crucial for the correct functioning and long service life of this machine element. For this reason, all components, the work bench and the connecting structure must be kept clean!

Prepare 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 from Assembly Set 8 PS 2-15 (0.0.708.78). 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 push the Rail into the Support Profile later on.

While tightening the screws, apply pressure by hand to keep the Rail permanently pressed against a stop edge (the groove flank of the profile). This makes it easier to keep the guide straight.

Tightening torque M = 1.0 Nm



Due to internal stresses that can be generated when Rails are ground into shape, a Rail may not be perfectly straight when supplied. The Rail must be brought into alignment with the profile. Profiles in a “light” or “E” variant should not be used as support profiles. The permissible load for a linear guide system depends on the load-carrying capacity of the guiding elements, the strength of the screw connections and the design of the profile frame.

Caution: High forces and torques on a linear axis can be accommodated by combining parallel Carriages on Rails that are also aligned in parallel. It is preferable to implement parallel guides on a single aluminium profile in order to keep positional tolerances low.

Parallel guidance can also be achieved on two profiles that are side by side, however this requires a great deal of work during installation to ensure requirements in term of parallelism are met. The position of parallel guides relative to each other must be repeatedly checked and corrected during installation work. The service life of the linear guide can be reduced considerably if the guidance arrangement is not perfectly parallel.

Guide Rails should not be connected end-to-end (e.g. to extend the length of the guide).

Installing the Bearing Carriage

If a Rail has been shortened, it is important to ensure during alignment that – once the Rail has been installed – it will be possible to slot the Carriage onto the end of the Rail that has not been shortened. If the Rail is being installed flush to an enclosing construction, the Carriage must be slotted onto the Rail prior to installation.

The Bearing Carriage is supplied in protective packaging. It is slotted onto a plastic protective rail that keeps the ball bearings in the slide and provides protection against impacts.

The end caps of the Bearing Carriage, which are screwed onto the end faces, must not be removed under any circumstances! Doing so would open and dislodge the re-circulating segments of the raceway, thus rendering the Bearing Carriage unusable.

In addition, tampering of this nature will invalidate all warranties!

To ensure the linear guide system runs smoothly, all the fastening screws should be tightened under controlled conditions using the tightening torques specified in these instructions and in accordance with the screw tightening plan. Furthermore, a chemical screw fixing agent should be used, particularly if it is at all likely that the screws could lose tension.

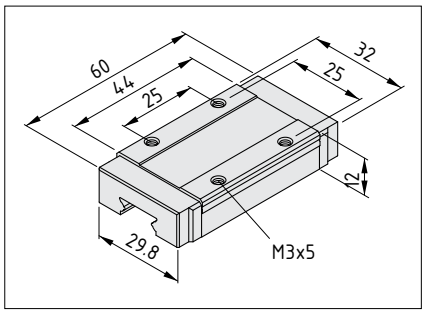
Do not slide the Bearing Carriage onto the Rail until you need to, as the seal on the head can be damaged if not handled correctly.

Remove the Bearing Carriage from its protective packaging. The Carriage is charged with semi-fluid grease at the factory. Position the Bearing Carriage – still on its protective rail – in front of the Rail and slide it carefully onto the Rail, being careful not to tilt or twist the Bearing Carriage while doing so.

When sliding the Bearing Carriage onto the Rail, pay particular attention to the wipers in the end cap. They must not be dislodged from their seatings in the end cap and the lip seals must not be allowed to fold over. If the lip seals are folded over despite careful fitting, they can be realigned by pushing the Bearing Carriage over the end of the Rail.

Push the Bearing Carriage once carefully along the entire length of the Rail, checking resistance. If you can feel friction, this is most likely due to the fact that the seals have not yet bedded in. This friction will diminish as the flexible elements settle and adjust to the Rail.

Place the carriage construction carefully onto the Bearing Carriage(s) and move the loosely-mounted complete carriage several times along the entire length of the Rail without applying any load.



Next, screw the carriage construction to the Bearing Carriage. In doing so, carefully select the correct screw length – the thread depth on the Bearing Carriage is 5 mm. Always take note of the maximum permissible tightening torque for the screws.

Four M3 screws with property class 10.9 or higher are to be used and are to be tightened with the permissible tightening torque M_T = 1.5 Nm.

To complete the installation process, move the Bearing Carriage(s) along the entire length of the Rail again, ensuring in particular that there is no backlash and that resistance is consistent.

The main causes of faults in Linear Guide System PS 2-15 are installation errors, inadequate protection from soiling and insufficient lubrication. It is therefore important to ensure that the wipers, which have a sealing function, are not damaged.

Repair and maintenance

Linear Guide System PS 2-15 is maintenance free.

Bearing Carriage PS 2-15 is fully greased when initially assembled. This initial greasing cannot be renewed.

Linear Guide System PS 2-15 must be renewed after a service life of 5000 km.

The initial greasing consists of the easy-running grease Multemp PS No.11.

If operating conditions are unusual, e.g. special type of installation, dust, short stroke, influence of solvents etc., the service life of Linear Guide System PS 2-15 must be adapted to the specific usage scenario.

This information does not discharge users from the obligation to carry out 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.

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 System PS 2-15. 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 System PS 2-15 can pollute the environment.

You should therefore dispose of Linear Guide System PS 2-15 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.

item

item Industrietechnik GmbH
Friedenstrasse 107-109
42699 Solingen
Germany
Phone +49 212 6580 0
Fax +49 212 6580 310
info@item24.com
item24.com

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