

TECHNICAL INFORMATION

LINEAR RAIL ALUMINIUM



Information in this document is subject to change. Owing to continued product development, Rollco reserves the right to make alterations without prior notice. Every care has been taken to ensure the accuracy of the information, but no liability can be accepted for any errors or omissions.

All information and content included in this document, such as text, and images, are property of Rollco. Any reproduction, even partial, is allowed only by written permission by Rollco.

Product overview

Aluminium linear rail systems are designed to replace standard linear rail guides in steel under certain conditions such as wet or corrosive environment and if low weight is important. The rails consist of extruded aluminium having two pressed-in hardened stainless steel profiles serving as the raceways for the balls of the runner blocks. Advantages are the light weight and corrosive resistant materials. Fixing holes in the attachment surfaces enable machine parts to be directly mounted onto the runner blocks. With this combination it is possible for us to offer a guide system which achieves a good price/performance ratio.

There are two versions of carriages: Flanged and narrow. The blocks are stocked with clearance and standard precision. In case preload and for higher precision "P" is needed, please contact Rollco. The load rating is based on a service performance of 100 km.

Characteristics

- Compact, light-weight design with a weight saving of 60% compared to steel versions.
- Same connection dimensions as steel ball rail systems.
- Much greater parallelism and height offsets of mounting bases possible.
- Insensitive to aggressive environment (such as dust, shavings).
- Significantly better corrosion resistance in comparison to the steel versions.
- Runner blocks initially greased in-factory, therefore provided with long-term lubrication.
- Due to ball retainers, runner blocks can be removed from the rail without any loss of balls.
- Complete interchangeability between runner blocks and rails.
- Both sides of the rail are reference sides. The runner block has one reference side, which can be verified by turning it on the rail.

Application range

Speed	v_{\max}	=	2 m/s
Acceleration	a_{\max}	=	30 m/s ²
Temperature	T	=	0°- 60° C

Application areas

Linear Rail Aluminium can be used in a wide range of applications. It is especially suitable for:

- Light machinery
- Handling technology
- Jigs and fixtures
- Assembly technology
- Manual displacement systems,
- Machine enclosures
- Door and window technology
- Booth- and store construction

Note!

Linear Rail Aluminium can **not** be used in:

- Main axis of a CNC or tooling machine
- Environments with aggressive dusts
- Oscillating conveyor
- Unsecured overhead installations etc. (due to danger of life or physical injuries)

Accuracy

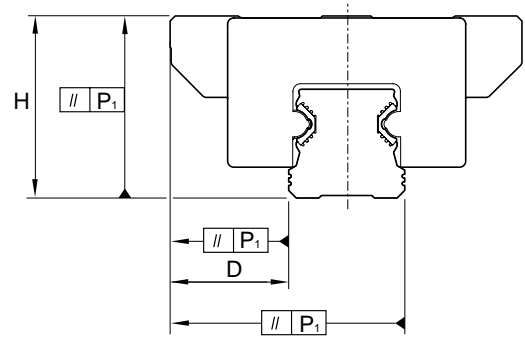
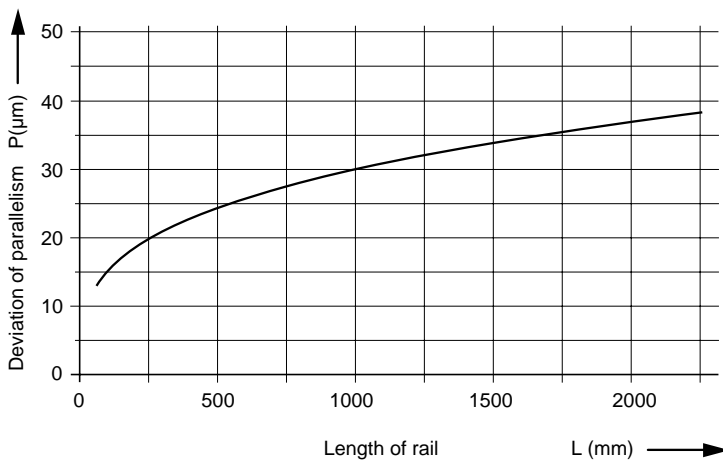
The carriage and the rails are produced with high precision, so that non preloaded carriages can be replaced by another anytime. The following values are valid for the stocked types in the dimensions tables in the product range section of this catalogue.

Height tolerance “H”

The height tolerance of several carriages on a rail is maximum +/- 30 µm.
 In the case of several carriages and rails the maximum is +/-120 µm.

Side tolerance “D”

The side tolerance of several carriages on a rail is maximum +/- 30 µm.
 In the case of several carriages and rails the maximum is +/-70 µm.



Deviation of parallelism

Deviation of parallelism can be found in the diagram above.

Carriages in standard precision (stocked products)

For normal applications we recommend a combination of carriage and rail without preload. With the standard precision it will have a tolerance in the micro range between the rail and carriage. It is possible to order just the rail or carriage separately (interchangeable and in stock).

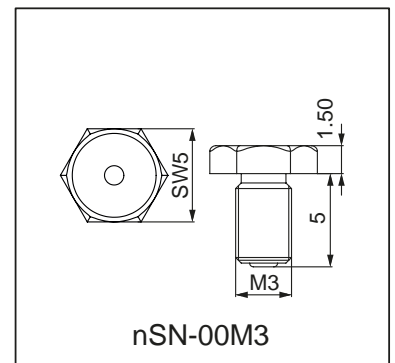
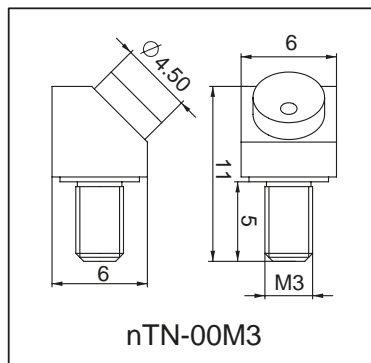
Replacement of seal unit

All runner blocks are delivered with greased seal units. Instructions for the replacement

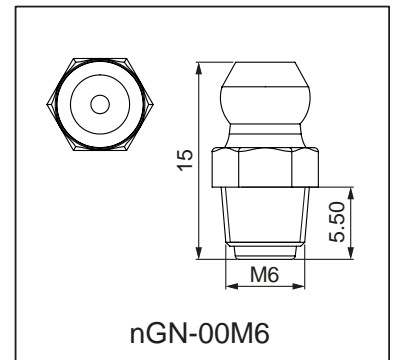
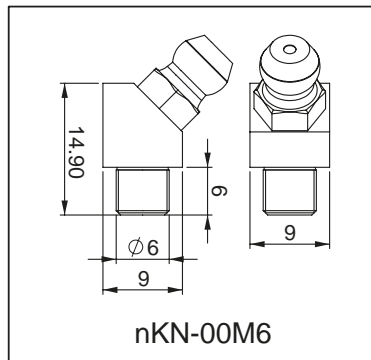
- Assembly with mounted carriage is not possible.
- Pull exchanged seal unit up.
- Insert the new seal unit.
- Push the runner block back on the guide rail.
- Align the seal unit vertically to the guide rail.

Lubrication nipple for lube units

Funnel-type lube nipple for size 15



Hydraulic-type lube nipple for sizes 20 and 25

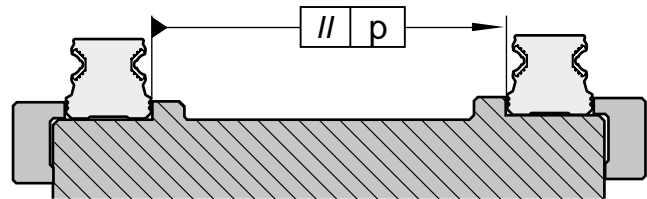


Parallelism

Parallelism of the installed rails measured at the guide rails and the runner blocks. The parallelism offset P1 causes a slight increase in preload on one side of the assembly. As long as values specified in the table are met, the effect of parallelism offsets on the service life can generally be neglected. Through the deviation in parallelism (P1) the preload is increased on one side. If table values are adhered to, the influence on the service life is generally negligible. Profiled rail system allow substantially higher installation tolerances compared to steel rail systems.

Size	Permissible deviation in parallelism P _{max}	
	Standard	Preload
15	0,027	0,018
20	0,031	0,021
25	0,034	0,022

Values in mm.



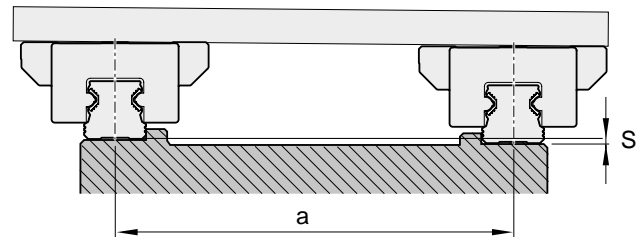
Height deviation

Given adherence to the permissible height deviation "S", the influence on the service life can generally be neglected.

Permissible height deviation in lateral direction "S"

$$S \leq a \cdot f$$

- S = Permissible height deviation (mm)
- a = Distance between rails (mm)
- f = Calculation factor



Calculation factor	Standard	Preload
f	1,2 · 10 ⁻³	0,75 · 10 ⁻³

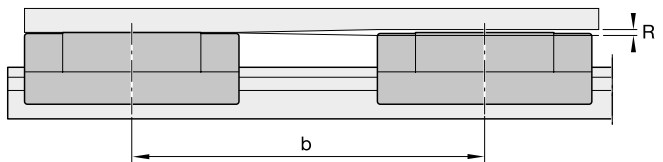
Permissible height deviation in longitudinal direction

Given adherence to the permissible height deviation "R", the influence on the service life can generally be neglected.

Permissible height deviation in longitudinal direction "R"

$$R \leq b \cdot g$$

- R = Permissible height deviation (mm)
- b = Distance between runner blocks (mm)
- g = Calculation factor



Calculation factor	Standard	Preload
g	6 · 10 ⁻⁴	2,1 · 10 ⁻⁴

Mounted Rail & Block

FNS - 15 - N - dsF - 2 - 400 - 20 - 20 - A

Block type

FNS: Flange
GNS: Standard

Size

15, 20, 25

Grease Nipple Option

F: Front (Standard)

N: Side

- (Leave blank): None

Lubrication Unit

dsF: Yes

- (Leave blank): No

Number of Blocks

Quantity of runner blocks

Rail Length

Starting hole pitch (mm)

End hole pitch (mm)

Mounting hole position

A: Top

B: Bottom

**ALWAYS THE RIGHT
SOLUTION AT THE RIGHT TIME.**

ROLLCO

LINEAR SOLUTIONS **YOUR WAY**

With reliability, competence and commitment Rollco rapidly delivers the right solutions and components to create safe and cost-effective automation and linear movement.

Rollco AB

Box 22234
Ekvändan 17
250 24 Helsingborg
Sweden
Tel. +46 42 15 00 40
www.rollco.se

Rollco A/S

Skomagervej 13 E
7100 Vejle
Denmark
Tel. +45 75 52 26 66
www.rollco.dk

Rollco Oy

Sarankulmankatu 12
33900 Tampere
Finland
Tel. +358 207 57 97 90
www.rollco.fi

Rollco Norge AS

Industrigata 6
3414 Lierstrada
Norway
Tel. +47 32 84 00 34
www.rollco.no