6. Calculation of Nominal Life(L)

Recognizing that nominal life of a linear guide is affected by the actual working loads, the general calculation of the nominal life excluding the environmental factors is carried out as follow: :

$$L = \left(\frac{C_{100B}}{f_w P}\right)^3 \times 10^5$$

L = Nominal Life (m)
C_{100B} = Dynamic Load Rating (N)
f_w: Load Factor
P = Equivalent load (N)

Taking LRM9N for example, its C_{100B} is 1.97kN. Therefore, when the product bears a 1.5kN equivalent load P、 f_w=1, its theoretical rated life can be calculated as follows:

$$L = \left(\frac{C_{100B}}{f_w P}\right)^3 \times 10^5 = \left(\frac{1.97}{1 \times 1.5}\right)^3 \times 10^5 = 226529 \text{ m} = 226.5 \text{ km}$$

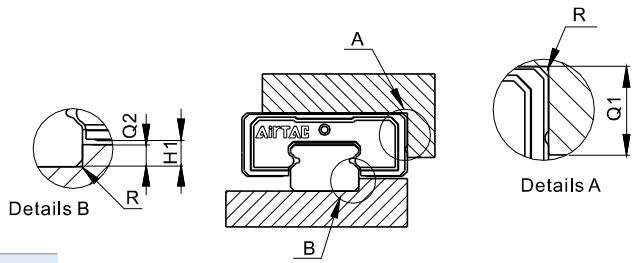
Installation Illustration

1. Height and Chamfer of Reference Edge

In order to ensure accurate installation of LRM Linear Guide, the contact space should not exceed the given figures in following table.

Unit : mm

Model	Q1	Q2	H1	R(Max)
LRM5	2	1.2	1.5	0.2
LRM7	3	1.2	1.5	0.2
LRM9	3	1.7	2	0.3
LRM12	4	2.7	3	0.4
LRM15	5	3.2	3.5	0.5

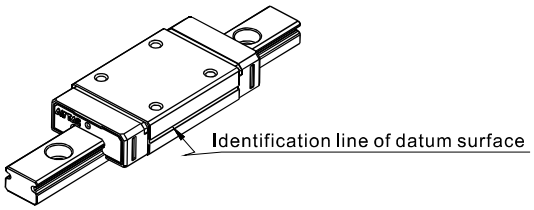


2. Screw Tighten Torque

Model	Screw size	Tighten Torque(N.cm)		
		Iron	Casting	Aluminum alloy
LRM5	M2	58.8	39.2	29.4
LRM7				
LRM9	M3	196	127	98
LRM12				
LRM15				

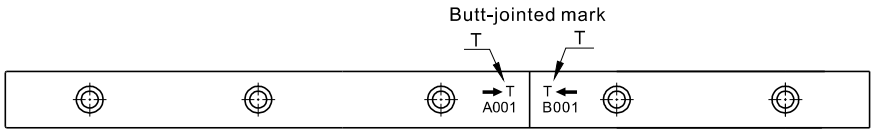
3. Datum plane

- Datum plane for installation must be ground or finely milled to ensure accuracy.
- Both sides of rail can be used as the datum plane.
- For multi-blocks on a rail, identification line on blocks should be put on the same side to ensure moving accuracy.

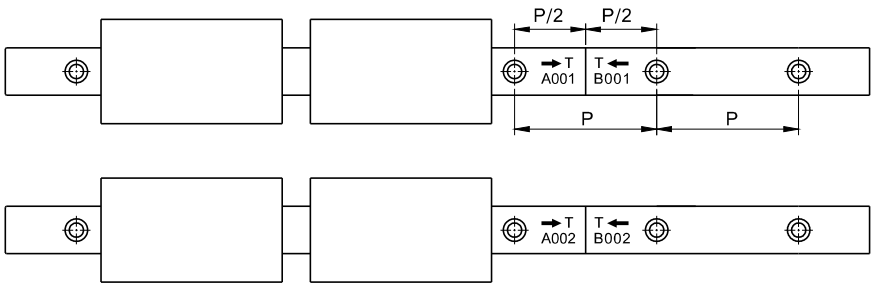


Rail Butt-jointed

- When jointing rails, it must follow group marks on rail to ensure the accuracy of linear guide. These marks are located on the top surface at joint side. Please put the same group marks together.



- Be aware serial number of group mark when assemble. A001 and B001 are in a group, so as to A002 and B002 and so on.
- Be aware the installation direction while assembly, the serial numbers are not upside down and arrows point to each other.



Lubrication Method

When a linear guide is well lubricated, it can reduce wear and increase lifespan significantly. Lubrication has the following benefits:

- Reduces friction of the rollers and rail to minimize wear.
- The grease film between contact surface can decrease the fatigue failure.
- Prevent rust.

1. Lubrication method

LRM series linear guide is well lubricated with 'Synergy Grease PS NO.2' in factory.
Customers are recommended to use identical or the same grade of lubricant.
Please refer to the right table for the amount of oil:
In order to be well lubricated, the blocks need to be moved back and forth after lubricating.
Lubrication can be done either by manual or automatic device.

Model	Initial lubrication (cm^3)	Replenishment amount (cm^3)
LRM5N	0.02	0.01
LRM5L	0.03	0.015
LRM7N	0.1	0.05
LRM7L	0.13	0.07
LRM9N	0.2	0.1
LRM9L	0.28	0.14
LRM12N	0.34	0.17
LRM12L	0.45	0.23
LRM15N	0.72	0.36
LRM15L	1.0	0.50

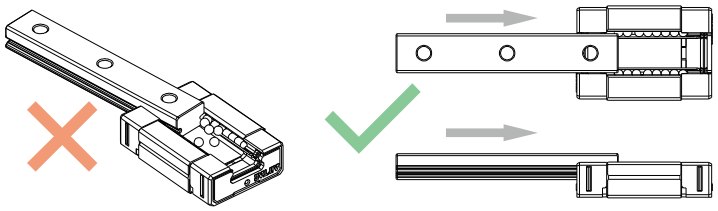
2. Lubrication frequency

Although the linear guides are well lubricated at the factory and retains grease well, frequent lubrication is still necessary to avoid undesirable wear.
Recommended lubrication period is every 100km of movement or every 3~6 months. (Refer to table on the right for suggested amount).

Precautions on use

1. Block disassembly

LRM is equipped with ball retainers to prevent steel balls from falling out when block separates from rail. However, if obliquely insert rail into blocks or quickly assemble and disassemble, there is risk for steel balls of falling out. Please carefully assemble the linear guide or use plastic rails to assist.



2. Caution

- Parts may slide out if linear guide is put unevenly. Please be careful.
- Hitting or dropping a linear guide could have huge effects on accuracy and lifespan even though appearance may remain intact. Please be careful.
- Do not separate linear guide as external objects may enter blocks and cause accuracy problem.

3. Lubrication

- Linear guide have been treated with anti-rust oil during production. Before use, wipe the rail and treat it with lubrication.
- Do not mix lubricating oil (grease) with different properties.
- While lubricating, the block needs to be moved back and forth. After lubrication, there should be a grease film on rail.

4. Use

- The operating environment temperature should not exceed 80℃, and the maximum temperature should not exceed 100℃.
- Do not separate blocks from rail whenever it is not necessary. If you need to separate them, please use plastic rails to prevent steel balls from falling out.

5. Storage

- When storing blocks, rails or set, please be sure that anti-rust oil is well applied and product is well sealed as well as placed horizontally. Avoid humidity and high temperatures environment.