EWELLIX

MAKERS IN MOTION

Profile rail guides - LLU catalogue

Trusted engineering expertise

Our industry is in motion; pushing towards solutions that reduce environmental impact and leverage new technology. We provide technical and manufacturing expertise to overcome our customers' challenges.

Engineering for the future

We work in a **wide range of industries**, where our solutions provide key functionality for business critical applications.

For the **medical industry**, we provide precision components for use in core medical equipment.
Our unparalleled understanding of **industrial automation** systems is based on decades of research into advanced automation components and techniques

Our deep knowledge of **mobile machinery** provides powerful and reliable electromechanical solutions for the harshest conditions. In an **industrial distribution** setting, we supply linear expertise to our partners, empowering them to serve customers with greater efficiency

We offer excellence

We have a **unique understanding of linear equipment** and how it's integrated in customers' applications to provide the best performance and machine efficiency.

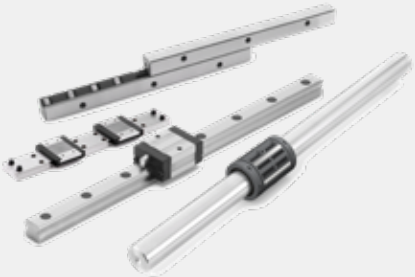
We assist our customers by creating equipment that runs faster, longer and safer and that is sustainable.
We provide a wide variety of **linear motion components** and **electromechanical actuators** for equipping any automation application, helping our customers **reduce its footprint, energy use and maintenance**.

We push for lower energy consumption that **increases productivity and reduces the environmental impact**.

Actuation systems

Ball and roller screws

Linear guides and systems



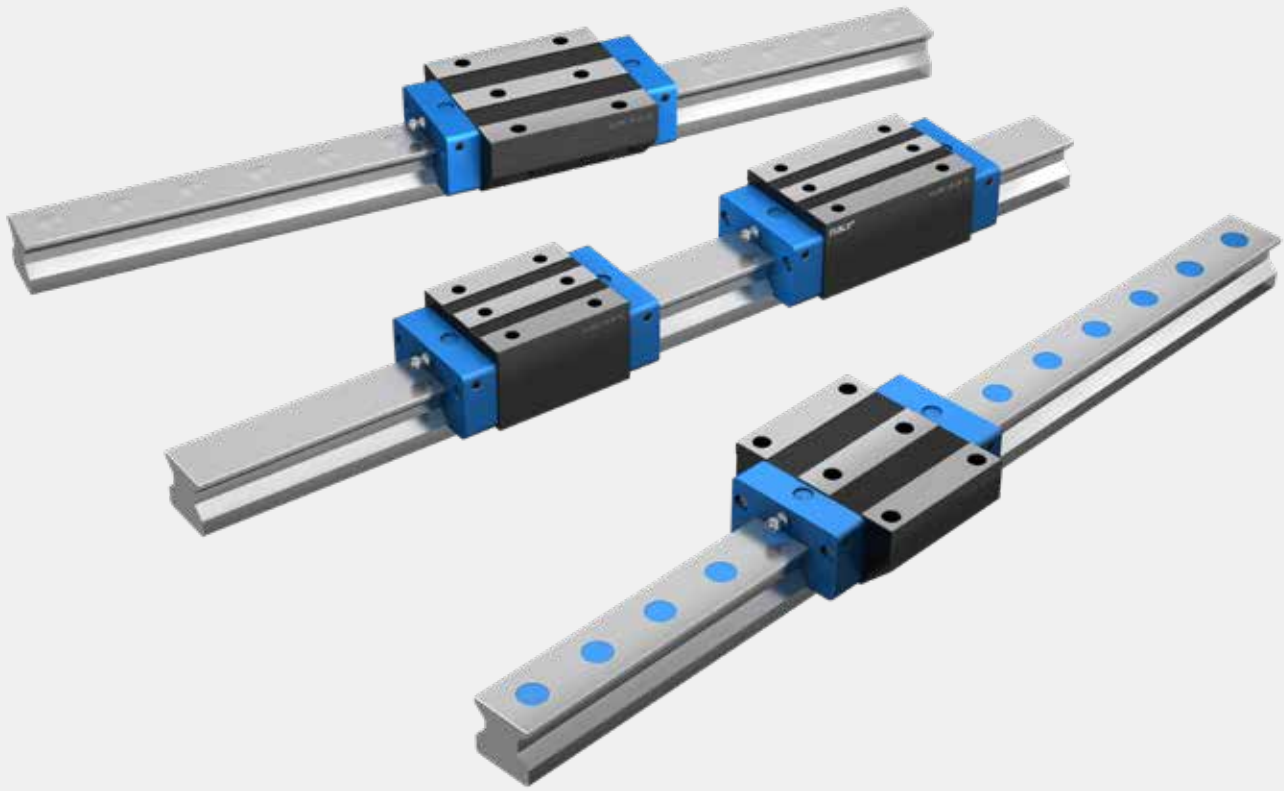
1.1 Product description

The productivity and economic success of a given application depends, to a large extent, on the quality of the selected linear components. Often these components are a significant factor in market acceptance and thus help to obtain a competitive edge for the manufacturer. To do this, the linear components have to be as adaptable as possible to precisely meet the application's requirements, ideally with standard components.

The Ewellix roller profile rail guide series LLU satisfies these market demands: available in a wide range of sizes, carriages and accessories as well as in various preload and precision classes, LLU roller profile rail guides facilitate adaptation to individual application demands. In combination with their ability to operate at virtually unlimited stroke, this opens up almost any design option.

Ewellix offers LLU roller profile rail guides in an O-arrangement with a rectangular setup of the raceways and roller sets in a 45° orientation towards the guiding base. This design promotes equal load sharing in all four main load directions to provide greater design flexibility. The range of possible applications reaches from machines for turning, milling and grinding in machine tools, presses and other heavy machinery equipment with demand for very precise and high load carrying guides. In these types of applications, the design of the LLU reveals its full capabilities in reliable and smooth operation under a variety of operating conditions.

In addition, Ewellix offers both LLT profile rail guide and LLM miniature profile rail guide series as well as a series of ready assembled profile rail guide slides, e.g. LTS. Contact your Ewellix representative for additional information.



1.2 Design

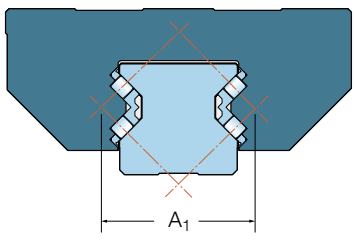
Just as with rotary bearings, the raceways of profile rail guides can be arranged in an X- or O-arrangement. The technical characteristics of these two arrangements are essentially the same. Therefore, there are no basic differences in behavior in the vast majority of load situations, except when they are subjected to moment loads around the X-axis.

The LLU roller profile rail guides from Ewellix feature an O-arrangement, based on the contact angle of the rolling elements (↳ **fig. 1**). The advantage of this arrangement is that especially in one-axis systems, the moment-related rigidity is higher than comparable systems with an X-arrangement. Due to the design-related bigger lever arm, the O-arrangement provides better rigidity and thus higher accuracy.

The line contact between cylindrical rollers and raceways offers superior load carrying capacities to comply with the highest demands in particular applications.

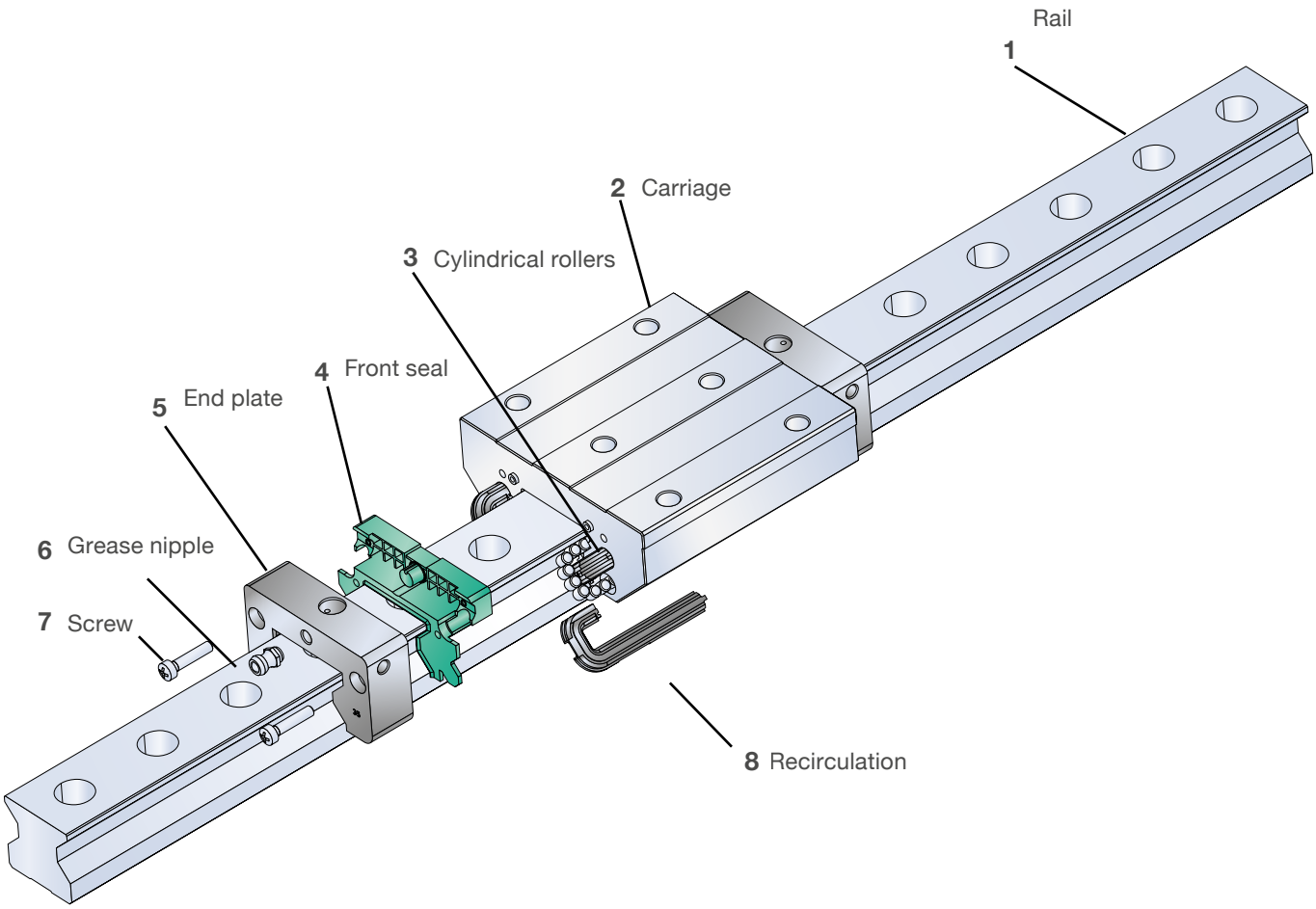
Fig. 1

Schematic illustration of the roller arrangements



O-arrangement

1.2.1 Components and material specifications



Material specifications

1. Steel, inductive hardened
2. Steel, hardened raceways, outer surface phosphated
3. Bearing steel
4. Elastomer
5. GF reinforced polymer
6. Steel, coated
7. Stainless steel
8. Polymer

1.2.2 Standard carriage components

Seals

The ingress of dirt, swarf and liquids, as well as lubricant leakage can significantly reduce the service life of a profile rail guide system. Ewellix roller profile rail guide LLU carriages are therefore supplied with a front and side seal as standard, which can significantly extend service life.

Front seal

Front seals are especially important since they offer protection for the carriage in the direction of movement. They are designed as double-lip seals in order to provide improved wiping properties (↳ **fig. 2**).

Side seal

Side seals made of elastomer effectively prevent contaminants from working their way into the system from below (↳ **fig. 3**).

Fig. 2

Front seal

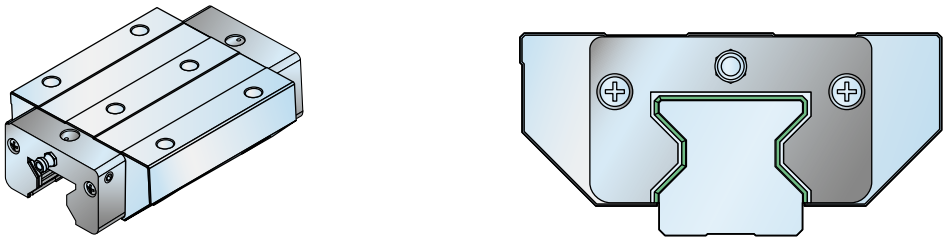
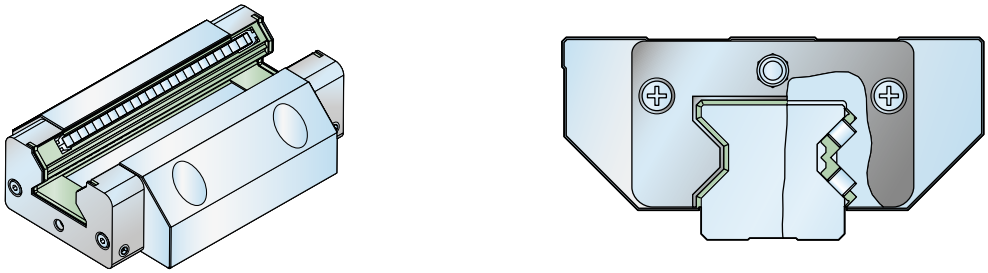
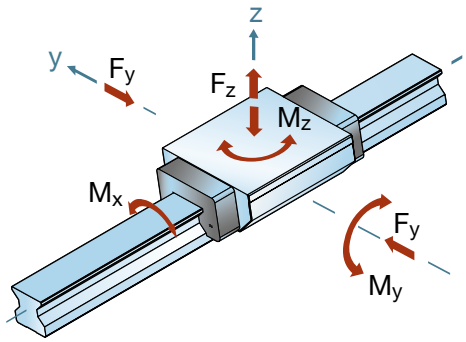


Fig. 3

Side seal

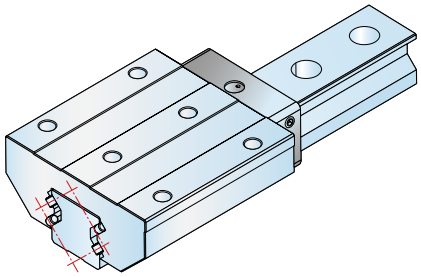


1.3 Features and benefits



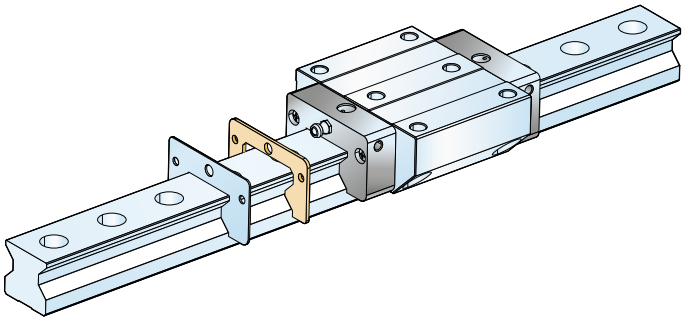
Rigidity, strength and accuracy for improved production processes

The LLU roller profile rail guide has four rows of cylindrical rollers in O-arrangement with the four raceways in 45° orientation towards the guiding base. This arrangement optimizes the load sharing in all four main load directions and is in accordance with ISO 14728. This feature provides a high degree of design flexibility. The ability to accommodate high loads and moment loads makes these rail guides ideal even for very demanding applications.



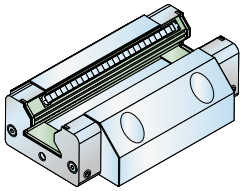
Smooth running performance

Optimized recirculations, raceways and the O-arrangement of the cylindrical rollers enable reliable, stick-slip-free operation for the whole life of the rail guide.



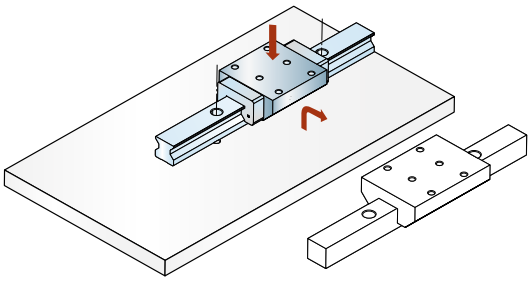
Modular concept for customized solutions

Applications have different load, precision and environmental requirements. As a result, Ewellix roller profile rail guides LLU use modular components so that cost-effective solutions can be built based on the needs of the application. Various precision and preload classes are available to meet the different needs. Furthermore, a wide range of accessories support its adaptation to specific environmental conditions.



Longer service life and reduced maintenance

Ewellix roller profile rail guide LLU carriages and rails are protected with anti-corrosion preservation for transport, storage and mounting. Both end plates of the carriage feature four (3+1) lube ports at different positions for manual lubrication or connection to automatic lubrication systems. One straight grease nipple is provided as standard with each carriage. The carriages are fully sealed with double lip seals on both ends and longitudinal seals along the rail. The seals have been proven to be highly effective against the ingress of contaminants and have low friction.



Interchangeability and global availability

The main dimensions of all Ewellix profile rail guides are in accordance with ISO 12090-1. This enables dimensional interchangeability with all ISO-compliant brands. Ewellix's global sales and distribution network results in availability of replacement parts and serviceability for all systems worldwide.

1.4 Product range

1.4.1 Product overview

LLUHC ... A
Flanged carriage
Standard length, standard height

Further information on **page 36**

LLUHC ... LA
Flanged carriage
Extended length, standard height

Further information on **page 37**

LLUHU ... R
Slim-line carriage
Standard length, extended height

Further information on **page 38**

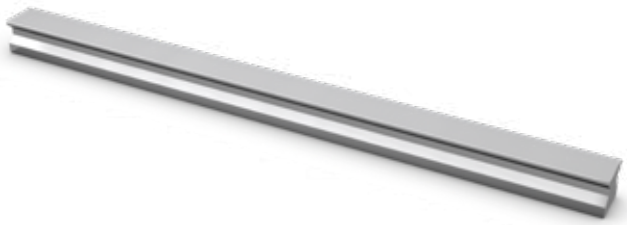
LLUHC ... LR
Slim-line carriage
Extended length, extended height

Further information on **page 39**

LLUHR
Profile rail with standard hole caps

Further information on **page 40**

LLUHR ... D4
Profile rail with blind holes

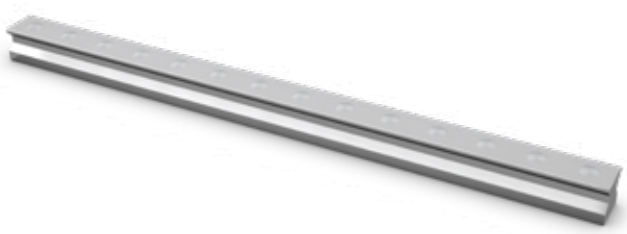


Further information on **page 40**

LLUHR ... D6
Profile rail with brass hole plugs

Further information on **page 40**

LLUHR ... D8
Profile rail with steel hole plugs

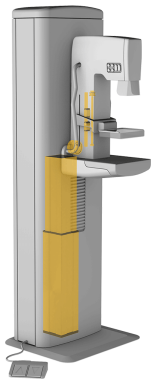


Further information on **page 40**

Application examples

Other imaging equipment

At Ewellix we believe that we are a highly qualified partner for the development of new designs and solutions for medical imaging systems requiring linear or electrical motion sequences, e.g. mammography, fluoroscopy or mobile X-ray devices. Our actuators, lifting columns and control units are UL approved for medical applications and in most cases provide a user-friendly, safe and reliable way to enhance patient comfort. We offer low-friction miniature ball screws and a variety of profile rail types at excellent value for money. If you would like to understand more about Ewellix's medical expertise, please do not hesitate to contact us, we're here to help.



Dental chair

During dental examinations, it is important that the patient is placed in the correct position. Several types of patient chairs are available on the market. Ewellix offers an advanced range of low-noise medical linear drives for rotary and tilting models.

Our high standard profile rails are the best choice for lifting column structures which are mounted on the side of the patient chair. These special medical profile rails also help to reduce the overall size of the equipment. Our experts are on hand to advise you on this, as well as the best solution for you.

Clinching

Clinching is a technique that is being increasingly used in the automotive industry as it is suitable for joining parts that are made of materials which are difficult or virtually impossible to weld. Although clinching stations usually work with compressed air cylinders, electromechanical processes are also often used because they allow better control of parameters such as load, speed and position. Electromechanical systems offer improved joining qualities and more flexibility in adapting production lines, require significantly less energy and are less maintenance intensive.

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