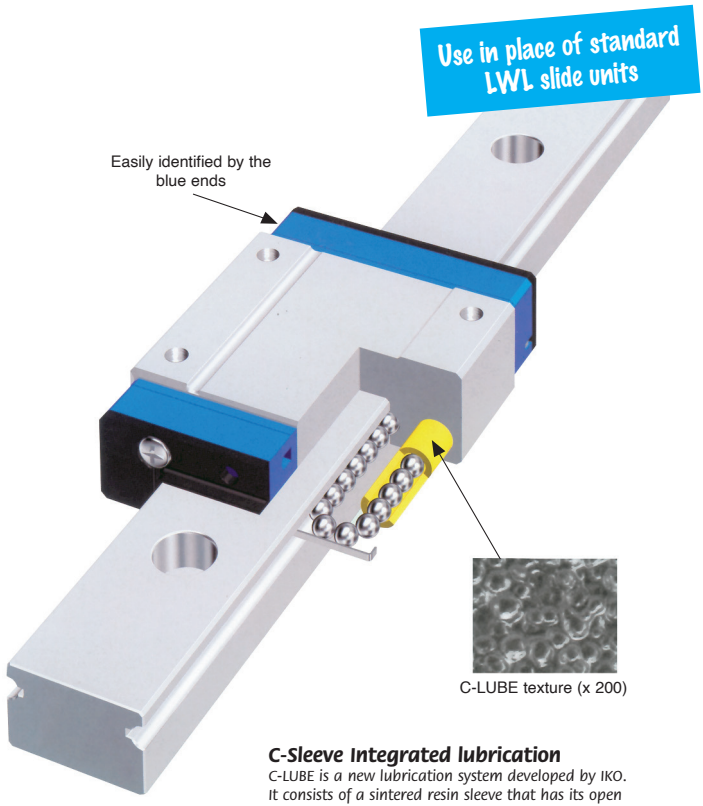
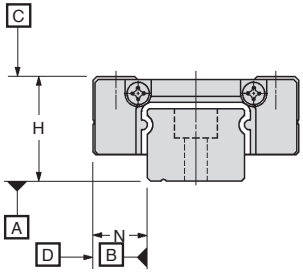
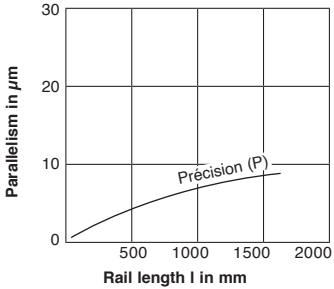
LWL IKO C-LUBE self lubricating slide unit for LWL guide rails



C-Sleeve Integrated lubrication

C-LUBE is a new lubrication system developed by IKO. It consists of a sintered resin sleeve that has its open pores impregnated with lubricating oil.





Accuracy

The accuracy of the LWL linear slides are given below.

Tolerance on H (mm)	±0,010
Tolerance on N(3) (mm)	±0,015
Variation on H(1) (mm)	0,007
Variation on N(2) (3) (mm)	0,010
Parallelism between C and A (mm)	See graph below
Parallelism between D and B (mm)	See graph below

***Note**:*
(1) This is the difference in the dimension H between two slides mounted on the same track or on a pair of tracks when H is measured at a specified position.
(2) This is the difference in the dimension N between two slides mounted on the same track or on a pair of tracks when N is measured at a specified position.
(3) These values also apply to an assembly with reversed reference surfaces.
***Note**: These values also apply when dimensions are measured at the centre of each slide assembled on a rail attached to a flat base.*

Preload

IKO LWL interchangeable linear slides are only available as standard with a preload that is equivalent to no preload or very low.

Life expectancy

The life expectancy of an LWL linear slide can be calculated using the following formula:

$$L = 50 \left(\frac{C}{P}\right)^{10/3} \quad (1)$$

where:
L : life expectancy in kilometres (or 10^3 ***m***)
C : Basic Dynamic load capacity (**N**)
P : Applied load (**N**)

Actual loads applied to the linear guide sometimes exceed the theoretically calculated load due to vibration and shocks caused by the operation of the machine. A more realistic life expectancy can be calculated using the following formula which takes the load factor into account:

$$L = 50 \left(\frac{C}{fwFc}\right)^{10/3} \quad (2)$$

where:
fw : load factor (see table 1)
Fc : Calculated theoretical load (**N**)

In applications where the stroke length and the number of strokes per minute are known, the life expectancy in hours can be calculated as follows:

$$Lh = \frac{10^6 L}{2Sn_1 x60} \quad (3)$$

where:
Lh : Life expectancy in hours (**h**)
S : Stroke length (***mm***)
n_1 : Number of strokes per minute (***spm***)

Table 1: Load factor

Operating conditions	fW
Smooth working without vibrations and/or shocks	1 ~ 1.2
Normal operation	1.2 ~ 1.5
Subject to shocks	1.5 ~ 3

Static security factor

The static security factor of LWL linear slide rules is calculated using the formula below. The general values are given in table 6.

$$fs = \frac{C_0}{P_0} \quad (4)$$

for which:
fs : static security factor
C_0 : Basic static load rating (**N**)
P_0 : static load (**N**)

Table 2: Static security factor

Operating conditions	fs
Smooth working without vibrations and/or shocks	3 ~ 5
High performance working	2 ~ 4
Normal working	1 ~ 3

Assembly

To assemble LWL slides, correctly fit the slide and rail reference surfaces to the table and frame reference surfaces, then fix them together solidly.

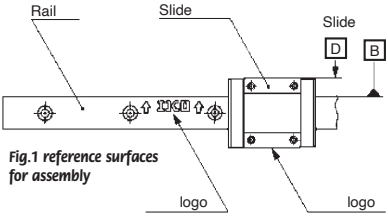


Fig.1 reference surfaces for assembly

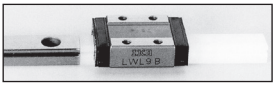
Reference surface

The slide reference surface is always opposite the surface where the brand-name is marked. The rail reference surface is marked by the manufacturer's logo engraved on the upper surface. It is always on the side indicated by the arrows engraved with the manufacturer's logo (see fig.1).

Safety

1 Manipulation

On delivery, the slide is attached to a dummy rail. To assemble the slide onto the guidance rail, line up the grooves on the sides of the slide making sure the slide stays on the mock rail. Then carefully move the slide from the dummy rail onto the guidance rail.



2 Load considerations when multiple slide units are mounted close together

When using multiple slide units mounted close together, the actual load may be greater than the calculated load depending on the accuracy of the mounting and reference surfaces of the machine. In such a case, it is suggested to assume a greater load than that previously calculated.

3 Example of multiple slide units mounted close together

Referring to Figure 2, the reference mounting surfaces B and D and mounting surfaces A and C of the LWL linear slides are accurately finished by grinding. Stable and high accurate linear motion will be obtained by finishing the mating mounting surfaces of machines or equipment to the same high accuracy and correctly mounting the guides on these surfaces.

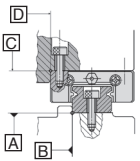


Fig. 2 Assembly example

4 Working temperature

The normal continuous operating temperature of the LWL linear slides is 100°C with occasional use at up to 120°C. If your application will exceed 100°C, please contact us for advice.

C-LUBE with its integrated lubrication system, offers many advantages to the user

Limited maintenance

Reduced maintenance. Being self lubricating, C-LUBE slides unit require very infrequent maintenance (every 5 years or 20,000kms)

Light and compact

Clever design means that the self-lubricating C-LUBE slide unit is very compact (Same dimensions as the LWL slides)

Smooth movement

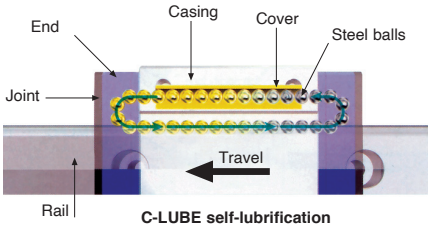
C-LUBE slides units are not in contact with the track rail. This permits smooth and light slide motion without increasing the rolling resistance

Clean

There is no risk that C-LUBE slides units will spray excess lubricant to nearby machines or surfaces

In stainless steel

C-LUBE slides units are manufactured in corrosion resistant stainless steel. This makes the units suitable for applications in special environments where lubricants and corrosion protection oils are prohibited



C-LUBE self-lubrification

Circulating in the slide rail, the steel balls pass through the C-LUBE cover and are covered in lubricant. This is then deposited on the moving parts. This means that the balls, the recirculation path and the rails are all self lubricated during use and maintenance intervals can be extended.