Rail and slides

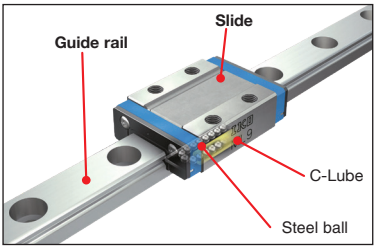
IKO LWL
LWLC-C1H
LWLG-C1H
LWL-C1H

Linear ball bearing guide consisting of a rail and a slide

interchangeable, precise, rigid and compact

The most current linear slide

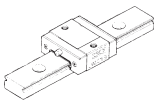
With C-LUBE lubricating part



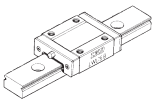
Compose your guide by selecting the rail and the number of slides you need

Self-lubricating slide + **Rail** = **Precision ball slide**

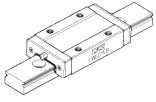
Wide choice of slides



LWLC - C1H
7 to 25
short self-lubricating slide
- Slide length: short
- Load capacity: **low**



LWL-C1H
5 to 25
standard self-lubricating slide
- Slide length: normal
- Load capacity: **normal**



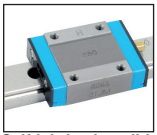
LWLG - C1H
7 to 25
long, high-stiffness, self-lubricating slide
- Slide length: long
- Load capacity: **excellent**

Stock Sta ★★★★

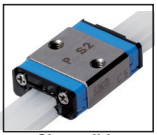
LWL IKO

Dynamic loads from 514 N to 1510 N

- ***Linear slide unit for normal loads***
- *Recirculating ball type linear slide*
- *Material: Similar to stainless steel 440C*
- *LWL5 uses steel balls which are not restrained*
- *Standard accuracy*
- *Max. speed: 3m/s*
- *Max. temperature: +100°C (continuous) +120°C (occasionally)*
- ***Note: part numbers of rails and slide units are separate: remember to order both***
- *Self-lubricating slide*

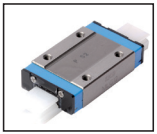


Self-lubricating slide LWL-C1H



Short slide LWLC-C1H

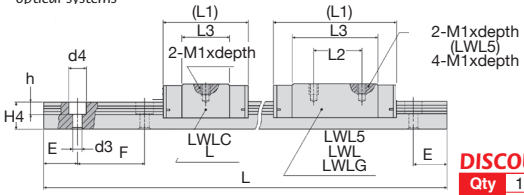
stainless steel



Long slide LWLG-C1H

Applications

- *Medical equipment, measurement and optical systems*

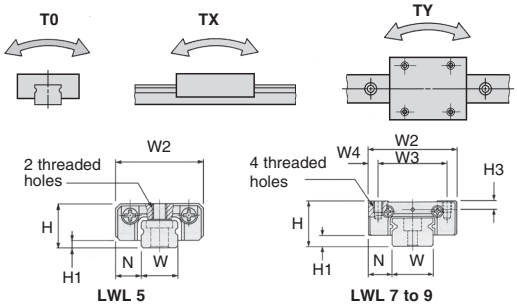


DISCOUNTS

Qty	1+	4+	8+
Disc.	List	-6%	On request

Part number	L (mm)	No. of holes	Max. length	Type of slide	Stock*	Price each 1 to 3
LWL5-60	60	4	210	-	✔	27,75 €
LWL5-90	90	6	210	-	-	41,63 €
LWL5-120	120	8	210	-	✔	55,51 €
LWL5-150	150	10	210	-	-	69,40 €
LWL5-180	180	12	210	-	✔	83,27 €
LWL5-210	210	14	210	-	✔	97,15 €
LWL5C-C1H	-	Slide	-	Short	✔	66,31 €
LWL5-C1H	-	Slide	-	Standard	✔	79,01 €
LWL7-60	60	4	300	-	✔	25,86 €
LWL7-90	90	6	300	-	✔	38,81 €
LWL7-120	120	8	300	-	✔	51,74 €
LWL7-150	150	10	300	-	✔	64,68 €
LWL7-180	180	12	300	-	✔	77,62 €
LWL7-240	240	16	300	-	-	103,49 €
LWL7-300	300	20	300	-	✔	129,37 €
LWL7C-C1H	-	Slide	-	Short	✔	59,74 €
LWL7G-C1H	-	Slide	-	Long	✔	85,61 €
LWL7-C1H	-	Slide	-	Standard	✔	71,22 €

**Depending on availability - Dimensions in mm*



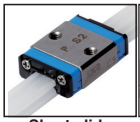
	LWL5C-C1H	LWL5-C1H	LWL7C-C1H	LWL7G-C1H	LWL7-C1H
Weight (g)					
Slide unit	3,40	4,30	7,10	9,10	14,00
rail (par 100mm)	12,00	12,00	22,00	22,00	22,00
Total dimensions (mm)					
H+/- 0,02	6,00	6,00	8,00	8,00	8,00
H1	1,00	1,00	1,50	1,50	1,50
N+/- 0,025	3,50	3,50	5,00	5,00	5,00
Slide dimensions (mm)					
W2	12,00	12,00	17,00	17,00	17,00
W3	8,00	8,00	12,00	12,00	12,00
W4	2,00	2,00	2,50	2,50	2,50
L1	16,00	19,00	19,00	23,50	31,00
L2	-	-	-	8,00	12,00
L3	9,60	12,60	9,60	14,30	21,60
M1 x depth	M2 x 1,5	M2 x 1,5	M2 x 2,5	M2 x 2,5	M2 x 2,5
H3	1,20	1,20	1,50	1,50	1,50
Rail dimensions (mm)					
W	5,00	5,00	7,00	7,00	7,00
H4	3,70	3,70	5,00	5,00	5,00
d3	2,40	2,40	2,40	2,40	2,40
d4	3,60	3,60	4,20	4,20	4,20
h	0,80	0,80	2,30	2,30	2,30
E	7,50	7,50	7,50	7,50	7,50
F	15,00	15,00	15,00	15,00	15,00
Rail fixing holes	M2 x 6	M2 x 6	M2 x 6	M2 x 6	M2 x 6
Basic dynamic load C (N)	514	612	856	1200	1510
Basic static load Co (N)	872	1130	1180	1960	2750
* Static torque					
T0 (Nm)	2,00	3,00	4,30	7,20	10,00
Tx (Nm)	1,50	2,40	1,90	4,90	9,10
	9,00	13,30	15,40	29,20	52,60
Ty (Nm)	1,20	2,00	1,60	4,10	7,70
	7,60	11,20	12,90	24,50	44,10

Data given in row T0 and first rows of Tx and Ty are for a single slide
Data given in second rows of Tx and Ty are for a two slides in close contact

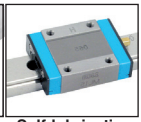
LWL IKO

Dynamic loads from 1070 N to 3780 N

- **Linear slide unit for normal loads**
- Recirculating ball type linear slide
- Material: Similar to stainless steel 440C
- Standard accuracy
- For LWL5, the ball are made of steel and are not contained
- Max. speed: 3m/s
- Max. temperature: +100°C (continuous) +120°C (occasionally)
- **Note. Rails and slides units have separate part numbers, remember to order both**
- Self-lubricating slide

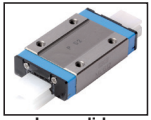


Short slide LWLC-C1H



Self-lubricating slide LWL-C1H

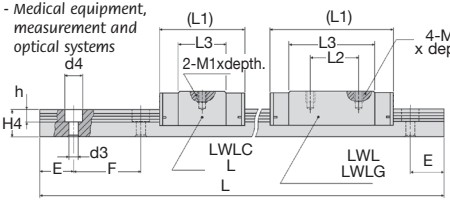
stainless steel



Long slide LWLG-C1H

Applications

- Medical equipment, measurement and optical systems

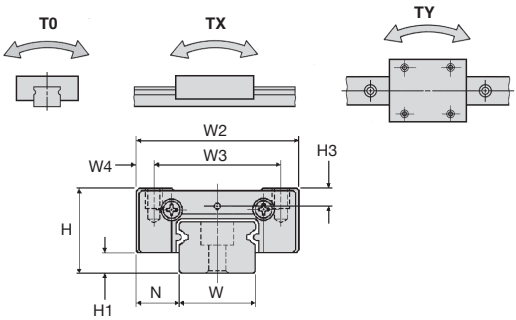


DISCOUNTS

Qty	1+	4+	8+
Disc.	List	-6%	On request

Part number	L (mm)	No. of holes	Max. length	Type of slide	Stock*	Price each 1 to 3
LWL9-60	60	3	860	-	✔	31,40 €
LWL9-120	120	6	860	-	✔	62,70 €
LWL9-160	160	8	860	-	✔	83,61 €
LWL9-240	240	12	860	-	✔	125,42 €
LWL9-280	280	14	860	-	✔	146,33 €
LWL9-480	480	24	860	-	-	250,86 €
LWL9-720	720	36	860	-	-	sur demande
LWL9-860	860	43	860	-	-	449,47 €
LWL9C-C1H	-	Slide	-	Short	✔	53,99 €
LWL9G-C1H	-	Slide	-	Long	✔	81,87 €
LWL9-C1H	-	Slide	-	Standard	✔	68,34 €
LWL12-50	50	3	1000	-	✔	25,13 €
LWL12-100	100	4	1000	-	✔	50,26 €
LWL12-150	150	6	1000	-	✔	75,39 €
LWL12-200	200	8	1000	-	✔	100,53 €
LWL12-275	275	11	1000	-	✔	138,23 €
LWL12-350	350	14	1000	-	✔	175,92 €
LWL12-400	400	16	1000	-	-	201,06 €
LWL12-475	475	19	1000	-	-	238,76 €
LWL12-1000	1000	40	1000	-	-	sur demande
LWL12C-C1H	-	Slide	-	Short	✔	54,54 €
LWL12G-C1H	-	Slide	-	Long	✔	88,04 €
LWL12-C1H	-	Slide	-	Standard	✔	72,76 €

*Depending on availability - Dimensions in mm



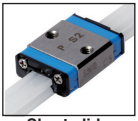
	LWL9C-C1H	LWL9G-C1H	LWL9-C1H	LWL12C-C1H	LWL12G-C1H	LWL12-C1H
Weight (g)						
Slide unit	11,00	18,00	28,00	22,00	34,00	51,00
rail (par 100mm)	35,00	35,00	35,00	65,00	65,00	65,00
Total dimensions (mm)						
H+/- 0,02	10,00	10,00	10,00	13,00	13,00	13,00
H1	2,00	2,00	2,00	3,00	3,00	3,00
N+/- 0,025	5,50	5,50	5,50	7,50	7,50	7,50
Slide dimensions (mm)						
W2	20,00	20,00	20,00	27,00	27,00	27,00
W3	15,00	15,00	15,00	20,00	20,00	20,00
W4	2,50	2,50	2,50	3,50	3,50	3,50
L1	21,50	30,00	40,50	25,00	34,00	44,00
L2	-	10,00	15,00	-	15,00	20,00
L3	11,90	20,80	30,90	13,00	21,60	32,00
M1 x depth	M3 x 3	M3 x 3	M3 x 3	M3 x 3,5	M3 x 3,5	M3 x 3,5
H3	2,20	2,20	2,20	2,70	2,70	2,70
Rail dimensions (mm)						
W	9,00	9,00	9,00	12,00	12,000	12,00
H4	6,00	6,00	6,00	8,00	8,00	8,00
d3	3,50	3,50	3,50	3,50	3,50	3,50
d4	6,00	6,00	6,00	6,50	6,50	6,50
h	3,50	3,50	3,50	4,50	4,50	4,50
E	10,00	10,00	10,00	12,50	12,50	12,50
F	20,00	20,00	20,00	25,00	25,00	25,00
Rail fixing holes	M3 x 8	M3 x 8	M3 x 8	M3 x 8	M3 x 8	M3 x 8
Basic dynamic load C(N)	1070	1610	2080	2000	2960	3780
Basic static load Co (N)	1540	2860	4180	2470	4450	6430
* Static torque						
T0 (Nm)	7,20	13,30	19,40	15,30	27,60	39,90
Tx (Nm)	3,00	9,40	19,40	5,50	16,00	36,80
	22,20	53,00	16,20	43,30	96,60	19,40
Ty (Nm)	2,50	7,90	16,30	4,70	13,40	27,00
	18,60	44,50	85,60	36,30	81,10	145,00

Data given in row T0 and first rows of Tx and Ty are for a single slide
Data given in second rows of Tx and Ty are for a two slides in close contact

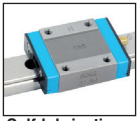
LWL IKO

Dynamic loads from 3120 N to 7350 N

- ***Linear slide unit for normal loads***
- *Recirculating ball type linear slide*
- *Material: Similar to stainless steel 440C*
- *Standard accuracy*
- *Max. speed: 3m/s*
- *Max. temperature: +100°C (continuous) +120°C (occasionally)*
- ***Note. Rails and slides units have separate part numbers, remember to order both***
- *Self-lubricating slide*

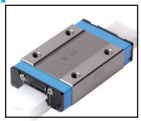


Short slide LWLC-C1H



Self-lubricating slide LWL-C1H

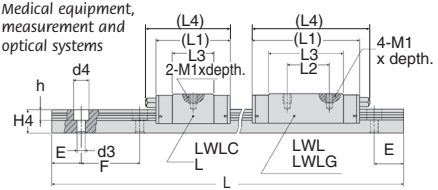
stainless steel



Long slide LWLG-C1H

Applications

- *Medical equipment, measurement and optical systems*

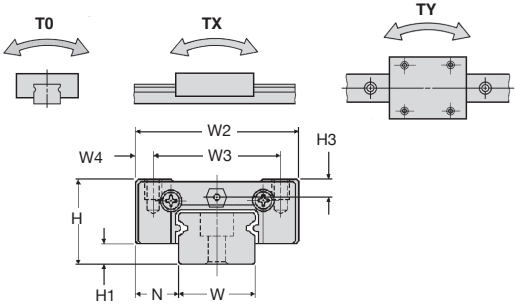


DISCOUNTS

Qty	1+	4+	8+
Disc.	List	-6%	On request

Part number	L (mm)	No. of holes	Max lenght	Type of slide	Stock*	Price each 1 to 3
LWL15-80	80	2	1000	-	✔	49,34 €
LWL15-120	120	3	1000	-	✔	69,56 €
LWL15-160	160	4	1000	-	✔	92,75 €
LWL15-240	240	6	1000	-	✔	139,13 €
LWL15-320	320	8	1000	-	✔	185,51 €
LWL15-440	440	11	1000	-	-	255,09 €
LWL15-480	480	12	1000	-	-	278,28 €
LWL15-560	560	14	1000	-	-	324,66 €
LWL15-680	680	17	1000	-	-	394,24 €
LWL15-960	960	24	1000	-	-	sur demande
LWL15-1000	1000	25	1000	-	-	sur demande
LWL15C-C1H	-	Slide	-	Short	✔	60,91 €
LWL15G-C1H	-	Slide	-	Long	✔	98,29 €
LWL15-C1H	-	Slide	-	Standard	✔	81,87 €
LWL20-120	120	2	1440	-	✔	72,99 €
LWL20-180	180	3	1440	-	✔	109,49 €
LWL20-240	240	4	1440	-	✔	145,99 €
LWL20-360	360	6	1440	-	✔	218,99 €
LWL20-480	480	8	1440	-	✔	291,99 €
LWL20-660	660	11	1440	-	✔	401,49 €
LWL20-840	840	14	1440	-	✔	510,98 €
LWL20-960	960	16	1440	-	-	sur demande
LWL20C-C1H	-	Slide	-	Short	✔	67,02 €
LWL20G-C1H	-	Slide	-	Long	✔	107,64 €
LWL20-C1H	-	Slide	-	Standard	✔	89,84 €

**Depending on availability - Dimensions in mm*



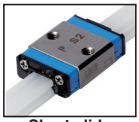
	LWL15C-C1H	LWL15G-C1H	LWL15-C1H	LWL20C-C1H	LWL20G-C1H	LWL20-C1H
Weight (g)						
Slide unit	42,00	63,00	95,00	89,00	130,00	196,00
rail (par 100mm)	107,00	107,00	156,00	156,00	156,00	156,00
Total dimensions (mm)						
H+/- 0,02	16,00	16,00	16,00	20,00	20,00	20,00
H1	4,00	4,00	4,00	5,00	5,00	5,00
N+/- 0,025	8,50	8,50	8,50	10,00	10,00	10,00
Slide dimensions (mm)						
W2	32,00	32,00	32,00	40,00	40,00	40,00
W3	25,00	25,00	25,00	30,00	30,00	30,00
W4	3,50	3,50	3,50	5,00	5,00	5,00
L1	32,00	42,00	57,00	38,00	50,00	68,00
L2	-	20,00	25,00	-	25,00	30,00
L3	17,70	27,90	42,70	22,30	34,60	52,30
L4	36,00	47,00	62,00	42,00	55,00	72,00
M1 x depth	M3 x 4,0	M3 x 4,0	M3 x 4,0	M4 x 6,0	M4 x 6,0	M4 x 6,0
H3	3,10	3,10	3,10	4,20	4,20	4,20
Rail dimensions (mm)						
W	15,00	15,00	15,00	20,00	20,00	20,00
H4	10,00	10,00	10,00	11,00	11,00	11,00
d3	3,50	3,50	3,50	6,00	6,00	6,00
d4	6,50	6,50	6,50	9,50	9,50	9,50
h	4,50	4,50	4,50	5,50	5,50	5,50
E	20,00	20,00	20,00	30,00	30,00	30,00
F	40,00	40,00	40,00	60,00	60,00	60,00
Rail fixing holes	M3 x 10	M3 x 10	M3 x 10	M5 x 14	M5 x 14	M5 x 14
Basic dynamic load C(N)	3120	4390	5750	4070	5830	7350
Basic static load Co (N)	4040	6730	10100	5490	9420	13000
* Static torque						
T0 (Nm)	31,10	51,80	77,70	56,00	96,10	136,00
Tx (Nm)	12,10	30,80	66,00	80,00	54,60	106,00
	87,60	178,00	351,00	138,00	291,00	549,00
Ty (Nm)	10,00	25,90	56,00	16,90	45,80	89,00
	73,50	149,00	294,00	116,00	244,00	461,00

Data given in row T0 and first rows of Tx and Ty are for a single slide
Data given in second rows of Tx and Ty are for a two slides in close contact

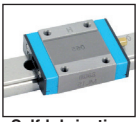
LWL IKO

Dynamic loads from 9120 N to 16700 N

- ***Linear slide unit for normal loads***
- *Recirculating ball type linear slide*
- *Material: Similar to stainless steel 440C*
- *Standard accuracy*
- *Max. speed: 3m/s*
- *Max. temperature: +100°C (continuous) +120°C (occasionally)*
- ***Note. Rails and slides units have separate part numbers, remember to order both***
- *Self-lubricating slide*

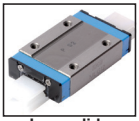


Short slide LWLC-C1H



Self-lubricating slide LWL-C1H

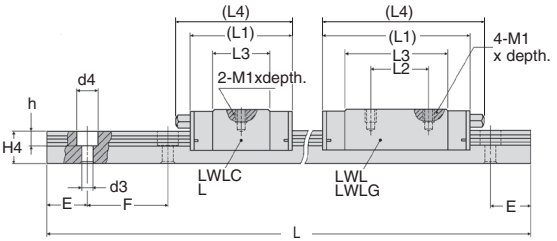
stainless steel



Long slide LWLG-C1H

Applications

- *Medical equipment, measurement and optical systems*

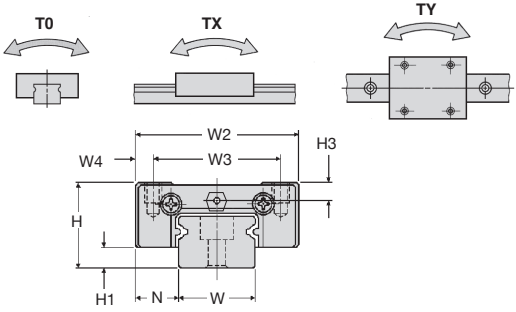


DISCOUNTS

Qty	1+	4+	8+
Disc.	List	-6%	On request

Part number	L (mm)	N° of holes	Max length	Type of slide	Stock*	Price each 1 to 3
LWL25-120	120	2	960	-	-	91,50 €
LWL25-240	240	4	960	-	-	183,00 €
LWL25-360	360	6	960	-	✔	274,51 €
LWL25-480	480	8	960	-	✔	366,01 €
LWL25-600	600	10	960	-	-	On request
LWL25-720	720	12	960	-	-	596,77 €
LWL25-840	840	14	960	-	-	696,23 €
LWL25-960	960	16	960	-	-	795,69 €
LWL25C-C1H	-	Slide	-	Short	✔	107,95 €
LWL25G-C1H	-	Slide	-	Long	-	173,37 €
LWL25-C1H	-	Slide	-	Standard	✔	140,77 €

**Depending on availability - Dimensions in mm*

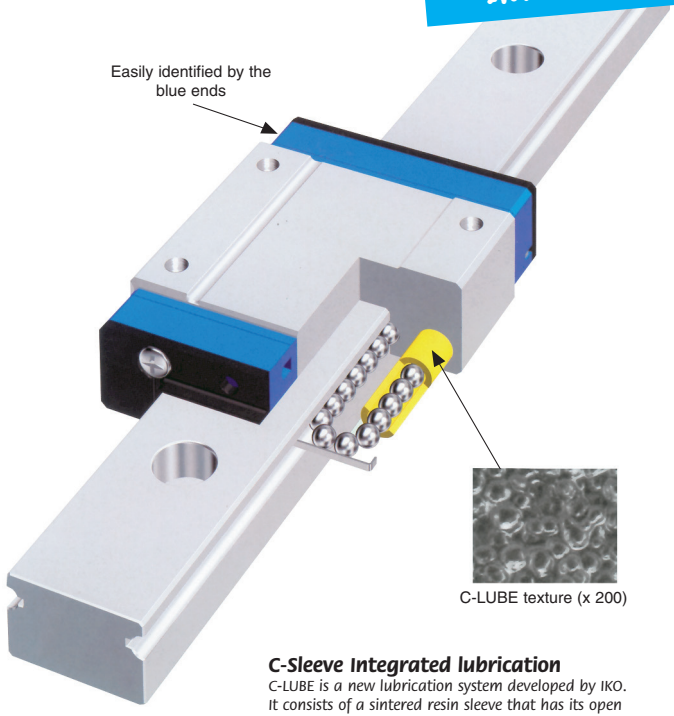


	LWL25C-C1H	LWL25-C1H	LWL25G-C1H
Weight (g)			
Slide unit	190	315	413
rail (par 100mm)	243	243	243
Total dimensions (mm)			
H+/- 0,02	25	25	25
H1	5	5	5
N+/- 0,025	12,5	12,5	12,5
Slide dimensions (mm)			
W2	48	48	48
W3	35	35	35
W4	6,5	6,5	6,5
L1	55	78	98
L2	-	35	40
L3	31,9	55,7	75,5
L4	65	89	108
M1 x depth	M6 x 7	M6 x 7	M6 x 7
H3	5	5	5
Rail dimensions (mm)			
W	23	23	23
H4	15	15	15
d3	7	7	7
d4	11	11	11
h	9	9	9
E	30	30	30
F	60	60	60
Rail fixing holes	M6 x 16	M6 x 16	M6 x 16
Basic dynamic load C(N)	9120	13500	16700
Basic static load Co (N)	10600	18500	25200
* Static torque			
T0 (Nm)	128	223	303
Tx (Nm)	57,4	163	293
	380	887	1480
Ty (Nm)	48,1	137	246
	319	744	1240

Data given in row T0 and first rows of Tx and Ty are for a single slide
Data given in second rows of Tx and Ty are for a two slides in close contact

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

Use in place of standard LWL slide units

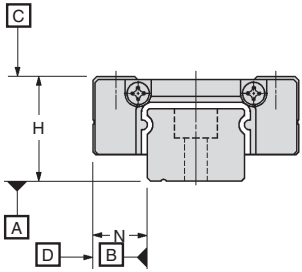


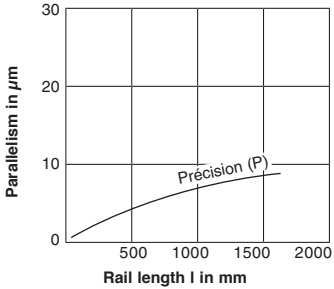
C-Sleeve Integrated lubrication

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.

Technical information

IKO LWL





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.

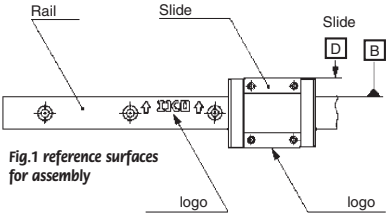


Fig.1 reference surfaces for assembly

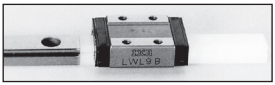
Reference surface

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 mqking 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.

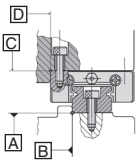


Fig. 2 Assembly example

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

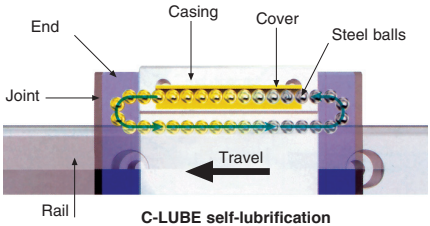
C-LUBE slides units are not in contact with the track rail. This permits smooth and light slide motion without increasing the rolling resistance

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.

Our other products

SSB

Stainless steel bevel gear, 1:1

DIL

Lever operated locking bolt, lever clamp

GET-AL

Jaw coupling, economy range, Aluminium

VCMB

Dual-thread screw wood/metal, Stainless steel

BDP1R

Adjustable support arm, Single clamp

DOMI30

Accessories, Fixing kit

TBEBASE10

Economic mini-table with trapezoidal leadscrew, Economy range

CTZY

Diabolo shaped elasto mount, Steel

PLA

Flat magnet, Flat magnet with thread

PRF-GUM

Aluminium profile anodising polisher,

SER69K

Quarter turn latch for the food industry,

GE14

Toggle latches, With padlock-holder

Complementary products

LWL

Linear ball slide - Stainless steel balls, Chariot - from 514 N to 1...

HK

Manual locking clamp, Manual locking clamp LWL