



Linear Motion Rolling Guide series with **Capillary Plate**

Lubrication parts

CAT-5921D

U.S. PATENTED

More interchangeable models now available !



For savings in re-lubrication cost and man-hour

Applicable for interchangeable types!

IKO Linear Motion Rolling Guide series with Capillary Plate

Wider range of variations !

Capillary Plate is applicable for special environments such as clean environment, vacuum environment, and food processing machines.



[Lubrication parts]

IKO C-Plate Capillary Plate

*Re-lubrication interval can be extended, and maintenance cost will be reduced !
Suitable for use at places where re-lubrication is difficult !
By eliminating oil contamination, it provides oil free clean environment !*



Lubrication parts **IKO** Capillary Plate

Capillary Plate is attached inside of the end seals of slide unit or external cylinder of Linear Motion Rolling Guides in uniform contact with the raceways of track rail or spline shaft. Lubrication oil impregnated in the Capillary Plate is continuously fed to the raceways, when the slide unit or external cylinder travels along the track rail or spline shaft. Re-lubrication interval can be made longer, and maintenance and inspection time can be reduced.

Capillary Plate

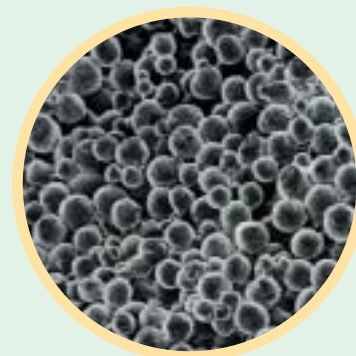
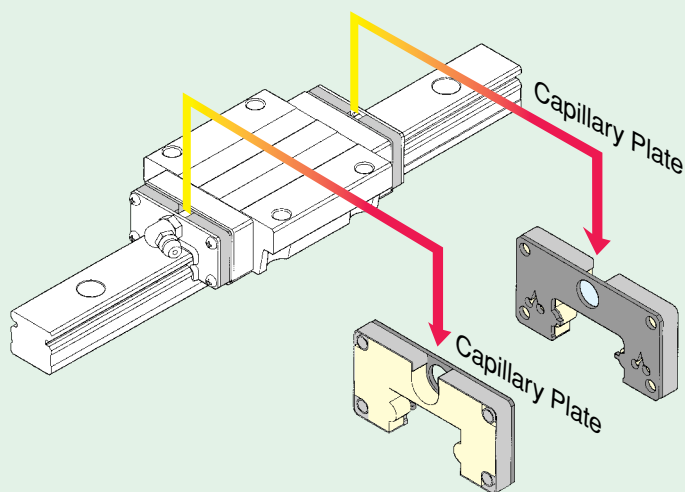
Capillary Plate is an attachment part for new type lubrication. It is a porous resin plate made by sintering fine resin powder and impregnating a large quantity of lubrication oil in its continuous open pores.

Positioned with high precision to achieve uniform contact !

Dimensions of Capillary Plate are accurately controlled, and it can be fixed with high precision at the correct position. Uniform contact between the capillary plate and the raceways of track rail can thus be achieved.

Capillary action ensures stable lubrication for long periods of time !

When the slide unit is stroked, lubrication oil impregnated in the Capillary Plate is continuously fed to the raceways in proper amount by capillary action through the open pores, and can keep stable lubrication for long periods of time.



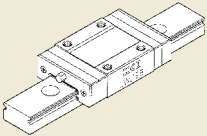
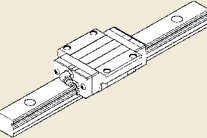
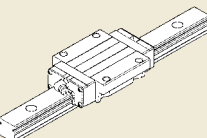
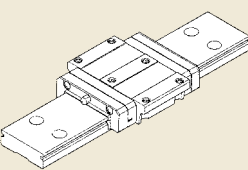
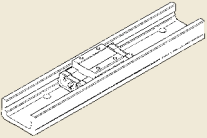
**Microscopic structure of Capillary Plate
(Mag.: x 200)**

Lubrication oil is impregnated in the continuous open pores of resin of Capillary Plate.

IKO Linear Way H series with Capillary Plate

IKO Linear Motion Rolling Guide series with Capillary Plate

A wide range of applicable model and size variations

| Series | Model code | Material | Applicable model number | | | | | |
|---|--|--|--|---|---|---|---|--|
| Linear Way      | Linear Way L | LWL | High carbon steel LWL 9~20...BCS Stainless steel LWL(C·G) 5~25...B NEW | Applicable for Interchangeable type | | | | |
| | | LWLF | High carbon steel LWLF 18~42...BCS Stainless steel LWLF(C·G) 10~42...B | | | | | |
| | Linear Way E | | LWE | High carbon steel LWE(C·G) 15~45 LWET(C·G) 15~45 LWES(C·G) 15~45 | Applicable for Interchangeable type | | | |
| | | Stainless steel LWE(C·G) 15~30...SL LWET(C·G) 15~30...SL LWES(C·G) 15~30...SL | | | | | | |
| | | Low Decibel Linear Way E | | LWE...Q | | High carbon steel LWE(C·G) 15~35...Q LWET(C·G) 15~35...Q LWES(C·G) 15~35...Q | | |
| | | | | | | Linear Way H | LWH | High carbon steel LWH(G) 15~65(...B) LWHT(G) 12~65(...B) LWHD(G) 12~65(...B) LWHS(G) 15~30(...B) |
| | Stainless steel LWH 15~30...SL LWHT 8~30...SL LWHD 8~12...SL LWHS 15~30...SL | | | | | | | |
| | Linear Way F | LWFH | High carbon steel LWFH 40~90 | NEW Applicable for Interchangeable type | | | | |
| | | | LWFF | | High carbon steel LWFF 33~69 NEW | | | |
| | | | | | LWFS | | | High carbon steel LWFS 33~37 Stainless steel LWFS 33~42...SL |
| | Linear Way U | LWU | High carbon steel LWU 40~130 NEW | | | | | |
| | Linear Roller Way | Linear Roller Way Super X | LRX | High carbon steel LRX(C·G) 12~65 LRXD(C·G) 12~65 | NEW Applicable for Interchangeable type | | | |
| | | | | Stainless steel LRXD(C·G) 12~25...SL | | | | |
| | Linear Roller Way X | LRWX | High carbon steel | LRWX 25~75...B LRWXH 35~75 | | | | |
| | | | | Ball Spline | Ball Spline G | LSAG | High carbon steel LSAG(L) 5~12 LSAG(L)T 5~12 LSAGF(L) 5~12 LSAGF(L)T 5~12 | Applicable for Interchangeable type |

Durability test results

Durability test results of Linear Motion Rolling Guide series with **Capillary Plate** are shown below.

Under the load of 40% C, all test pieces with **Capillary Plate** successfully run for the duration beyond rating life, and it was confirmed that **Capillary Plate** can keep lubrication for long periods of time.

In the durability tests at no load, more than 40% of impregnated oil remained in **Capillary Plate** after 30,000km of traveling.

Test conditions and results

Durability test results of Linear Way and Linear Roller Way with Capillary Plate

| Test No. | Test condition | | | Test piece (Standard preload) | Load N | Rating life L ₁₀ km | Results (conditions of test piece) |
|----------|-----------------|---------------|---------|----------------------------------|-----------|-----------------------------------|--|
| | Capillary Plate | Grease | Load | | | | |
| ① | Not attached | Not prepacked | No load | LWHS25...B | — | — | Life 86 km Very large wear due to insufficient lubrication |
| ② | Attached | Not prepacked | No load | LWHS25...B | — | — | Suspended at 30,000 km No problem |
| ③ | Attached | Not prepacked | Loaded | LWHS25...B | 0.2 C | 6,250 | Suspended at 10,000 km No problem (about 1.6 times the rating life) |
| | | | | LWHS25...B | 0.4 C | 780 | Life 1,300 km Flaking occurred on the raceway of slide unit. |
| | | | | LRX 25 | 0.2 C | 10,700 | Suspended at 20,000 km No problem (about twice the rating life) |
| | | | | LRX 25 | 0.4 C | 1,050 | Suspended at 2,000 km No problem (about twice the rating life) |
| | | | | LWL 9...B | 0.15 C | 14,800 | Life 22,000 km Flaking occurred on the raceway of slide unit. |
| ④ | Attached | Prepacked | Loaded | LWHS25...B | 0.4 C | 780 | Suspended at 1,500 km No problem (about twice the rating life) |
| | | | | LRX 25 | 0.4 C | 1,050 | Suspended at 2,000 km No problem (about twice the rating life) |

Remark: The basic dynamic load rating C of LWHS25...B is 20,100N.
The basic dynamic load rating C of LRX25 is 26,200N.
The basic dynamic load rating C of LWL9...B is 1,610N.

Change of oil amount at various ambient temperatures

Loss of oil contained in **Capillary Plate** was checked at various ambient temperatures. **Capillary Plate** samples were left at room temperature, 50°C, and 80°C respectively, and weighed before and after the test.

The results of test showed that the oil loss amount of **Capillary Plate** was very small under all test temperature conditions.

Test conditions and results

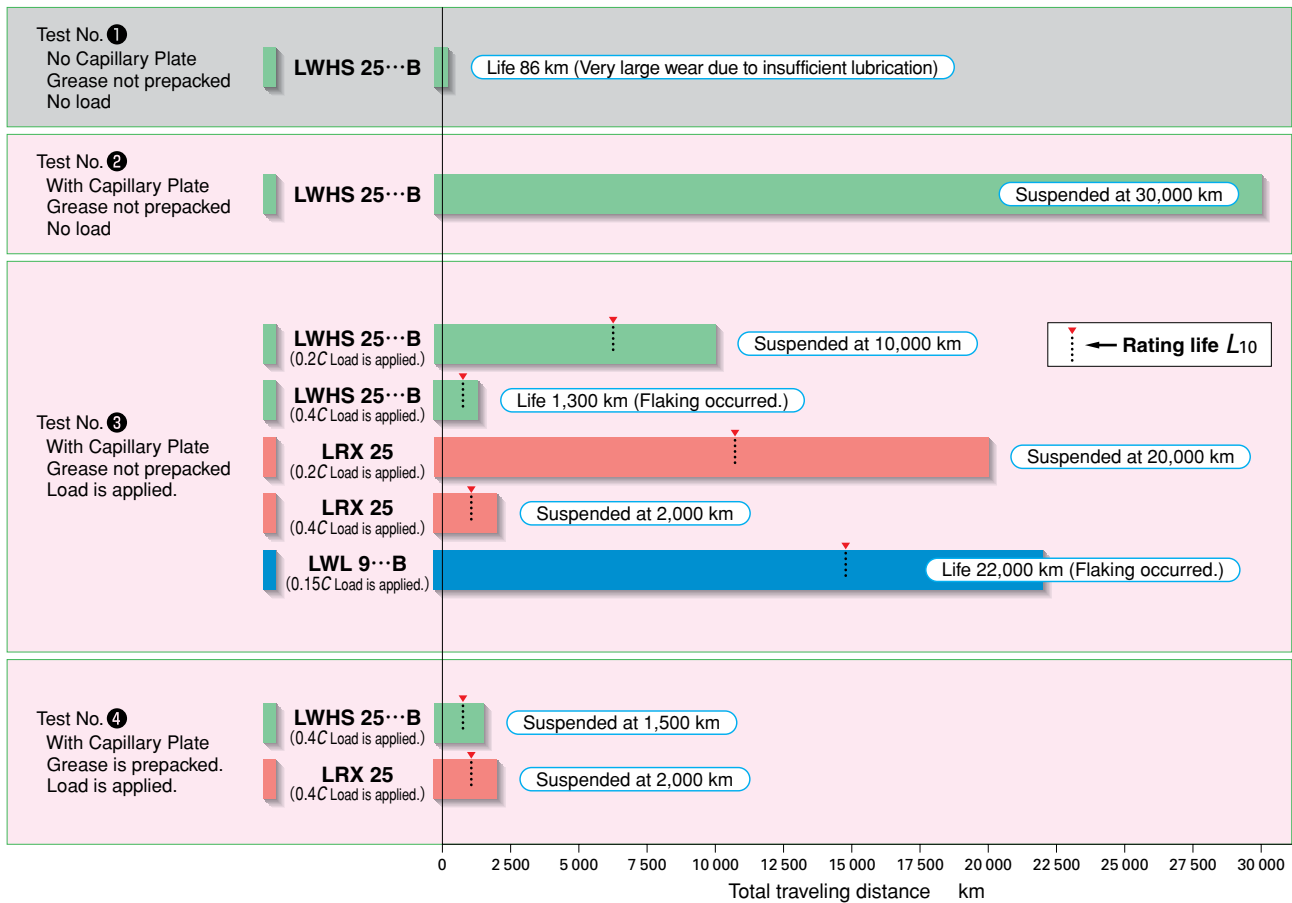
Test piece: Capillary Plate for Linear Way LWH 25 B

Test equipment: Thermostatic chamber

Test duration: 790 hours (about 33 days)

| Temperature | Room temperature | 50°C | 80°C |
|-----------------|------------------|-----------------|--------|
| Oil loss amount | 0 mg | less than 1 mg | 3.5 mg |
| Oil loss ratio | 0 % | less than 0.1 % | 0.3 % |

Durability test results



Specification and Applicable Linear Motion Rolling Guide series

Capillary Plate is applicable to models shown on page 4. Attach the code "/Q" at the end of identification number, and Linear Motion Rolling Guide with grease-prepacked slide unit/external cylinder and **Capillary Plates** (assembled inside the end seals) will be delivered. The specification of "with **Capillary Plate** and no prepacked grease" is also available. If required, please consult .

Capillary Plate can be delivered only as assembled in Linear Motion Rolling Guide.



Caution for use

- NEVER wash Capillary Plate with organic solvent and/or white kerosene which have the ability of removing fat, nor leave them in contact with the above agents.
- It is recommended that Capillary Plate is used together with lithium soap base grease.
- Maximum allowable temperature is 80°C.

IKO Linear Way with Capillary Plate

LWL·LWLF

Example of identification number

Interchangeable specification

Slide unit → LWL 12 C1 B CS P S1 /Q

Assembled set → LWL 12 C2 R200 B CS P S1 /Q

Non-interchangeable specification

Assembled set → LWL 12 C2 R200 B CS T₁ P /Q

Model code

Size

Number of slide units

Length of track rail (200mm)

Material

Stainless steel : No symbol
High carbon steel : CS

Preload amount

Clearance : T₀
Standard : No symbol
Light preload : T₁

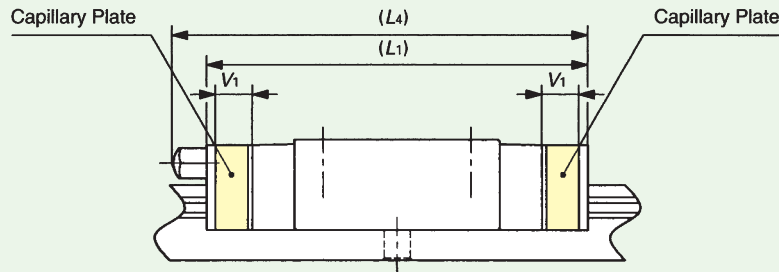
Interchangeable code

Select group 1 : S1
Select group 2 : S2

Accuracy class

High : H
Precision : P

With Capillary Plate



unit : mm

| Model number | Interchangeable ⁽¹⁾ specification | V ₁ | L ₁ | L ₄ | Model number | Interchangeable ⁽¹⁾ specification | V ₁ | L ₁ | L ₄ |
|--|--|----------------|-----------------------|-----------------|---|--|----------------|--------------------|----------------|
| LWLC 5···B ···/Q LWL 5···B ···/Q | ☆ | 3 | 22 25 | — | LWLFC 10···B ···/Q LWLF 10···B ···/Q | ☆ | 3 | 26.5 30.5 | — |
| LWLC 7···B ···/Q LWL 7···B ···/Q LWLG 7···B ···/Q | ☆ | 4 | 27 31.5 39 | — | LWLFC 14···B ···/Q LWLF 14···B ···/Q LWLFG 14···B ···/Q | ☆ | 4 | 30.5 39.5 50 | — |
| LWLC 9···B ···/Q LWL 9···B ···/Q LWLG 9···B ···/Q | ☆ | 4.3 | 30 39 49 | — | LWLFC 18···B ···/Q LWLF 18···B ···/Q LWLFG 18···B ···/Q | ☆ | 4 | 34.5 47 58.5 | — |
| LWLC 12···B ···/Q LWL 12···B ···/Q LWLG 12···B ···/Q | ☆ | 4 | 33 42 52 | — | LWLFC 24···B ···/Q LWLF 24···B ···/Q LWLFG 24···B ···/Q | ☆ | 4 | 38.5 52 67 | — |
| LWLC 15···B ···/Q LWL 15···B ···/Q LWLG 15···B ···/Q | ☆ | 5 | 42 52 67 | 46 57 72 | LWLFC 30···B ···/Q LWLF 30···B ···/Q LWLFG 30···B ···/Q | ☆ | 5 | 45.5 60 78.5 | 50 64 83 |
| LWLC 20···B ···/Q LWL 20···B ···/Q LWLG 20···B ···/Q | ☆ | 5 | 48 60 78 | 52 65 82 | LWLFC 42···B ···/Q LWLF 42···B ···/Q LWLFG 42···B ···/Q | ☆ | 5 | 51.5 65 84.5 | 56 70 89 |
| LWLC 25···B ···/Q LWL 25···B ···/Q LWLG 25···B ···/Q | ☆ | 4.7 | 63.5 87.5 107.5 | 74 98 118 | | | | | |

Note⁽¹⁾ : The mark ☆ indicates that interchangeable specification products are available.

Remark : Also applicable to high carbon steel models.

IKO Linear Way with Capillary Plate **LWE·LWE...Q**

Example of identification number

Interchangeable specification

Slide unit → **LWE 25 C1 SL T₁ P S1 /Q**

Assembled set → **LWE 25 C2 R640 SL T₁ P S1 /Q**

Non-interchangeable specification

Assembled set → **LWE 25 C2 R640 SL T₁ P /Q**

Model code

Size

Number of slide units

Length of track rail (640mm)

Material

High carbon steel
: No symbol
Stainless steel
: SL

Preload amount

Clearance : Tc
Standard : No symbol
Light preload : T1

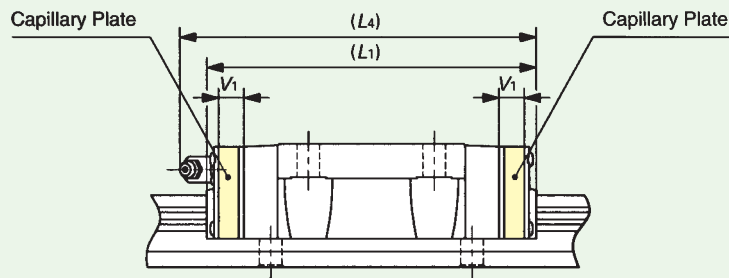
Interchangeable code

Select group 1 : S1
Select group 2 : S2

Accuracy class

Ordinary : No symbol
High : H
Precision : P

With Capillary Plate



unit : mm

| Series | Model number | Interchangeable ⁽¹⁾ specification | V ₁ | L ₁ | L ₄ |
|--------------------------|--------------------|--|----------------|----------------|----------------|
| Linear Way E | LWEC 15 ... / Q | ☆ | 5.4 | 52 | 55 |
| | LWE 15 ... / Q | | | 68 | 71 |
| | LWEG 15 ... / Q | | | 81 | 83 |
| | LWEC 20 ... / Q | ☆ | 5.4 | 58 | 71 |
| | LWE 20 ... / Q | | | 78 | 91 |
| | LWEG 20 ... / Q | | | 94 | 106 |
| | LWEC 25 ... / Q | ☆ | 5.4 | 70 | 83 |
| | LWE 25 ... / Q | | | 94 | 107 |
| | LWEG 25 ... / Q | | | 113 | 126 |
| | LWEC 30 ... / Q | ☆ | 5.6 | 80 | 91 |
| | LWE 30 ... / Q | | | 109 | 119 |
| | LWEG 30 ... / Q | | | 141 | 151 |
| LWEC 35 ... / Q | ☆ | 5.6 | 90 | 102 | |
| LWE 35 ... / Q | | | 123 | 135 | |
| LWE 45 ... / Q | ☆ | 6.5 | 138 | 148 | |
| Low Decibel Linear Way E | LWE 15...Q ... / Q | | 5.4 | 68 | 70 |
| | LWE 20...Q ... / Q | | 5.4 | 78 | 91 |
| | LWE 25...Q ... / Q | | 5.4 | 94 | 107 |
| | LWE 30...Q ... / Q | | 5.6 | 107 | 118 |
| | LWE 35...Q ... / Q | | 5.6 | 121 | 134 |

Note⁽¹⁾ : The mark ☆ indicates that interchangeable specification products are available.

Remark : 1. Representative model numbers are shown, but the table is also applicable for all models.
2. Also applicable to stainless steel models.

IKO Linear Way with Capillary Plate

LWH

Example of identification number

Interchangeable specification

Slide unit → **LWH** **25** **C1** **SL** **T₁** **P** **S1** / **Q**

Assembled set → **LWH** **25** **C2** **R640** **SL** **T₁** **P** **S1** / **Q**

Non-interchangeable specification

Assembled set → **LWH** **25** **C2** **R640** **SL** **T₁** **P** / **Q**

Model code

Size

Number of slide units

Length of track rail (640mm)

Material

High carbon steel : No symbol
Stainless steel : SL

Preload amount

Standard : No symbol
Light preload : T₁
Medium preload : T₂
Heavy preload : T₃

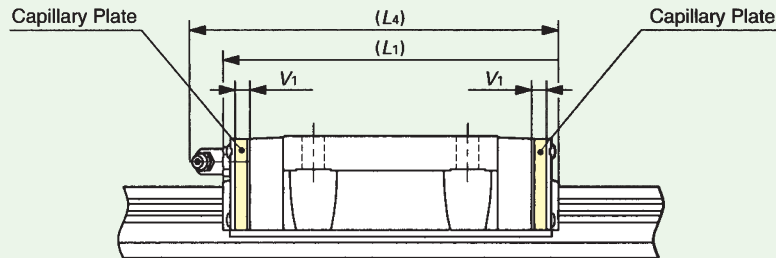
Interchangeable code

Select group 1 : S1
Select group 2 : S2

Accuracy class

High : H
Precision : P
Super precision : SP

With Capillary Plate



unit : mm

| Model number | Interchangeable ⁽¹⁾ specification | V ₁ | L ₁ | L ₄ |
|---------------------|--|----------------|----------------|----------------|
| LWHT 8...SL... / Q | | 4 | 32 | — |
| LWHT 10...SL... / Q | | 5 | 42 | — |
| LWHT 12... / Q | | 5 | 56 | 60 |
| LWH 15...B... / Q | ☆ | 4.7 | 75 | 78 |
| LWH 20...B... / Q | ☆ | 4.7 | 92 | 105 |
| LWHG 20... / Q | | | 121 | 134 |
| LWH 25...B... / Q | ☆ | 4.7 | 105 | 117 |
| LWHG 25... / Q | | | 127 | 139 |
| LWH 30...B... / Q | ☆ | 5.6 | 125 | 135 |
| LWHG 30... / Q | | | 151 | 161 |
| LWH 35...B... / Q | ☆ | 5.6 | 134 | 146 |
| LWHG 35... / Q | | | 162 | 174 |
| LWH 45...B... / Q | ☆ | 6.5 | 160 | 170 |
| LWHG 45... / Q | | | 203 | 213 |
| LWH 55...B... / Q | | 6.5 | 196 | 207 |
| LWHG 55... / Q | | | 248 | 258 |
| LWH 65...B... / Q | | 8.9 | 246 | 253 |
| LWHG 65... / Q | | | 320 | 327 |

Note⁽¹⁾ : The mark ☆ indicates that interchangeable specification products are available.

Remark : 1. Representative model numbers are shown, but the table is also applicable for all models.

2. Also applicable to stainless steel models.

IKO Linear Way with Capillary Plate **LWFH·LWFF·LWFS**

Example of identification number

Interchangeable specification

Slide unit → **LWFS 37 C1** **SL T₁ H S1 /Q**

Assembled set → **LWFS 37 C2 R800 SL T₁ H S1 /Q**

Non-interchangeable specification

Assembled set → **LWFS 37 C2 R800 SL T₁ H /Q**

Model code

Size

Number of slide units

Length of track rail (800mm)

Material

High carbon steel : No symbol
Stainless steel : SL

Preload amount

Standard : no symbol
Light preload : T₁
Medium preload : T₂

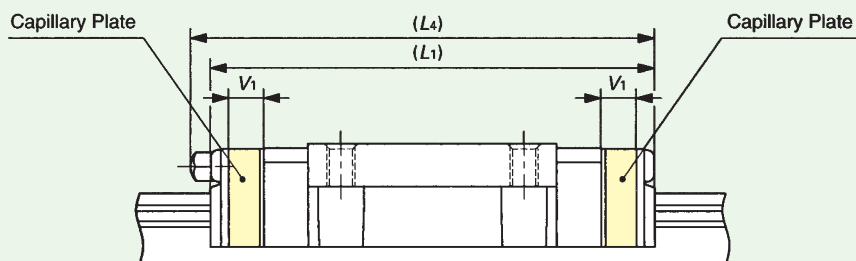
Interchangeable code

Select group 1 : S1
Select group 2 : S2

Accuracy class

High : H
Precision : P
Super precision : SP

With Capillary Plate



unit : mm

| Model number | Interchangeable ⁽¹⁾ specification | V ₁ | L ₁ | L ₄ |
|---------------------|--|----------------|----------------|----------------|
| LWFH 40 ... / Q | ☆ | 3 | 78 | — |
| LWFH 60 ... / Q | ☆ | 3 | 98 | — |
| LWFH 90 ... / Q | ☆ | 3 | 131 | — |
| LWFF 33 ... / Q | ☆ | 5 | 64 | 67 |
| LWFF 37 ... / Q | ☆ | 5.4 | 73 | 75 |
| LWFF 42 ... / Q | ☆ | 5.4 | 86 | 99 |
| LWFF 69 ... / Q | ☆ | 5.6 | 121 | 133 |
| LWFS 33 ... / Q | ☆ | 5 | 64 | 67 |
| LWFS 37 ... / Q | ☆ | 5.4 | 73 | 75 |
| LWFS 42...SL... / Q | ☆ | 5.4 | 86 | 99 |

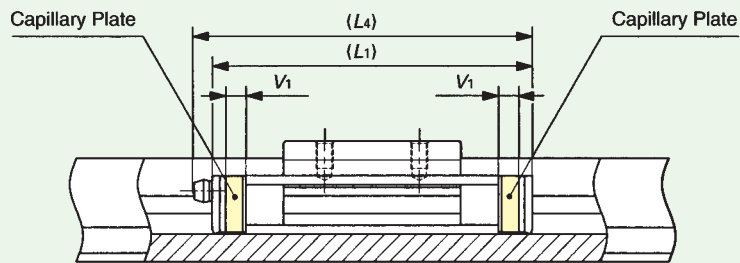
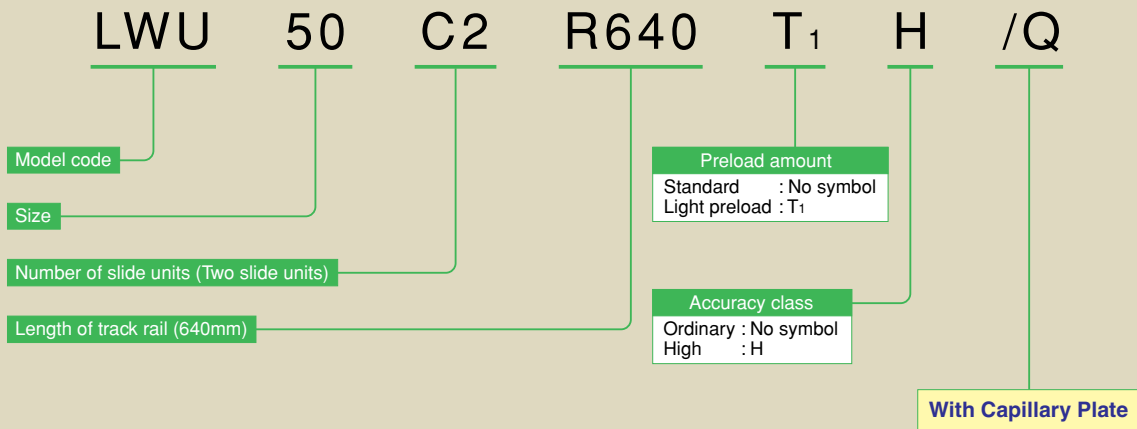
Note(1) : The mark ☆ indicates that interchangeable specification products are available.

Remark: Also applicable to stainless steel models.

IKO Linear Way with Capillary Plate

LWU

Example of identification number



unit : mm

| Model number | V ₁ | L ₁ | L ₄ |
|-----------------|----------------|----------------|----------------|
| LWU 40 ... / Q | 6 | 67 | 68 |
| LWU 50 ... / Q | 6 | 82 | 83 |
| LWU 60 ... / Q | 6 | 95 | 102 |
| LWU 86 ... / Q | 6 | 142 | 148 |
| LWU 100 ... / Q | 6 | 166 | 172 |
| LWU 130 ... / Q | 6 | 190 | 196 |

IKO Linear Roller Way with Capillary Plate **LRX**

Example of identification number

Interchangeable specification

Slide unit → **LRX 25 C1 T₁ P S1 /Q**

Assembled set → **LRX 25 C2 R640 T₁ P S1 /Q**

Non-interchangeable specification

Assembled set → **LRX 25 C2 R640 SL T₁ P /Q**

Model code

Size

Number of slide units (Two slide units)

Length of track rail (640mm)

Material

High carbon steel : No symbol
Stainless steel : SL

Preload amount

Standard : No symbol
Light preload : T₁
Medium preload : T₂
Heavy preload : T₃

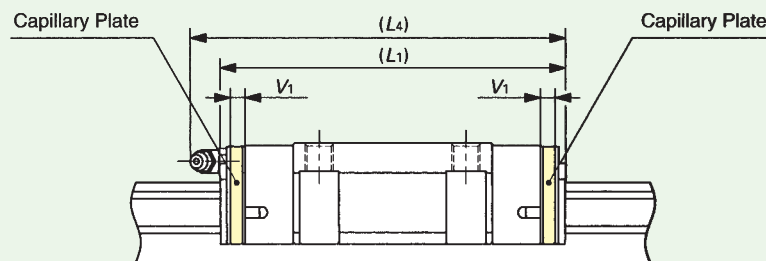
Interchangeable code

Select group 1 : S1
Select group 2 : S2

Accuracy class

High : H
Precision : P
Super precision : SP
Ultra precision : UP

With Capillary Plate



unit : mm

| Model number | Interchangeable ⁽¹⁾ specification | V ₁ | L ₁ | L ₄ | Model number | Interchangeable ⁽¹⁾ specification | V ₁ | L ₁ | L ₄ |
|-----------------|--|----------------|----------------|----------------|-----------------|--|----------------|----------------|----------------|
| LRXC 12 ... / Q | ☆ | 5 | 47 | 50 | LRXC 35 ... / Q | ☆ | 5.6 | 103 | — |
| LRX 12 ... / Q | | | 57 | 60 | LRX 35 ... / Q | | | 135 | — |
| LRXG 12 ... / Q | | | 68 | 71 | LRXG 35 ... / Q | | | 163 | — |
| LRXC 15 ... / Q | ☆ | 5.4 | 63 | 64 | LRXC 45 ... / Q | ☆ | 6.5 | 127 | — |
| LRX 15 ... / Q | | | 79 | 80 | LRX 45 ... / Q | | | 167 | — |
| LRXG 15 ... / Q | | | 95 | 96 | LRXG 45 ... / Q | | | 207 | — |
| LRXC 20 ... / Q | ☆ | 5.4 | 76 | 85 | LRXC 55 ... / Q | ☆ | 6.5 | 149 | — |
| LRX 20 ... / Q | | | 96 | 105 | LRX 55 ... / Q | | | 197 | — |
| LRXG 20 ... / Q | | | 116 | 125 | LRXG 55 ... / Q | | | 251 | — |
| LRXC 25 ... / Q | ☆ | 5.4 | 85 | 94 | LRXC 65 ... / Q | ☆ | 8.9 | 198 | — |
| LRX 25 ... / Q | | | 109 | 118 | LRX 65 ... / Q | | | 262 | — |
| LRXG 25 ... / Q | | | 124 | 133 | LRXG 65 ... / Q | | | 326 | — |
| LRXC 30 ... / Q | ☆ | 5.6 | 96 | 108 | | | | | |
| LRX 30 ... / Q | | | 124 | 136 | | | | | |
| LRXG 30 ... / Q | | | 145 | 157 | | | | | |

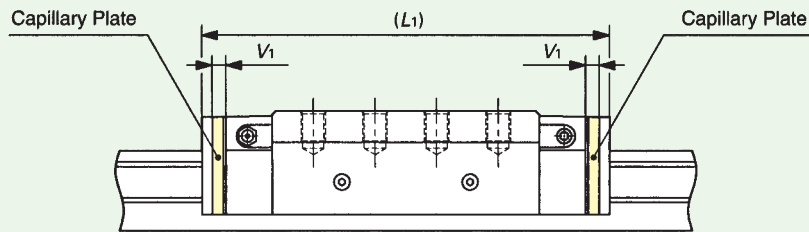
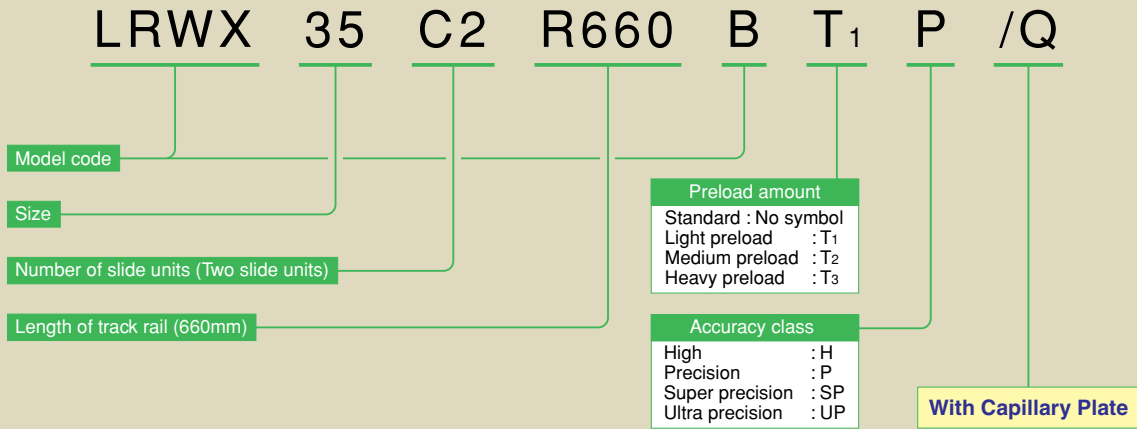
Note⁽¹⁾ : The mark ☆ indicates that interchangeable specification products are available.

Remark : 1. Representative model numbers are shown, but the table is also applicable for all models.

2. Also applicable to stainless steel models.

IKO Linear Roller Way with Capillary Plate **LRWX**

Example of identification number



unit : mm

| Model number | V ₁ | L ₁ |
|-----------------------------------|----------------|----------------|
| LRWX 25...B.../Q | 5.4 | 120 |
| LRWX 35...B.../Q LRWXH 35.../Q | 5.6 | 166 |
| LRWX 45...B.../Q LRWXH 45.../Q | 6.5 | 218 |
| LRWX 55...B.../Q LRWXH 55.../Q | 6.5 | 275 |
| LRWX 75...B.../Q LRWXH 75.../Q | 8.9 | 364 |

IKO Ball Spline with Capillary Plate

LSAG

Example of identification number

Interchangeable specification

External cylinder → LSAG 12 C1 T₁ H S1 /Q

Assembled set → LSAG 12 C2 R300 T₁ H S1 /Q

Non-interchangeable specification

Assembled set → LSAG 12 C2 R300 T₁ H /Q

Model code

Size

Number of external cylinders

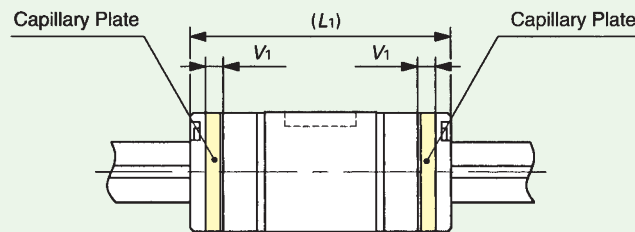
Length of spline shaft (300mm)

Preload amount
Clearance : T₀
Standard : No symbol
Light preload : T₁

Interchangeable code
Select group 1 : S1
Select group 2 : S2

Accuracy class
Ordinary : No symbol
High : H
Precision : P

With Capillary Plate



unit : mm

| Model number | Interchangeable ⁽¹⁾ specification | V ₁ | L ₁ |
|-------------------------------------|--|----------------|----------------|
| LSAG 5 ... / Q LSAGL 5 ... / Q | ☆ | 3 | 24 32 |
| LSAG 6 ... / Q LSAGL 6 ... / Q | ☆ | 3 | 27 36 |
| LSAG 8 ... / Q LSAGL 8 ... / Q | ☆ | 4 | 33 45 |
| LSAG 10 ... / Q LSAGL 10 ... / Q | ☆ | 4 | 38 55 |
| LSAG 12 ... / Q LSAGL 12 ... / Q | ☆ | 4 | 43 62 |

Note⁽¹⁾ : The mark ☆ indicates that interchangeable specification products are available.

Remark : Representative model numbers are shown, but the table is also applicable for all models.

Linear Motion Rolling Guide series with

Capillary Plate



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