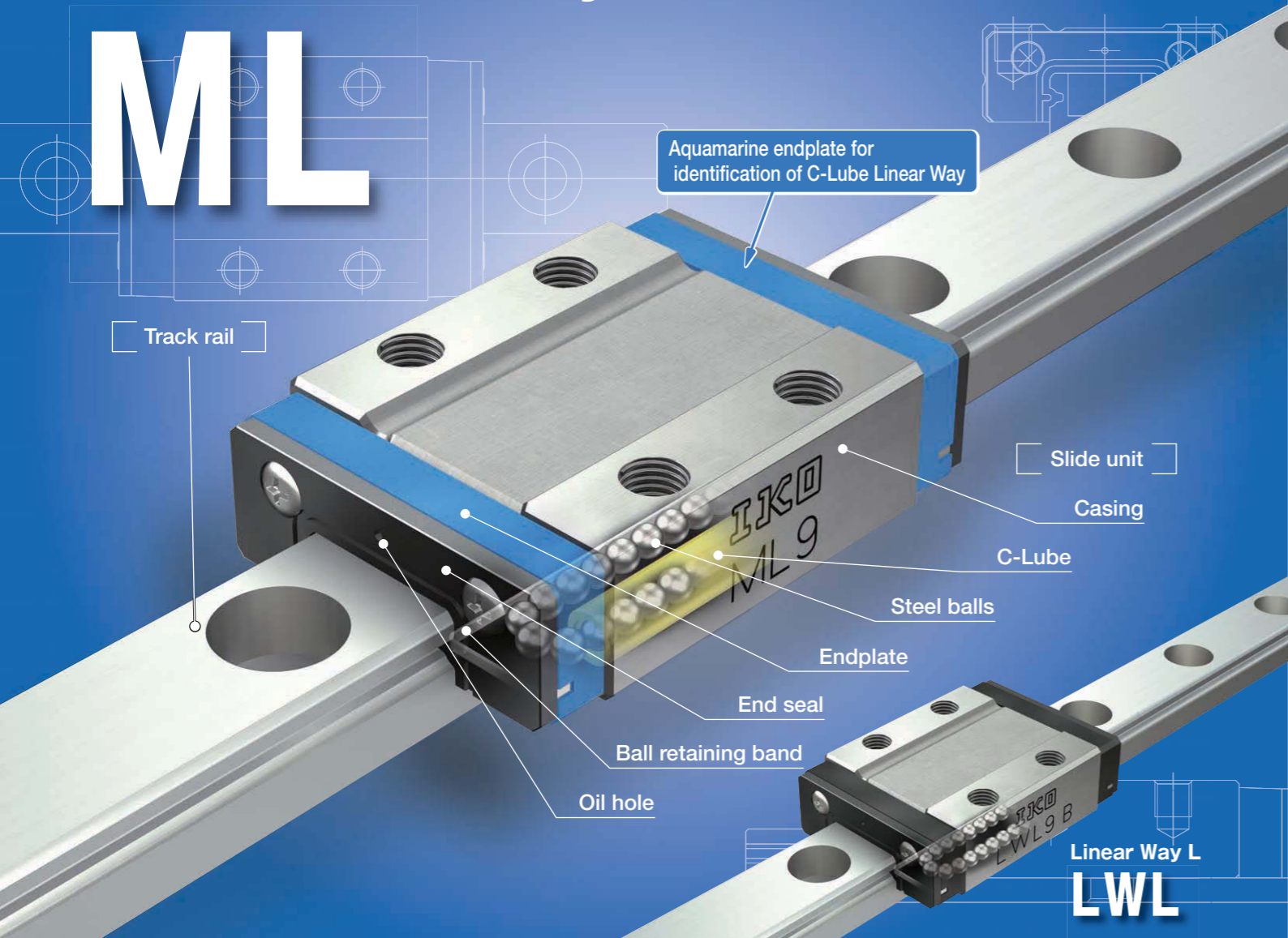


# **C-Lube Linear Way ML Linear Way L**

ML • LWL

# C-Lube Linear Way ML

# ML



## Features

### Long-term maintenance free

The lubricant in the C-Lube keeps the lubrication performance for a long period of time and achieves long-term maintenance free operations. (5 years and 20,000km)  
So man-hours for troublesome lubrication control can be reduced.

### Lightweight and compact

The C-Lube is incorporated in the lightweight and compact slide unit of miniature type Linear Way L series without changing the external dimensions of the slide unit.

### Smooth and light motion

As the C-Lube is not in contact with the track rail, frictional resistance does not increase. A smooth and light motion is ensured.

### Stainless Steel

The metal components are manufactured from corrosion resistant stainless steel. So this series is most suitable for use in clean rooms and also for applications where the use of lubricants and rust preventive oil should be avoided or kept to a minimum.

### Ball retained type

The slide unit incorporates ball retaining bands, which prevent steel balls from dropping when the slide unit is separated from the track rail. So handling is easy.

### Interchangeability

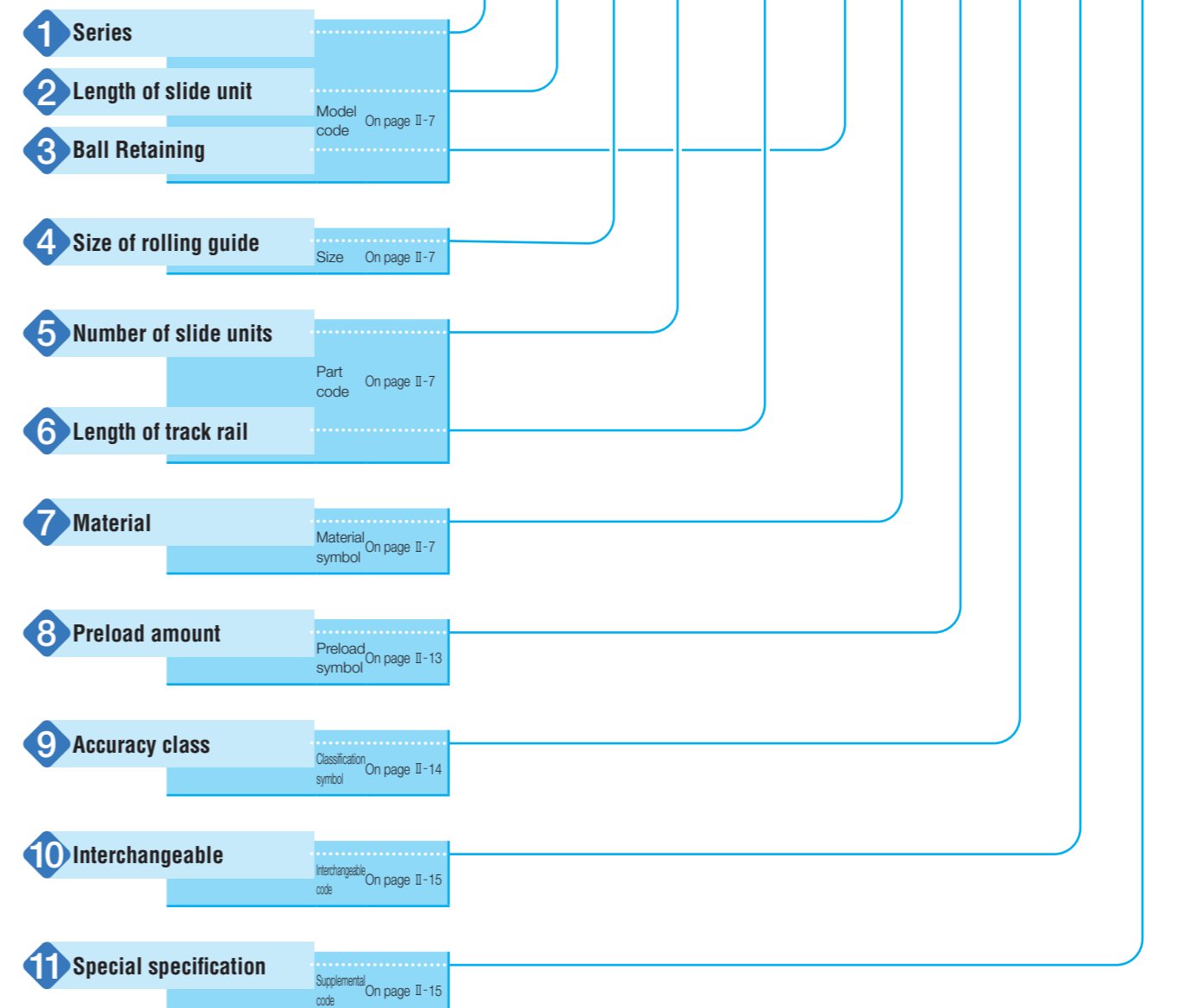
The track rails and the slide units of interchangeable specification can be handled separately and can be assembled to make a set as required. Three types of slide units with different lengths are prepared. The best type and size can be selected these entire slide units can be freely assembled on the same track rail.

## Identification number and specification

The specification of C-Lube Linear Way ML is indicated by the identification number, consisting of a model code, a size, a part code, a preload symbol, a classification symbol and any supplemental codes.

Interchangeable specification	1	2	4	5	6	3	7	8	9	10	11
Slide unit only	ML	C	12	C1				T <sub>1</sub>	P	S1	/U
Track rail only <sup>(1)</sup>	LWL		12		R200	B			P	S1	
Assembled set	ML	C	12	C1	R200			T <sub>1</sub>	P	S1	/U

Non interchangeable specification	1	2	4	5	6	3	7	8	9	10	11
Assembled set	ML	C	12	C1	R200	B		T <sub>1</sub>	P		/U



Note<sup>(1)</sup>: For the model code of a single track rail of interchangeable specification, indicate "LWL···B" or "LWLF···B" regardless of the slide unit type to be combined.

# Identification number and specification —Series · Length of slide unit · Ball Retaining · Size—

**1 Series**

C-Lube Linear Way L (ML(F) Series)      Standard type : ML  
Wide type : MLF

Linear Way L<sup>(1)</sup> (LWL(F) Series)      Standard type : LWL  
Wide type : LWLF

Applicable size and shape of slide unit are shown in Table 2.1 and 2.2.  
The specification of C-Lube Linear Way ML is indicated by the identification number, consisting of a model code, a size, a part code, a preload symbol, a classification symbol and any supplemental codes. For details of each specification, see page 78.

Note<sup>(1)</sup> : For the model code of a single track rail of interchangeable specification, indicate "LWL...B" or "LWLF...B" regardless of the slide unit type to be combined.

**2 Length of slide unit**

Short : C      Applicable size and shape of slide unit are shown in Table 2.1 and 2.2.  
Standard : No symbol  
High rigidity long : G

**3 Ball Retaining**

**Table 1.1 Structure of ML and LWL**

Series	Shape and size of track rail	Ball Retaining
ML	Standard track rail	Ball retained type : No symbol
	Standard track rail	Ball retained type : B
LWL	Tapped track rail	Mounting from bottom Size 2, 3      Ball non-retained type : No symbol
		Mounting from lateral Size 2, 7, 9      Ball retained type : N
	Non-mounting hole type track rail	Size 1      Ball non-retained type : Y
	Non-mounting hole type track rail	Size 1      Ball non-retained type : No symbol

**Table 1.1 Structure of MLF and LWLF**

Series	Shape of track rail	Ball Retaining
MLF	Standard track rail	Ball retained type : No symbol
LWLF	Standard track rail	Size 4, 6      Ball non-retained type : No symbol
		Size 10 to 42      Ball retained type : B
	Tapped track rail	Size 6      Ball non-retained type : N
		Size 10 to 18      Ball retained type

Applicable size and shape of slide unit are shown in Table 2.1 and 2.2.

**4 Size**

Standard type      1, 2, 3, 5, 7, 9, 12, 15, 20, 25      Applicable size and shape of slide unit are shown in Table 2.1 and 2.2.  
Wide type      4, 6, 10, 14, 18, 24, 30, 42

**5 Number of slide unit**

: C○      For an assembled set, indicate the number of slide units assembled on one track rail. For a slide unit, only "C1" can be indicated.

**6 Length of track rail**



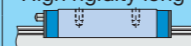
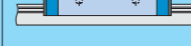



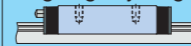





: R○      Indicate the length of track rail in mm. For standard and maximum lengths, see "Track rail length" in Table 3.1, Table 3.2 and Table 3.3.

**7 Material**

Stainless steel made : No symbol      Applicable size and shape of slide unit are shown in Table 2.1 and 2.2.  
High carbon steel made : CS

# —Number of slide unit · Length of track rail · Material—

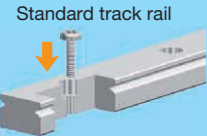
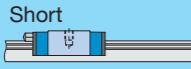
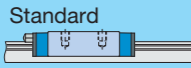
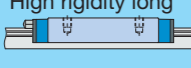

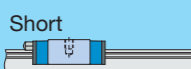

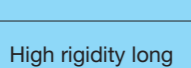
Table 2.1 Models and sizes of ML(F) and LWL(F) series

Shape of track rail	Material	Length of slide unit	Ball Retaining	Series	Size										
					1	2	3	5	7	9	12	15	20	25	
Standard track rail 	Stainless steel made	Short 	Ball retained type	MLC	-	-	-	○	○	○	○	○	○	○	○
				LWLC...B	-	-	-	○	○	○	○	○	○	○	
				ML	-	-	-	○	○	○	○	○	○	○	
	High carbon steel made	Standard 		LWL...B	-	-	-	○	○	○	○	○	○	○	
				LWLG...B	-	-	-	-	○	○	○	○	○	○	
	Standard	High rigidity long 		LWL...BCS	-	-	-	-	○	○	○	○	○	-	
Tapped track rail 	Stainless steel made	Short 	Ball non-retained type	LWLC	-	-	○	-	-	-	-	-	-	-	
			Ball retained type	LWLC...N	-	-	-	○	○	○	-	-	-	-	
		Standard 	Ball non-retained type	LWL	-	○	○	-	-	-	-	-	-	-	
			Ball retained type	LWL...N	-	-	-	○	○	○	-	-	-	-	
		High rigidity long 	Ball retained type	LWLG...N	-	-	-	-	○	○	-	-	-	-	
		Standard 	Ball non-retained type	LWL...Y	○	-	-	-	-	-	-	-	-	-	
Tapped track rail (Lateral) 	Stainless steel made	Standard 	Ball non-retained type												
Non-mounting hole type track rail 				Standard 	Ball non-retained type	LWL	○	-	-	-	-	-	-	-	-

Remark : The mark  indicates that interchangeable specification products are available.

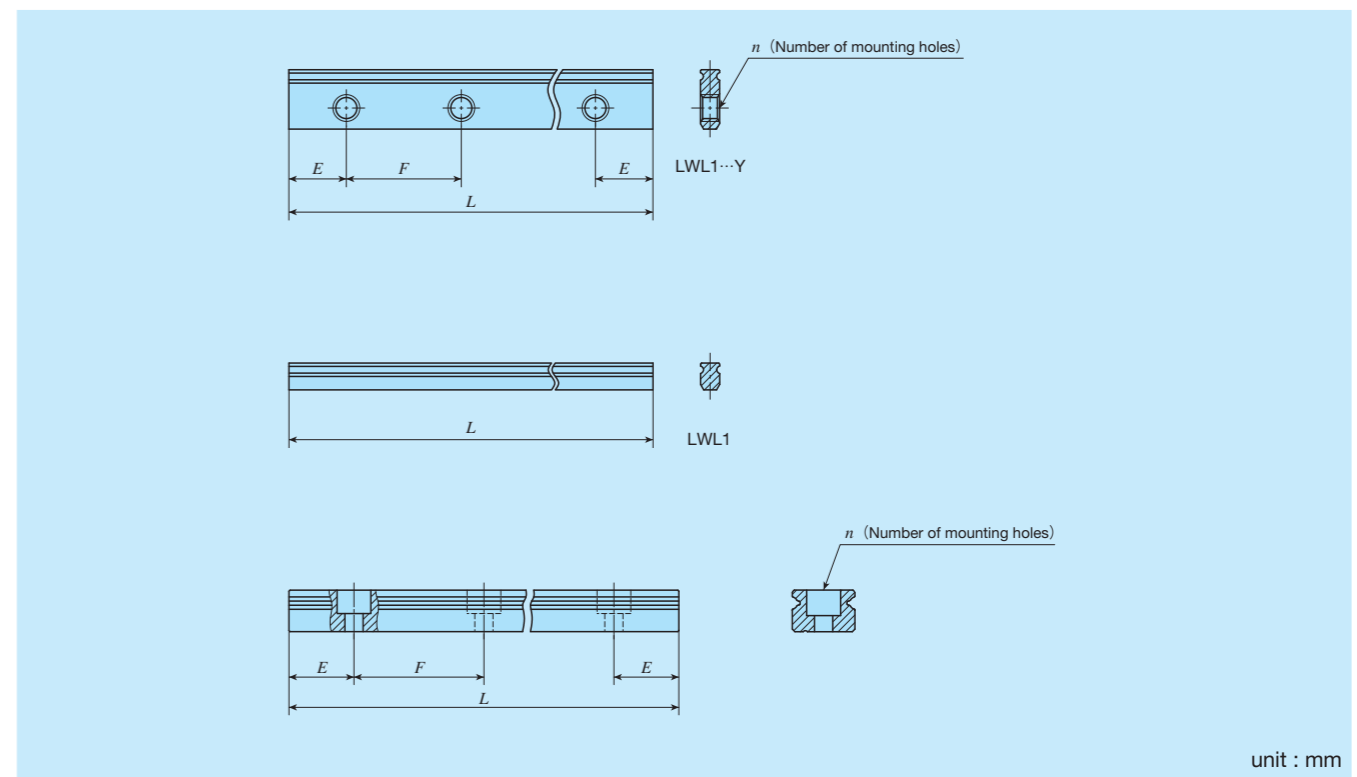
ML · LWL

Table 2.2 Models and sizes of wide type

Shape of track rail	Material	Length of slide unit	Ball Retaining	Series	Size								
					4	6	10	14	18	24	30	42	
Standard track rail 	Stainless steel made	Short 	Ball retained type	MLFC	—	—	○	○	○	○	○	○	
			Ball non-retained type	LWLFC...B	—	—	○	○	○	○	○	○	
		Standard 	Ball retained type	MLF	—	—	○	○	○	○	○	○	
			Ball non-retained type	LWLF...B	○	○	—	—	—	—	—	—	
		High rigidity long 	Ball retained type	MLFG	—	—	—	○	○	○	○	○	
			Ball non-retained type	LWLFG...B	—	—	—	○	○	○	○	○	
	High carbon steel made	Standard 	Ball retained type	LWLF...BCS	—	—	—	—	○	○	○	○	
		Stainless steel made	Short 	Ball retained type	LWLFC...N	—	—	○	○	○	—	—	—
				Ball non-retained type		—	○	—	—	—	—	—	
Standard 	Ball retained type	LWLF...N	—	—	○	○	○	—	—	—			
	Ball non-retained type		—	○	—	—	—	—	—				
High rigidity long 	Ball retained type	LWLFG...N	—	—	—	○	○	—	—	—			

Remark : The mark  indicates that interchangeable specification products are available.

Table 3.1 Standard and maximum lengths of stainless steel track rails (Standard type)

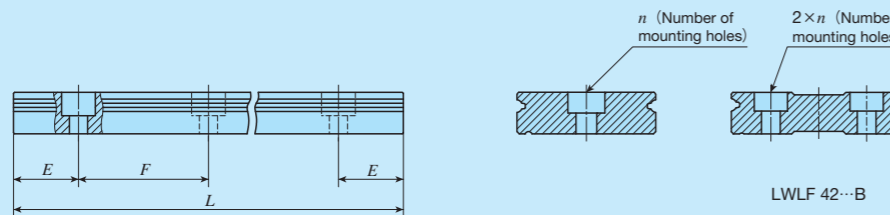


unit : mm

Item	Model number	LWL1...Y	LWL1	LWL2	LWL3	ML 5 LWL5...B	ML 7 LWL7...B
Standard length $L(n)$		18 ( 3)	18 ( —)	32 ( 4)	30 ( 3)	60 ( 4)	60 ( 4)
		30 ( 5)	30 ( —)	40 ( 5)	40 ( 4)	90 ( 6)	90 ( 6)
		42 ( 7)	42 ( —)	56 ( 7)	60 ( 6)	105 ( 7)	120 ( 8)
				80 ( 10)	80 ( 8)	120 ( 8)	150 ( 10)
Pitch of mounting holes $F$		6	—	8	10	15	15
$E$		3	—	4	5	7.5	7.5
	Standard range	incl. 2.5	—	2.5	3	4	4.5
	under	5.5	—	6.5	8	11.5	12
Maximum length <sup>(2)</sup>		102	102	104 (200)	150 (300)	210 (510)	300 (990)
Maximum number of butt-jointing track rails <sup>(3)</sup>		—	—	—	—	5	7
Maximum length of butt-jointing track rails <sup>(3)</sup>		—	—	—	—	915	1 905
Item	Model number	ML 9 LWL9...B	ML 12 LWL12...B	ML 15 LWL15...B	ML 20 LWL20...B	ML 25 LWL25...B	
Standard length $L(n)$		60 ( 3)	100 ( 4)	160 ( 4)	180 ( 3)	240 ( 4)	
		80 ( 4)	150 ( 6)	240 ( 6)	240 ( 4)	300 ( 5)	
		120 ( 6)	200 ( 8)	320 ( 8)	360 ( 6)	360 ( 6)	
		160 ( 8)	275 ( 11)	440 ( 11)	480 ( 8)	480 ( 8)	
		220 ( 11)	350 ( 14)	560 ( 14)	660 ( 11)	660 ( 11)	
	280 ( 14)	475 ( 19)	680 ( 17)	840 ( 14)	900 ( 15)		
Pitch of mounting holes $F$		20	25	40	60	60	
$E$		10	12.5	20	30	30	
	Standard range	incl. 4.5	5	5.5	8	9	
	under	14.5	17.5	25.5	38	39	
Maximum length <sup>(2)</sup>		860 (1 200)	1 000 (1 450)	1 000 (1 480)	960 (1 800)	960 (1 800)	
Maximum number of butt-jointing track rails <sup>(3)</sup>		2	2	2	2	2	
Maximum length of butt-jointing track rails <sup>(3)</sup>		1 660	1 925	1 880	1 740	1 740	

Note<sup>(1)</sup> : Not applied to optional specification "track rail stopper pins" (supplemental code "/S").  
<sup>(2)</sup> : The track rails can be manufactured up to the maximum length shown in parentheses. If required, please consult **IKO**. Not applicable for tapped track rail specification.  
<sup>(3)</sup> : Not applicable to interchangeable rail or tapped track rail specification.  
Remarks1. : The above table shows representative model numbers but is applicable to all models of the same size.  
2. : For the model code of a single track rail of interchangeable specification, indicate "LWL...B" regardless of the slide unit type to be combined.

Table 3.2 Standard and maximum lengths of stainless steel track rails (Wide rail type)



unit : mm

Item	Model number	LWLF4	LWLF6	MLF 10 LWLF10...B	MLF 14 LWLF14...B
Standard length $L(n)$		40 ( 4)	60 ( 4)	60 ( 3)	90 ( 3)
		60 ( 6)	90 ( 6)	80 ( 4)	120 ( 4)
		70 ( 7)	105 ( 7)	120 ( 6)	150 ( 5)
		80 ( 8)	120 ( 8)	160 ( 8)	180 ( 6)
		100 (10)	150 (10)	220 (11)	240 ( 8)
Pitch of mounting holes $F$		10	15	20	30
$E$		5	7.5	10	15
	Standard range of $E^{(1)}$	incl. 3.5 under 8.5	incl. 4.5 under 12	incl. 4.5 under 14.5	incl. 5.5 under 20.5
Maximum length <sup>(2)</sup>		180 (300)	240 (300)	300 (500)	300 (990)
Maximum number of butt-jointing track rails <sup>(3)</sup>		—	—	7	8
Maximum length of butt-jointing track rails <sup>(3)</sup>		—	—	1 840	1 950
Item	Model number	MLF 18 LWLF18...B	MLF 24 LWLF24...B	MLF 30 LWLF30...B	MLF 42 LWLF42...B
Standard length $L(n)$		90 ( 3)	120 ( 3)	160 ( 4)	160 ( 4)
		120 ( 4)	160 ( 4)	240 ( 6)	240 ( 6)
		150 ( 5)	240 ( 6)	320 ( 8)	320 ( 8)
		180 ( 6)	320 ( 8)	440 (11)	440 (11)
		240 ( 8)	400 (10)	560 (14)	560 (14)
	300 (10)	480 (12)	680 (17)	680 (17)	
Pitch of mounting holes $F$		30	40	40	40
$E$		15	20	20	20
	Standard range of $E^{(1)}$	incl. 5.5 under 20.5	incl. 6.5 under 26.5	incl. 6.5 under 26.5	incl. 6.5 under 26.5
Maximum length <sup>(2)</sup>		690 (1 860)	680 (1 960)	680 (2 000)	680 (2 000)
Maximum number of butt-jointing track rails <sup>(3)</sup>		3	3	3	3
Maximum length of butt-jointing track rails <sup>(3)</sup>		1 920	1 840	1 840	1 840

Note<sup>(1)</sup> : Not applied to optional specification "track rail stopper pins" (supplemental code "/S").

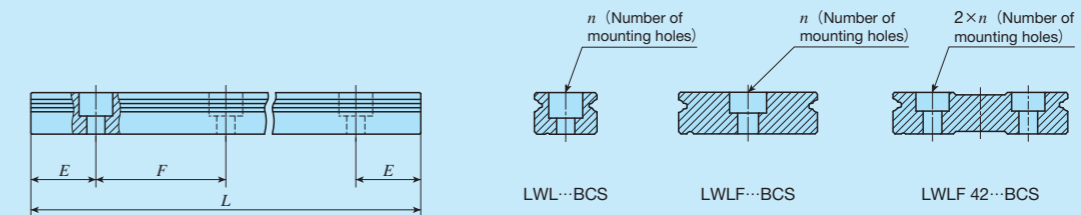
<sup>(2)</sup> : The track rails can be manufactured up to the maximum length shown in parentheses. If required, please consult **IKO**. Not applicable for tapped track rail specification.

<sup>(3)</sup> : Not applicable to interchangeable aul/or tapped track rail specification.

Remarks1 : The above table shows representative model numbers but is applicable to all models of the same size.

2 : For the model code of a single track rail of interchangeable specification, indicate "LWL...B" regardless of the slide unit type to be combined.

Table 3.3 Standard and maximum lengths of high carbon steel track rails (Standard type, Wide rail type)



unit : mm

Item	Model number	LWL 9...BCS	LWL12...BCS	LWL15...BCS	LWL20...BCS
Standard length $L(n)$		80 ( 4)	100 ( 4)	160 ( 4)	180 ( 3)
		160 ( 8)	200 ( 8)	320 ( 8)	240 ( 4)
		220 (11)	275 (11)	440 (11)	360 ( 6)
		280 (14)	350 (14)	560 (14)	480 ( 8)
		380 (19)	475 (19)	680 (17)	660 (11)
		500 (25)	600 (24)	800 (20)	900 (15)
		600 (30)	700 (28)	920 (23)	1 020 (17)
Pitch of mounting holes $F$		20	25	40	60
$E$		10	12.5	20	30
	Standard range of $E^{(1)}$	incl. 4.5 under 14.5	incl. 5 under 17.5	incl. 5.5 under 25.5	incl. 8 under 38
Maximum length		1 000	1 500	1 520	1 560
Item	Model number	LWLF18...BCS	LWLF24...BCS	LWLF30...BCS	LWLF42...BCS
Standard length $L(n)$		90 ( 3)	120 ( 3)	160 ( 4)	160 ( 4)
		180 ( 6)	240 ( 6)	320 ( 8)	320 ( 8)
		240 ( 8)	320 ( 8)	440 (11)	440 (11)
		300 (10)	400 (10)	560 (14)	560 (14)
		420 (14)	600 (15)	680 (17)	680 (17)
		510 (17)	720 (18)	800 (20)	800 (20)
	600 (20)	800 (20)	920 (23)	920 (23)	
Pitch of mounting holes $F$		30	40	40	40
$E$		15	20	20	20
	Standard range of $E^{(1)}$	incl. 5.5 under 20.5	incl. 6.5 under 26.5	incl. 6.5 under 26.5	incl. 6.5 under 26.5
Maximum length		1 500	1 520	1 600	1 600

Note<sup>(1)</sup> : Not applied to optional specification "track rail stopper pins" (supplemental code "/S").

Remark : The above table shows representative model numbers but is applicable to all models of the same size.

<b>8 Preload amount</b>	Clearance	: T <sub>0</sub>	Specify this items for an assembled set or an interchangeable single slide unit. Applicable preload and size are shown in Table 4. For detail of preload amount, see Table 5.1 and 5.2.
	Standard	: No symbol	
	Light preload	: T <sub>1</sub>	

Table 4 Preload amount

Preload type	Item	Symbol	Preload amount N	Application
Clearance		T <sub>0</sub>	0 <sup>(1)</sup>	· Very smooth motion
Standard		(No symbol)	0 <sup>(2)</sup>	· Smooth and precise motion
Light preload		T <sub>1</sub>	0.02 C <sub>0</sub>	· Minimum vibration · Load is evenly balanced · Smooth and precise motion

Note<sup>(1)</sup> : Zero or minimal amount of clearance.  
 Note<sup>(2)</sup> : Zero or minimal amount of preload.  
 Remark : C<sub>0</sub> means the basic static load rating.

Table 5.1 Applicable preload (standard type)

Size	Preload and symbol		
	Clearance (T <sub>0</sub> )	Standard (No symbol)	Light preload (T <sub>1</sub> )
1	○	—	—
2	○	—	—
3	○	—	—
5	○	○	—
7	○ <sup>(1)</sup>	○	○
9	○ <sup>(1)</sup>	○	○
12	○ <sup>(1)</sup>	○	○
15	○ <sup>(1)</sup>	○	○
20	○	○	○
25	○	○	○

Note<sup>(1)</sup> : Not applicable to /HB (ceramic ball) specification.  
 Remark : The mark  indicates that interchangeable specification products are available.

Table 5.2 Applicable preload (Wide type)

Size	Preload and symbol		
	Clearance (T <sub>0</sub> )	Standard (No symbol)	Light preload (T <sub>1</sub> )
4	○	—	—
6	○	—	—
10	○	○	—
14	○	○	○
18	○	○	○
24	○	○	○
30	○	○	○
42	○	○	○

Remark : The mark  indicates that interchangeable specification products are available.

<b>9 Accuracy class</b>	High class	: H	In interchangeable specification, please combine same accuracy codes on both slide unit and track rail. For detail of accuracy, see Table 6.1 and 6.2. Accuracy class is not applicable to size 1.
	Precision class	: P	

Table 6.1 Accuracy of Linear Way L for LWL 1-Y

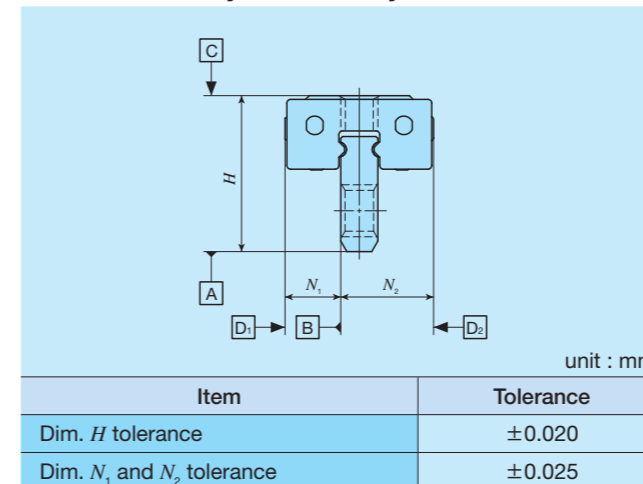
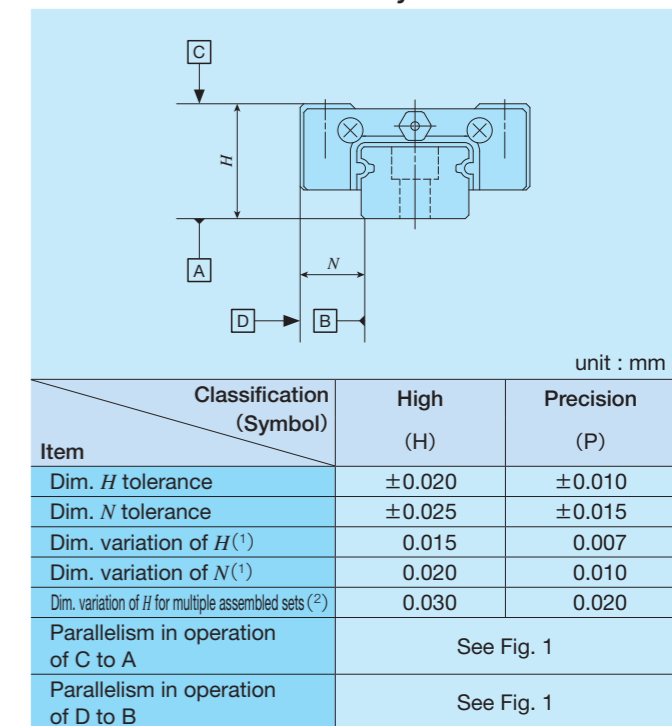


Table 6.2 Accuracy of Linear Way L (size 2 or larger) and C-Lube Linear Way ML



Note<sup>(1)</sup> : It means the size variation between slide units mounted on the same track rail.  
 Note<sup>(2)</sup> : It applies to the interchangeable specification products.

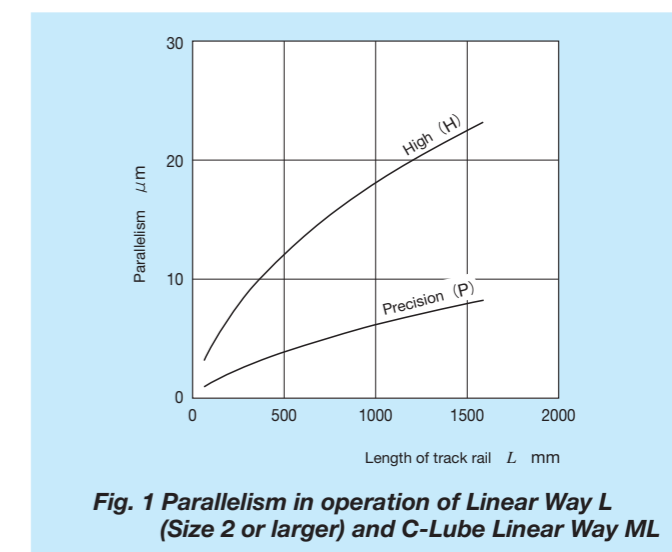
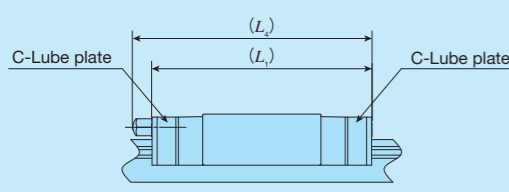




Table 9 Slide unit with C-Lube plates (Supplemental code /Q)



unit : mm

Model number	L <sub>1</sub>	L <sub>4</sub>	Model number	L <sub>1</sub>	L <sub>4</sub>
LWLC 5...B	22	—	LWLFC 10...B	26.5	—
LWL 5...B	25	—	LWLF 10...B	30.5	—
LWLC 7...B	27	—	LWLFC 14...B	30.5	—
LWL 7...B	31.5	—	LWLF 14...B	39.5	—
LWLG 7...B	39	—	LWLFG 14...B	50	—
LWLC 9...B	30	—	LWLFC 18...B	34.5	—
LWL 9...B	39	—	LWLF 18...B	46.5	—
LWLG 9...B	49	—	LWLFG 18...B	58.5	—
LWLC 12...B	33	—	LWLFC 24...B	38.5	—
LWL 12...B	42	—	LWLF 24...B	52	—
LWLG 12...B	52	—	LWLFG 24...B	67	—
LWLC 15...B	42	47	LWLFC 30...B	45.5	50
LWL 15...B	52	57	LWLF 30...B	59.5	64
LWLG 15...B	67	72	LWLFG 30...B	78.5	83
LWLC 20...B	48	53	LWLFC 42...B	51.5	56
LWL 20...B	60	65	LWLF 42...B	65	70
LWLG 20...B	78	83	LWLFG 42...B	84.5	89
LWLC 25...B	63.5	74			
LWL 25...B	87.5	98			
LWLG 25...B	107.5	117			

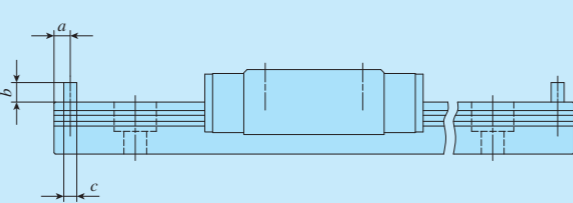
Remarks1 : The values are the slide unit lengths with C-Lube plates at both ends.  
 2 : The above table shows representative model numbers but is applicable to all models.

Table 10 Rated load and moment for C-Lube Linear Way Ceramic Ball Specification (Supplemental code /HB)

Model number	C N	C <sub>0</sub> N	T <sub>0</sub> N · m	T <sub>x</sub> <sup>(1)</sup> N · m	T <sub>y</sub> <sup>(1)</sup> N · m
MLC 7.../HB	937	965	3.5	1.6 12.6	1.3 10.6
ML 7.../HB	1 330	1 610	5.9	4 23.9	3.3 20.1
MLG 7.../HB	1 690	2 250	8.2	7.5 43.1	6.3 36.2
MLC 9.../HB	1 180	1 260	5.9	2.4 18.2	2.1 15.3
ML 9.../HB	1 810	2 340	10.9	7.7 43.4	6.5 36.4
MLG 9.../HB	2 370	3 420	15.9	15.9 83.6	13.4 70.1
MLC 12.../HB	2 210	2 030	12.6	4.5 35.5	3.8 29.8
ML 12.../HB	3 330	3 650	22.6	13.1 79.2	11 66.4
MLG 12.../HB	4 310	5 270	32.7	26 143	21.9 120
MLC 15.../HB	3 490	3 310	25.5	9.9 71.8	8.3 60.3
ML 15.../HB	4 980	5 520	42.5	25.3 146	21.2 122
MLG 15.../HB	6 620	8 280	63.7	54.3 288	45.5 241

Note<sup>(1)</sup> : The upper values in the T<sub>x</sub> and T<sub>y</sub> columns apply to one slide unit, and the lower values apply to two slide units in close contact.

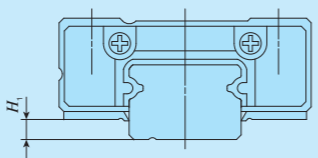
Table 11 Track rail with stopper pins (Supplemental code /S)



unit : mm

Size	a	b	c
5	—	2	1.6
7	—	2.5	—
9	—	3	2
—	10	2	1.6
12	—	3	—
—	14	3	—
15	—	4	—
—	18	3	—
20	—	5	—
—	24	3	2
25	—	5	—
—	30	4	—
—	42	5	—

Table 12 H<sub>1</sub> dimension of slide unit with under seals (Supplemental code /U)



unit : mm

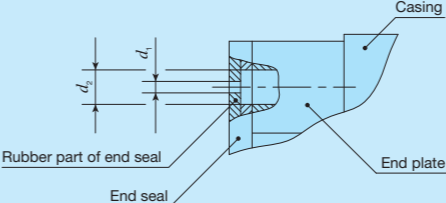
Size	H <sub>1</sub>
9	—
12	—
15	—
—	18
20	—
—	24
25	—
—	30
—	42

Note<sup>(1)</sup> : This dimension is the same as that without under seals.

## Lubrication

In ML(F) and LWL(F) series, lithium soap base grease (MULTEMP PS No.2, KYODO YUSHI) is pre-packed. Addition to ML(F) series, self lubrication system C-Lube is assembled and it extends to re-lubrication interval longer. In ML(F) and LWL(F) series, grease nipple and oil holes are prepared as shown in Table 13. Special piping joints fit to each shapes of grease nipple and oil holes are also available, and can be delivered if required. In models of size 1 to 6, put grease directly to their raceway of track rail because oil hole is not prepared.

Table 13 Oil hole



unit : mm

Size	d <sub>1</sub>	d <sub>2</sub>
5	10	1.1
7	14	1.2
9	18	1.5
12	24	2

Table 14 Parts for lubrication

Size	Grease nipple <sup>(1)</sup>	Applicable supply nozzle type	Nominal size of female threads for piping
5, 7, 9, 12	Oil hole	Miniature greaser	—
15, 20	A-M3	A-5120V A-5240V B-5120V B-5240V	
25	B-M4	A-8120V B-8120V	M4

Note<sup>(1)</sup> : In grease nipple specification please see Table 13.1 on page III-10.

## Dust protection

The slide units of ML(F) and LWL(F) series are provided with special rubber seals for dust protection. However, if a large amount of file contaminants are present, or if large particles of foreign matter may fall on the track rail, it is recommended to provide bellows and other protective covers by customer. Especially in models of size 1 to 6, rubber seals are not prepared.

# Precautions for Use

## ① Mounting surface, reference mounting surface, and general mounting structure

To mount Micro Linear Way LWL, correctly fit the reference mounting surfaces B and D ( $D_1$  or  $D_2$ ) of the slide unit and track rail to the reference mounting surfaces of the table and the bed, and then fix them tightly. (See Fig.2)

In size 1, reference surfaces are available to both side of slide unit. ( $D_1$  and  $D_2$ )

Track rail of LWL1-Y can be mounted in lateral direction.

Two kinds of mounting methods can be chosen. (See Fig.3.1 and 3.2)

The reference mounting surfaces B and D ( $D_1$  and  $D_2$ ) and the mounting surfaces A and C of Micro Linear Way LWL are accurately finished by grinding. Stable and high accuracy liner motion can be obtained by finishing the mating mounting surfaces of machines or equipment with high accuracy and correctly mounting the guide on these surfaces.

Reference mounting surfaces of slide unit and track rail are shown in Fig. 5.2.

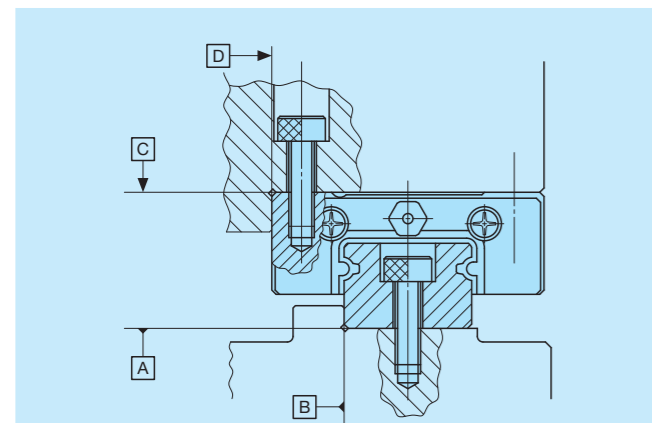


Fig. 2 Reference mounting surface and general mounting structure

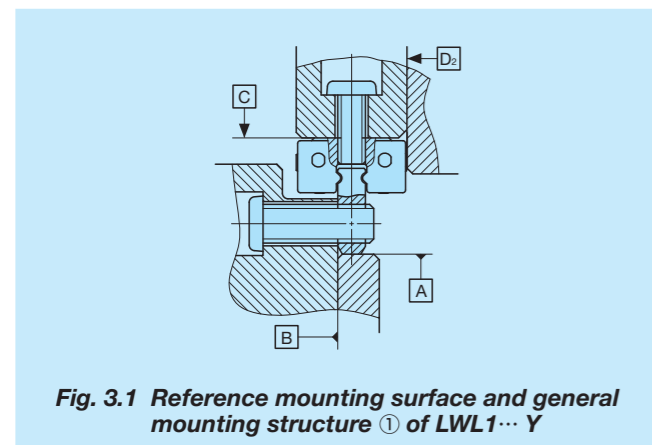


Fig. 3.1 Reference mounting surface and general mounting structure ① of LWL1...Y

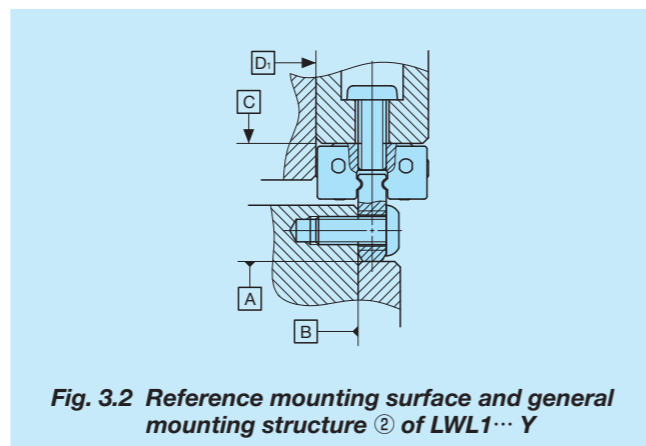


Fig. 3.2 Reference mounting surface and general mounting structure ② of LWL1...Y

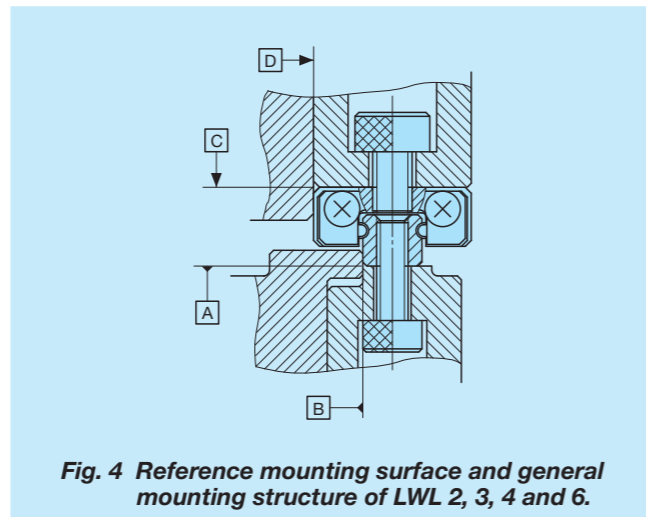


Fig. 4 Reference mounting surface and general mounting structure of LWL 2, 3, 4 and 6.

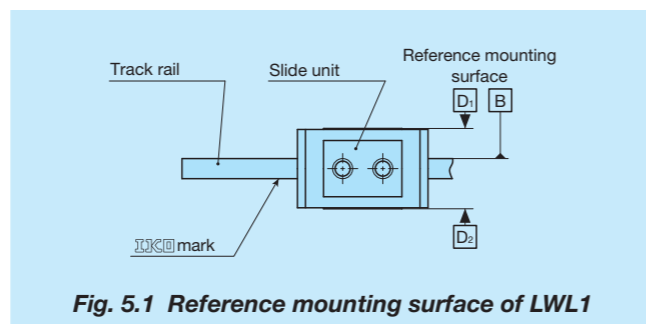


Fig. 5.1 Reference mounting surface of LWL1

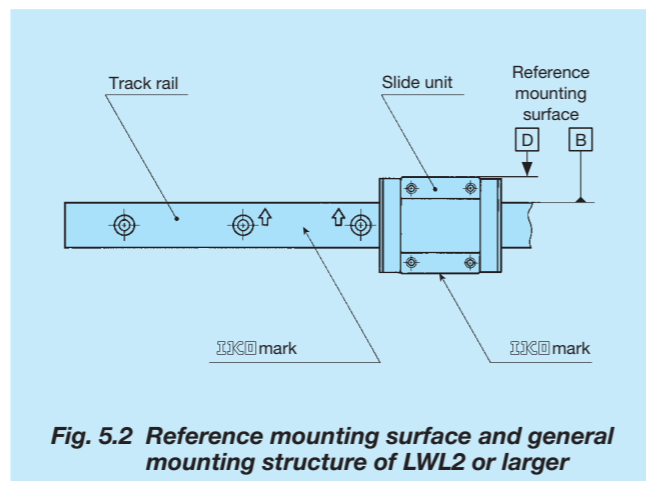


Fig. 5.2 Reference mounting surface and general mounting structure of LWL2 or larger

## ② Female threads for mounting the slide unit and track rail are through holes

In the slide unit, mounting holes are through the slide unit. For mounting slide unit, insertion depth shown in dimension table must be kept. Too deep insertion depth causes interference to the track rail and it leads trouble for running accuracy, frictional resistance and lifetime.

In the size of 1, crossed recessed head screw for precision equipment (head diameter 1.8mm or smaller) is recommended.

## ③ The mounting bolts for track rail are not appended

In the size of 2 and 3 of lateral mounting type, track rail mounting bolts are not appended. Prepare mounting bolts which insertion depth must be less than  $H_4$  in dimension when mounting.

## ④ Corner radius and shoulder height of reference mounting surfaces

It is recommended to make relieved fillet at the corner of mating reference mounting surfaces as shown in Fig.6. Table 16 shows recommended shoulder heights corner radii of the mating surfaces.

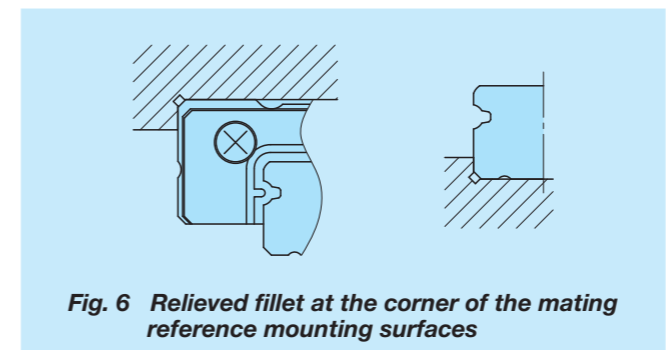


Fig. 6 Relieved fillet at the corner of the mating reference mounting surfaces

## ⑤ Tightening torque of mounting bolts

The standard torque values for Micro Linear Way mounting bolts are shown in Table 15. When machines or equipment are subjected to serve vibration, shock, large fluctuating load, or moment load, the bolts should be tightened with a torque 1.2 to 1.5 times higher than the standard torque values shown. When the mating member material is cast iron or aluminum, tightening torque should be lowered in accordance with strength characteristics of the material.

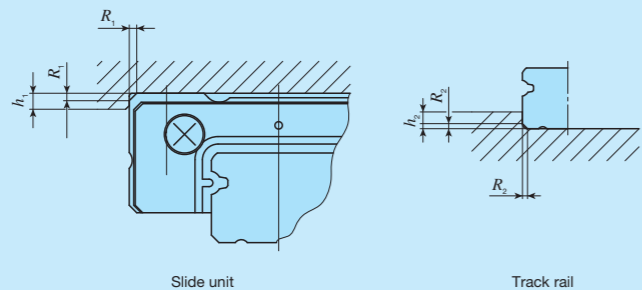
Table 15 Tightening torque of mounting bolts

Bolt size	Tightening torque N·m	
	Stainless steel bolt	Carbon steel bolt
M1 ×0.25	0.04	—
M1.4×0.3	0.10	—
M1.6×0.35	0.15	—
M2 ×0.4	0.31	—
M2.5×0.45	0.62	—
M3 ×0.5	1.1	1.2
M4 ×0.7	2.5	2.8
M5 ×0.8	5.0	5.6
M6 ×1	8.5	—

Remarks1 : The values are calculated by bolt strength division 8.8. as a basis.

2 : In the size of 1, it is recommended to be 70 to 80% of the values in the table.

Table 16 Shoulder heights and corner of the mating reference mounting of C-Lube Linear Way ML standard type



Model number		Slide unit		Track rail	
		Shoulder height $h_1$	Comer radius $R_1$ (max.)	Shoulder height <sup>(1)</sup> $h_2$	Comer radius $R_2$ (max.)
-	LWL 1...Y	1.3	-	2	-
-	LWL 1			-	
-	LWL 2			0.5	
-	LWL 3	1.2	0.15	0.8	0.1
ML 5	LWL 5...B	2	0.3	0.8	0.2
ML 7	LWL 7...B	2.5	0.2	1.2	0.2
ML 9	LWL 9...B	3	0.2	1.5	0.2
-	LWL 9...BCS		0.4		
ML 12	LWL 12...B	4	0.2	2.5	0.2
-	LWL 12...BCS		0.4		
ML 15	LWL 15...B	4.5	0.2	3	0.2
-	LWL 15...BCS		0.4		
ML 20	LWL 20...B	5	0.2	4	0.2
-	LWL 20...BCS		0.4		
ML 25	LWL 25...B	6.5	0.7	4	0.7
-	LWLF 4	1.5	0.1	0.8	0.1
-	LWLF 6	2	0.1	0.8	0.1
MLF 10	LWLF 10...B	2	0.3	1.2	0.2
MLF 14	LWLF 14...B	2.5	0.2	1.2	0.2
MLF 18	LWLF 18...B	3	0.2	2.5	0.2
-	LWLF 18...BCS		0.4		
MLF 24	LWLF 24...B	4	0.2	2.5	0.2
-	LWLF 24...BCS		0.4		
MLF 30	LWLF 30...B	4.5	0.2	2.5	0.2
-	LWLF 30...BCS		0.4		
MLF 42	LWLF 42...B	5	0.2	3	0.2
-	LWLF 42...BCS		0.4		

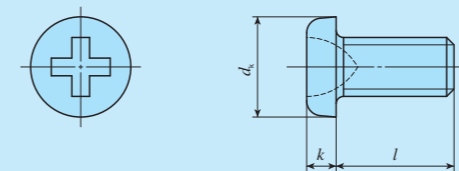
Note<sup>(1)</sup> : For models with under seals (U), it is use h2 values 1mm smaller than the values in the table. However, for "with under seals" of the size 9 models, 0.8mm is recommended.

Remark : The above table shows representative model numbers but is applicable to all models.

## Mounting bolt

Mounting bolts for the slide unit and the track rail of tapped rail specification are available as shown in Table 17 and 18. Consult **IKO** for further information.

Table 17 Cross recessed head screw for precision equipment

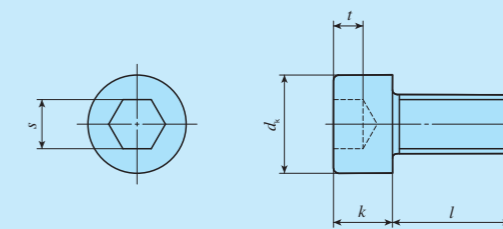


Bolt size (d)	Pitch of screw P	$d_k$	k	l
M1	0.25	1.8	0.45	3, 4, 5
M1.4 <sup>(1)</sup>	0.3	2.5	0.8	2.5, 3, 4
M1.6 <sup>(1)</sup>	0.35	2.8	0.85	4, 5, 6
M2 <sup>(1)</sup>	0.4	3.5	1	3, 4, 5

Note<sup>(1)</sup> : Based on "Cross recessed head screw (#0) for precision equipment" of Japanese Standard (JCS)10-70.

Remark : Dimensions of the screws shown in the above table are different from those of the appended mounting bolts for track rail.

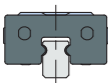
Table 18 Hexagon socket head bolt

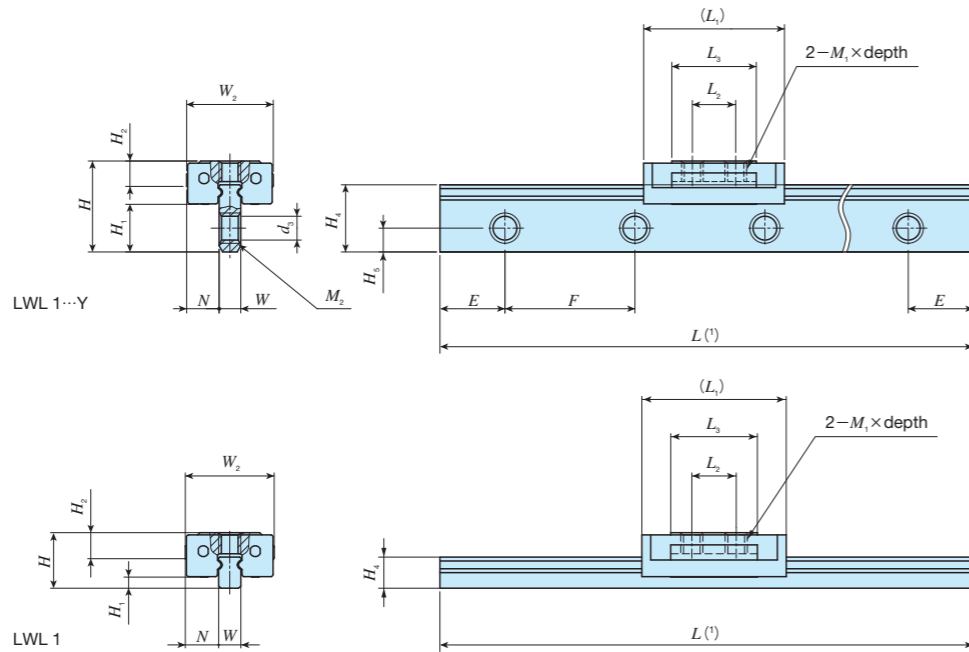


Bolt size (d)	Pitch of screw P	$d_k$	k	s	t	l
M1.4	0.3	2.6	1.4	1.3	0.6	2.5, 3, 4
M1.6 <sup>(1)</sup>	0.35	3	1.6	1.5	0.7	4, 5, 6
M2 <sup>(1)</sup>	0.4	3.8	2	1.5	1	3, 4, 5

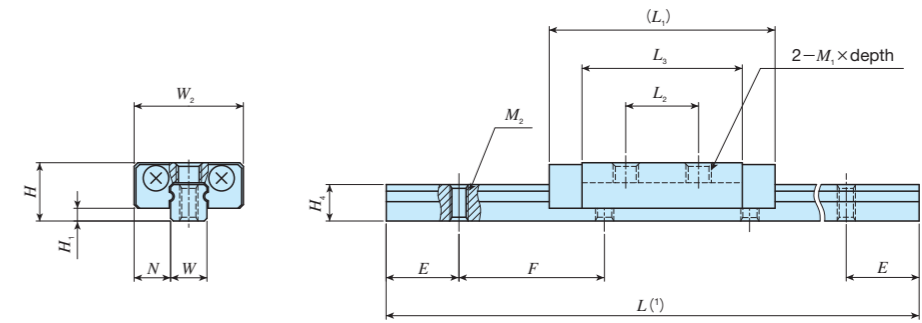
Note<sup>(1)</sup> : Based on JIS B 1176.

# IKO C-Lube Linear Way ML

Standard type											
Shape	LWL										
											
Size	<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>5</td><td>7</td> </tr> <tr> <td>9</td><td>12</td><td>15</td><td>20</td><td>25</td> </tr> </table>	1	2	3	5	7	9	12	15	20	25
1	2	3	5	7							
9	12	15	20	25							



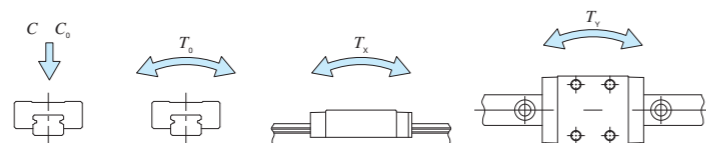
LWL 2  
LWLC 3  
LWL 3



ML	Model number	Interchangeable	Mass (Reference) g	Dimension of assembly mm			Dimension of slide unit mm						Dimension of track rail mm						Appended mounting bolt for track rail <sup>(2)</sup> mm	Basic dynamic load rating <sup>(5)</sup> C N	Basic static load rating <sup>(5)</sup> C <sub>0</sub> N	Static moment rating <sup>(5)</sup>					
				Slide unit	Track rail (per 100mm)	H	H <sub>1</sub>	N	W <sub>2</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	M <sub>1</sub> × depth	H <sub>2</sub>	W	H <sub>4</sub>	H <sub>5</sub>	M <sub>2</sub>				d <sub>3</sub>	E	F	Bolt size x length	T <sub>0</sub> N·m	T <sub>x</sub> N·m
-	LWL 1...Y	-	0.16	2.1	4.2	2.2	1.5	4	6.5	2	3.9	M1 × 0.9	1.2	1	3.1	1.1	M1.4 Through	1.1	3	6	M1 × ℓ or M1.4 × ℓ <sup>(3)</sup>	66.8	113	0.06	0.07	0.47	0.09
-	LWL 1	-		1.0	2.5	0.5									1.4	-	-	-	-	-					-	-	-
-	LWL 2	-	0.9	2.8	3.2	0.7	2	6	12.5	4	8.8	M1.4 × 1.1	-	2	2	-	M1 Through	-	4	8	M1 × ℓ <sup>(4)</sup>	211	381	0.42	0.54	2.9	0.64
-	LWLC 3	-	1.0	5.3	4	1	2.5	8	11.5	3.5	6.7	M1.6 × 1.3	-	3	2.6	-	M1.6 Through	-	5	10	M1.6 × ℓ <sup>(4)</sup>	251	361	0.58	0.39	2.9	0.47
-	LWL 3	-	1.6						15.5	5.5	10.7	M2 × 1.3										353	587	0.94	0.98	5.9	1.2

Note<sup>(1)</sup>: Track rail lengths are shown in Table 3.1 on page II-10.  
<sup>(2)</sup>: Track rail mounting bolts are not appended.  
<sup>(3)</sup>: Prepare track rail mounting bolts according to mounting structure.  
<sup>(4)</sup>: Fixing thread depth of bolt ℓ must be less than H<sub>4</sub>.  
<sup>(5)</sup>: The direction of basic dynamic load rating (C), basic static load rating (C<sub>0</sub>) and static moment rating (T<sub>0</sub>, T<sub>x</sub>, T<sub>y</sub>) are shown in the sketches below. The upper values in the T<sub>x</sub> and T<sub>y</sub> columns apply to one slide unit, and the lower values apply to two slide units in close contact.

Remarks 1: Metal parts are made of stainless steel.  
 2: Do not disassemble a slide unit from the track rail because steel balls are not retained. No end seal is attached.  
 3: The specification of small size mounting bolts (M2 and less) are show on page II-22. Consult **IKO** if required.



**Example of identification number for assembled set**

Model code	Size	Part code	Model code	Preload amount	Class symbol	Supplemental code
LWL	2	C2 R80		T <sub>0</sub>	P	/S
①	②	③	④	⑤	⑥	⑦

① Series

LWL	Standard type
LWL...Y	

② Length of slide unit

C	Short
No symbol	Standard

③ Size

1, 2, 3
---------

④ Number of slide unit (two units)

⑤ Length of track rail (80mm)

⑥ Preload amount

T <sub>0</sub>	Clearance
----------------	-----------

⑦ Accuracy class

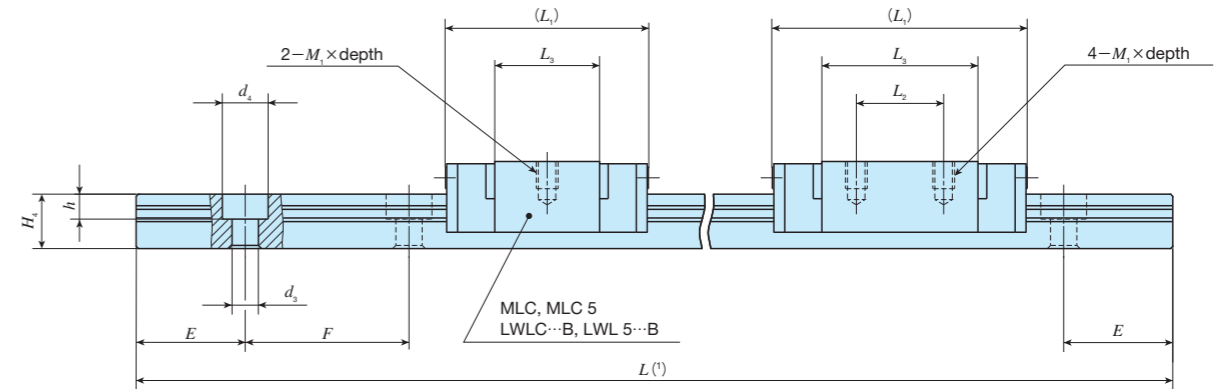
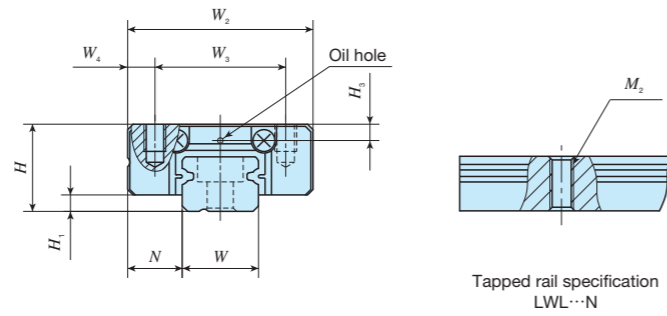
No symbol	Ordinary
H	High
P	Precision

⑧ Special specification

BS, D, E, I, MN, W, Y
-----------------------

# IKO C-Lube Linear Way ML

Standard type					
Shape	ML • LWL				
Size	1	2	3	5	7
	9	12	15	20	25



Model number	Interchangeable	Mass (Reference) g	Dimension of assembly mm			Dimension of slide unit mm										Dimension of track rail mm						Appended mounting bolt for track rail <sup>(2)</sup> mm	Basic dynamic load rating <sup>(4)</sup> C N	Basic static load rating <sup>(4)</sup> C <sub>0</sub> N	Static moment rating <sup>(4)</sup>				
			Slide unit	Track rail (per 100mm)	H	H <sub>1</sub>	N	W <sub>2</sub>	W <sub>3</sub>	W <sub>4</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	M <sub>1</sub> × depth	H <sub>3</sub>	W	H <sub>4</sub>	M <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	h				E	F	Bolt size x length	T <sub>0</sub> N·m	T <sub>x</sub> N·m
MLC 5	LWLC 5...B	○	3.4	12	6	1	3.5	12	8	2	16	-	9.6	M2×1.5	1.2	5	3.7	-	2.4	3.6	0.8	7.5	15	Cross-recessed head cap screw for precision equipment M2×6	562	841	2.2	1.4 8.5	1.2 7.2
-	LWLC 5...N	-		13																				19					
ML 5	LWL 5...B	○	4.3	12	8	1.5	5	17	12	2.5	23.5	8	14.3	M2×2.5	1.5	7	5	-	2.4	4.2	2.3	7.5	15	Cross-recessed head cap screw for precision equipment M2×6	676	1 090	2.9	2.3 12.8	1.9 10.8
-	LWL 5...N	-	4.4	13																				19					
MLC 7	LWLC 7...B	○	6.7	22	8	1.5	5	17	12	2.5	31	12	21.6	M2×2.5	1.5	7	5	-	2.4	4.2	2.3	7.5	15	Hexagon socket head bolt M2×6	937	1 140	4.1	1.8 14.9	1.5 12.5
-	LWLC 7...N	-	7.1	24																				19					
ML 7	LWL 7...B	○	9.1	22	8	1.5	5	17	12	2.5	31	12	21.6	M2×2.5	1.5	7	5	-	2.4	4.2	2.3	7.5	15	Hexagon socket head bolt M2×6	1 330	1 890	6.9	4.7 28.2	3.9 23.6
-	LWL 7...N	-	10	24																				19					
MLG 7	LWLG 7...B	○	13	22	8	1.5	5	17	12	2.5	31	12	21.6	M2×2.5	1.5	7	5	-	2.4	4.2	2.3	7.5	15	Hexagon socket head bolt M2×6	1 690	2 650	9.7	8.8 50.7	7.4 42.5
-	LWLG 7...N	-	14	24																				19					

Note<sup>(1)</sup>: Track rail lengths are shown in Table 3.1 on page II-10.

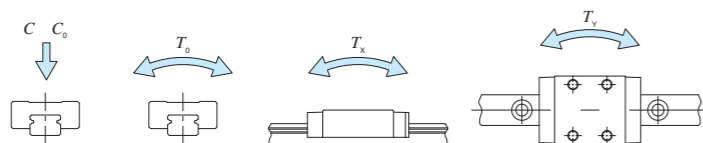
<sup>(2)</sup>: The appended track rail mounting bolts are hexagon socket head bolts of JIS B 1176 or equivalent. In stainless steel model, stainless steel made bolts are appended.

<sup>(3)</sup>: Fixing thread depth of bolt ℓ must be less than H<sub>4</sub>.

<sup>(4)</sup>: The direction of basic dynamic load rating (C), basic static load rating (C<sub>0</sub>) and static moment rating (T<sub>0</sub>, T<sub>x</sub>, T<sub>y</sub>) are shown in the sketches below. The upper values in the T<sub>x</sub> and T<sub>y</sub> columns apply to one slide unit, and the lower values apply to two slide units in close contact.

In MLC7, ML7, and MLG7 of ceramic ball specification ("HB"), see Table 12 on page II-17.

Remark: The specification of oil hole is shown in Table13 on page II-18.



### Example of identification number for assembled set

Model code	Size	Part code	Model code	Preload amount	Preload amount	Interchangeable	Supplemental code
ML	C	7	C2 R120	T1	P	S1	/S
1	2	4	5	6	7	8	9

① Series	
ML	Standard type
LWL...B	
LWL...N	

② Length of slide unit	
C	Short
No symbol	Standard
G	Extra High rigidity long

④ Size	5, 7
--------	------

⑤ Number of slide unit (two units)

⑥ Length of track rail (120mm)	
--------------------------------	--

⑦ Preload amount	
T <sub>0</sub>	Clearance
No symbol	Standard
T <sub>1</sub>	Light preload

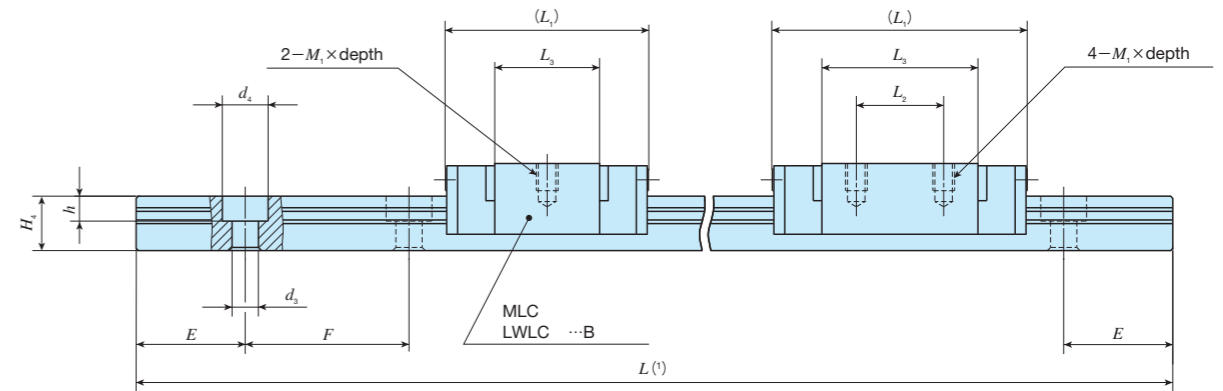
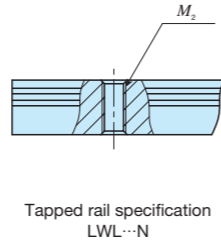
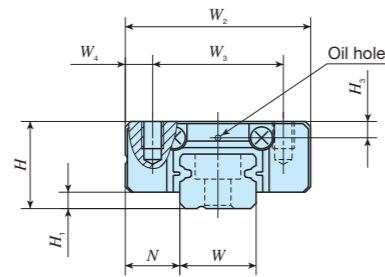
⑧ Accuracy class	
H	High
P	Precision

⑨ Interchangeable code	
S1	Interchangeable specification
S2	Interchangeable specification
No symbol	Non interchangeable specification

⑩ Special specification	
A, BS, D, E, HB, I, LR	
MN, N, Q, RE, S, W, Y	

# IKO C-Lube Linear Way ML

Standard type											
Shape	ML • LWL										
Size	<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>5</td><td>7</td> </tr> <tr> <td>9</td><td>12</td><td>15</td><td>20</td><td>25</td> </tr> </table>	1	2	3	5	7	9	12	15	20	25
1	2	3	5	7							
9	12	15	20	25							



Model number	Interchangeable	Mass (Reference) g	Dimension of assembly mm					Dimension of slide unit mm					Dimension of track rail mm					Appended mounting bolt for track rail (2) mm	Basic dynamic load rating (4) C N	Basic static load rating (4) C0 N	Static moment rating (4)								
			Slide unit	Track rail (per 100mm)	H	H1	N	W2	W3	W4	L1	L2	L3	M1 x depth	H3	W	H4				M2	d3	d4	h	E	F	T0 N·m	Tx N·m	Ty N·m
MLC 9	LWLC 9...B	○	11	35	10	2	5.5	20	15	2.5	30	10	20.8	M3×3	2.2	9	6	-	3.5	6	3.5	10	20	M3×8	1 180	1 480	6.9	2.9	2.4
-	LWLC 9...N	-																											
ML 9	LWL 9...B	○	19	35	10	2	5.5	20	15	2.5	30	10	20.8	M3×3	2.2	9	6	-	3.5	6	3.5	10	20	M3×8	1 810	2 760	12.8	9.1	7.6
-	LWL 9...BCS	○																											
MLG 9	LWLG 9...B	○	28	35	10	2	5.5	20	15	2.5	40.5	15	30.9	M3×3	2.2	9	6	-	3.5	6	3.5	10	20	M3×8	2 370	4 030	18.7	18.7	15.7
-	LWLG 9...N	-																											
MLC 12	LWLC 12...B	○	34	65	13	3	7.5	27	20	3.5	25	-	13	M3×3.5	2.7	12	8	-	3.5	6.5	4.5	12.5	25	M3×8	2 210	2 380	14.8	5.3	4.5
ML 12	LWL 12...B	○																											
-	LWL 12...BCS	○	48	65	13	3	7.5	27	20	3.5	44	20	32	M3×3.5	2.7	12	8	-	3.5	6.5	4.5	12.5	25	M3×8	3 330	4 290	26.6	15.4	12.9
MLG 12	LWLG 12...B	○	51	65	13	3	7.5	27	20	3.5	44	20	32	M3×3.5	2.7	12	8	-	3.5	6.5	4.5	12.5	25	M3×8	4 310	6 200	38.4	30.6	25.7
-	LWLG 12...N	○	51	37	13	3	7.5	27	20	3.5	44	20	32	M3×3.5	2.7	12	8	-	3.5	6.5	4.5	12.5	25	M3×8	4 310	6 200	38.4	168	141

Note (1) : Track rail lengths are shown in Table 3.1 on page II-10, Table 3.3 on page II-12.

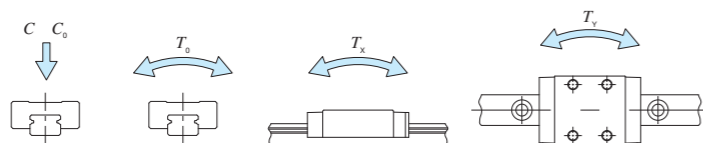
(2) : The appended track rail mounting bolts are hexagon socket head bolts of JIS B 1176 or equivalent. In stainless steel model, stainless steel made bolts are appended.

(3) : Fixing thread depth of bolt ℓ must be less than H4

(4) : The direction of basic dynamic load rating (C), basic static load rating (C0) and static moment rating (T0, Tx, Ty) are shown in the sketches below. The upper values in the Tx and Ty columns apply to one slide unit, and the lower values apply to two slide units in close contact.

In MLC7, ML7, and MLG7 of ceramic ball specification (\*HB\*), see Table 10 on page II-17.

Remark : The specification of oil hole is shown in Table13 on page II-18.



### Example of identification number for assembled set

Model code	Size	Part code	Model code	Material	Preload amount	Class symbol	Interchangeable code	Supplemental code
ML	G	9	C2	R160	T1	P	S1	/S
1	2	3	4	5	6	7	8	9
10								

① Series	ML	Standard type
	LWL...B	
	LWL...N	

② Length of slide unit	C	Short
	No symbol	Standard
	G	Extra High rigidity long

③ Size	9, 12
--------	-------

④ Number of slide unit (two units)	
⑤ Length of track rail (160mm)	
⑥ Material	No symbol Stainless steel made
	CS High carbon steel made

⑦ Preload amount	T0 Clearance
	No symbol Standard
	T1 Light preload

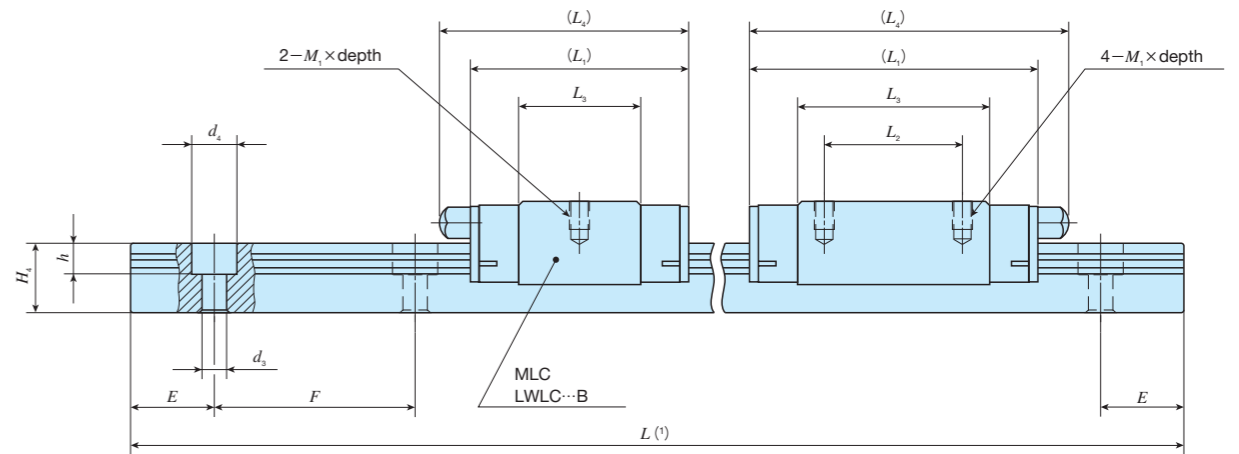
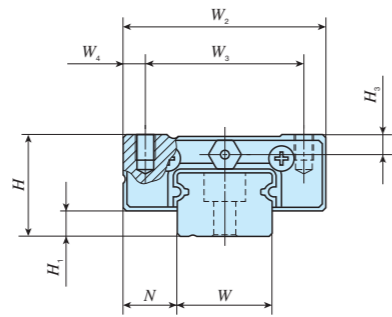
⑧ Accuracy class	H High
	P Precision

⑨ Interchangeable code	S1 Interchangeable specification
	S2 Interchangeable specification
	No symbol Non interchangeable specification

⑩ Special specification	A, BS, D, E, HB, I, LR, MN
	N, Q, RE, S, U, W, Y

# IKO C-Lube Linear Way ML

Standard type					
Shape	ML • LWL				
Size	1	2	3	5	7
	9	12	15	20	25



Model number		Interchangeable	Mass (Reference) g		Dimension of assembly mm			Dimension of slide unit mm							Dimension of track rail mm						Appended mounting bolt for track rail <sup>(2)</sup> mm Bolt size x length	Basic dynamic load rating <sup>(3)</sup> C N	Basic static load rating <sup>(3)</sup> C <sub>0</sub> N	Static moment rating <sup>(3)</sup>					
ML	LWL (Non C-Lube)		Slide unit	Track rail (per 100mm)	H	H <sub>1</sub>	N	W <sub>2</sub>	W <sub>3</sub>	W <sub>4</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	M <sub>1</sub> × depth	H <sub>3</sub>	W	H <sub>4</sub>	d <sub>3</sub>	d <sub>4</sub>				h	E	F	T <sub>0</sub> N·m	T <sub>x</sub> N·m	T <sub>y</sub> N·m
MLC 15	LWLC 15...B	○	43	107	16	4	8.5	32	25	3.5	32	—	17.8	37	M3×4	3.1	15	10	3.5	6.5	4.5	20	40	M3×10	3 490	3 890	30.0	11.7 84.5	9.8 70.9
ML 15	LWL 15...B	○	63								42	20	27.9	47															
—	LWL 15...BCS	○	64								42	20	27.8	47															
MLG 15	LWLG 15...B	○	93								57	25	42.8	62															
		○	95								57	25	42.7	62															
MLC 20	LWLC 20...B	○	89	156	20	5	10	40	30	5	38	—	22.3	43	M4×6	4.2	20	11	6	9.5	5.5	30	60	M5×14	4 580	5 300	54.0	19.4 134	16.3 112
ML 20	LWL 20...B	○	130								50	25	34.6	55															
—	LWL 20...BCS	○	133								50	25	34.6	55															
MLG 20	LWLG 20...B	○	189								68	30	52.3	73															
		○	196								68	30	52.3	73															
MLC 25	LWLC 25...B	○	189	243	25	5	12.5	48	35	6.5	54.5	—	31.9	64	M6×7	5	23	15	7	11.0	9.0	30	60	M6×16	9 120	10 600	128	57.4 380	48.1 319
ML 25	LWL 25...B	○	305								78	35	55.7	88															
—	LWL 25...BCS	○	310								78	35	55.7	88															
MLG 25	LWLG 25...B	○	405								98	40	75.5	108															
		○	413								98	40	75.5	108															

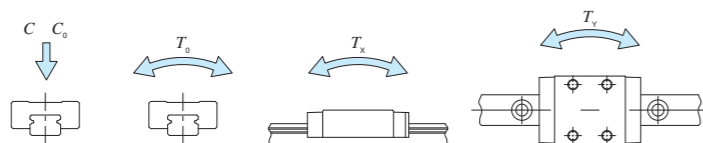
Note<sup>(1)</sup> : Track rail lengths are shown in Table 3.1 on page II-10, Table 3.3 on page II-12.

<sup>(2)</sup> : The appended track rail mounting bolts are hexagon socket head bolts of JIS B 1176 or equivalent. In stainless steel model, stainless steel made bolts are appended.

<sup>(3)</sup> : The direction of basic dynamic load rating (C), basic static load rating (C<sub>0</sub>) and static moment rating (T<sub>0</sub>, T<sub>x</sub>, T<sub>y</sub>) are shown in the sketches below. The upper values in the T<sub>x</sub> and T<sub>y</sub> columns apply to one slide unit, and the lower values apply to two slide units in close contact.

In MLC7, ML7, and MLG7 of ceramic ball specification (\*7HB\*), see Table 10 on page II-17.

Remark : The specifications of oil hole and grease nipple are shown in Table 14 on page II-18.



### Example of identification number for assembled set

Model code	Size	Part code	Model code	Material	Preload amount	Class symbol	Interchangeable code	Supplemental code
ML	G	15	C2	R320	T1	P	S1	/S
①	②	③	④	⑤	⑥	⑦	⑧	⑨

① Series	ML LWL...B	Standard type
----------	---------------	---------------

② Length of slide unit	C No symbol G	Short Standard Extra High rigidity long
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③ Size	15, 20, 25
--------	------------

④ Number of slide unit (two units)	
------------------------------------	--

⑤ Length of track rail (320mm)	
--------------------------------	--

⑥ Length of track rail	No symbol CS	Stainless steel made High carbon steel made
------------------------	-----------------	--

⑦ Preload amount	T <sub>0</sub> No symbol T <sub>1</sub>	Clearance Standard Light preload
------------------	---	--

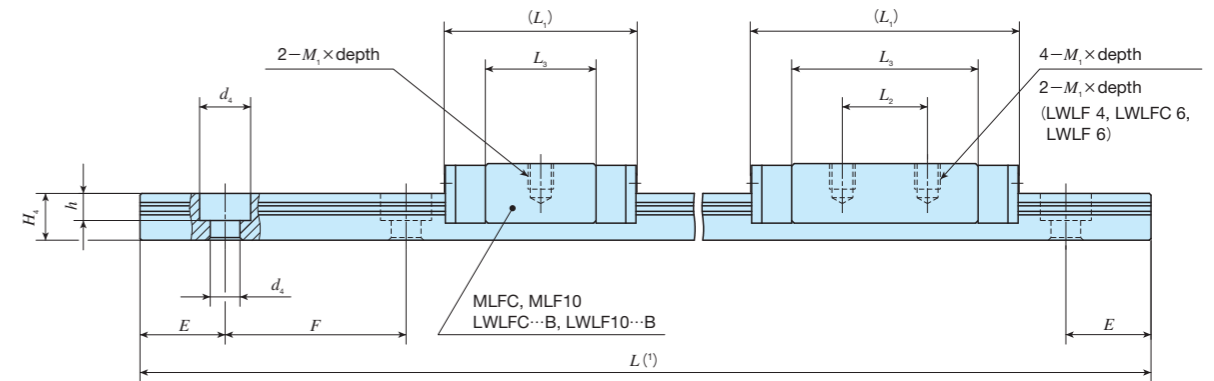
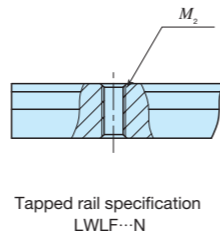
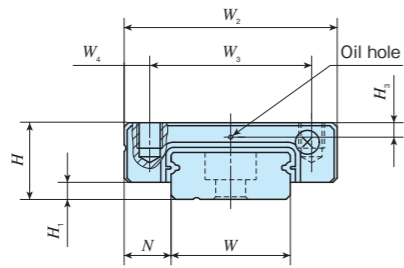
⑧ Accuracy class	H P	High Precision
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⑨ Interchangeable code	S1 S2 No symbol	Interchangeable specification Interchangeable specification Non interchangeable specification
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⑩ Special specification	A, BS, D, E, HB, I, LR, MN N, Q, RE, S, U, W, Y
-------------------------	--

# IKO C-Lube Linear Way ML

Wide type				
MLF • LWLF				
Shape				
Size	4	6	10	14
	18	24	30	42



Model number		Interchangeable	Mass (Reference) g		Dimension of assembly mm			Dimension of slide unit mm							Dimension of track rail mm							Appended mounting bolt for track rail <sup>(3)</sup> mm Bolt size x length	Basic dynamic load rating <sup>(5)</sup> C N	Basic static load rating <sup>(5)</sup> C <sub>0</sub> N	Static moment rating <sup>(5)</sup>				
MLF	LWLF (Non C-Lube)		Slide unit	Track rail (per 100mm)	H	H <sub>1</sub>	N	W <sub>2</sub>	W <sub>3</sub>	W <sub>4</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	M <sub>1</sub> × depth	H <sub>3</sub>	W	H <sub>4</sub>	M <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	h				E	F	T <sub>0</sub> N·m	T <sub>x</sub> N·m	T <sub>y</sub> N·m
—	LWLF 4 <sup>(2)</sup>	—	2.1	6.8	4	1	3	10	—	5	17	6.5	11.9	M2 × 1.3	—	4	2.6	—	1.8	2.8	0.75	5	10	Cross-recessed head cap screw for precision equipment M1.6×5	390	677	1.4	1.3 7.1	1.5 8.4
—	LWLFC 6 <sup>(2)</sup>	—	2.4	13	4.5	1	3	12	—	6	15	4.5	9.8	M2 × 1.6	—	6	2.8	—	2.4	4	1.5	7.5	15	Cross-recessed head cap screw for precision equipment M2×4	334	542	1.7	0.84 5.1	1.0 6.1
—	LWLFC 6...N <sup>(2)</sup>	—		12																				—					
—	LWLF 6 <sup>(2)</sup>	—	3.4	13	20	8	14.6	20	8	14.6	20	8	14.6	M2.5×1.5	1.3	10	4	—	2.4	4	1.5	10	20	Cross-recessed head cap screw for precision equipment M2×4	443	813	2.5	1.8 9.9	2.2 11.8
—	LWLF 6...N <sup>(2)</sup>	—		12																				—					
MLFC 10	LWLF 10...B	○	6.1	28	6.5	1.5	3.5	17	13	2	20.5	—	13.6	M2.5×1.5	1.3	10	4	—	2.9	4.8	1.6	10	20	Cross-recessed head cap screw for precision equipment M2.5×7	712	1 180	6.1	2.6 14.9	2.2 12.5
—	LWLFC 10...N	—	5.9	29																				—					
MLF 10	LWLF 10...B	○	7.6	28	24.5	—	17.6	24.5	—	17.6	24.5	—	17.6	M2.5×1.5	1.3	10	4	—	2.9	4.8	1.6	10	20	Cross-recessed head cap screw for precision equipment M2.5×7	849	1 510	7.8	4.2 22.4	3.5 18.8
—	LWLF 10...N	—	7.5	29																				—					

Note (1) : Track rail lengths are shown in Table 3.2 on page II-11.

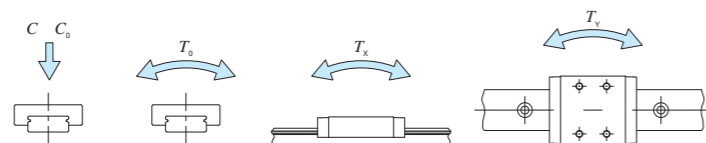
(2) : Size 4 and 6 are ball non-retained type. They are provided without end seals.

(3) : The appended track rail mounting bolts are hexagon socket head bolts of JIS B 1176 or equivalent. In stainless steel model, stainless steel made bolts are appended.

(4) : Fixing thread depth of bolt  $l$  must be less than  $H_4$ .

(5) : The direction of basic dynamic load rating ( $C$ ), basic static load rating ( $C_0$ ) and static moment rating ( $T_0$ ,  $T_x$ ,  $T_y$ ) are shown in the sketches below. The upper values in the  $T_x$  and  $T_y$  columns apply to one slide unit, and the lower values apply to two slide units in close contact.

Remark : The specification of oil hole is shown in Table13 on page II-18.



### Example of identification number for assembled set

Model code	Size	Part code	Model code	Preload amount	Class symbol	Interchangeable code	Supplemental code	
MLF	C	10	C2	R120	T <sub>1</sub>	P	S1 /S	
1	2	3	4	5	6	7	8	9

① Series	
MLF	Wide type
LWLF(...B)	
LWLF...N	

② Length of slide unit	
C	Short
No symbol	Standard

③ Size	
4, 6, 10	

④ Number of slide unit (two units)

⑤ Length of track rail (120mm)	
--------------------------------	--

⑥ Preload amount	
T <sub>0</sub>	Clearance
No symbol	Standard

⑦ Accuracy class	
H	High
P	Precision

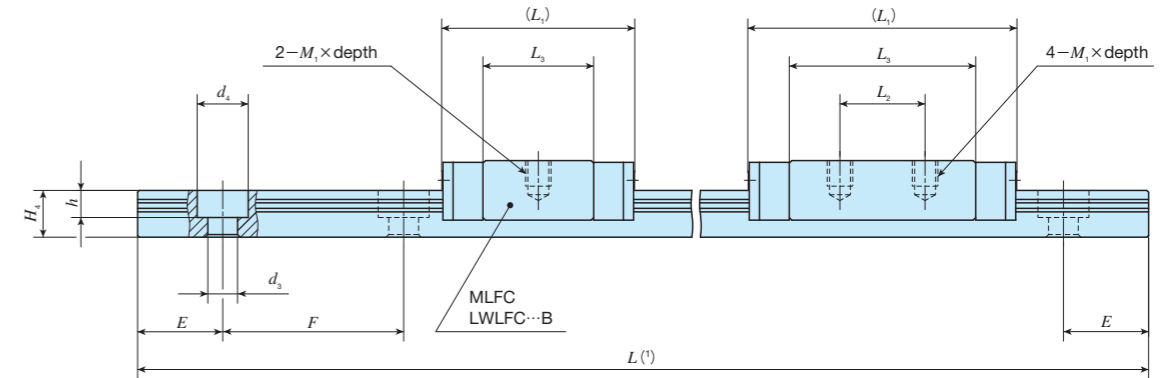
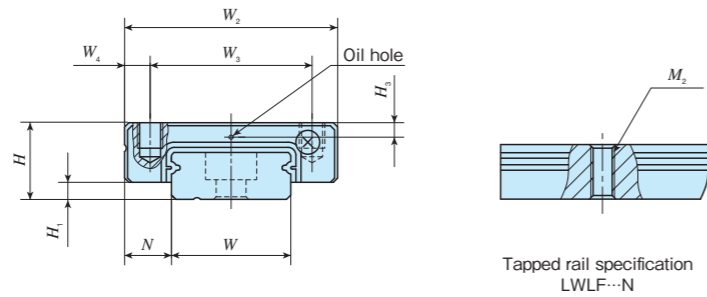
⑧ Interchangeable code	
S1	Interchangeable specification
S2	Interchangeable specification
No symbol	Non interchangeable specification

⑨ Special specification	
A, BS, D, E, I, MN, N, Q	
RE, S, W, Y	



# IKO C-Lube Linear Way ML

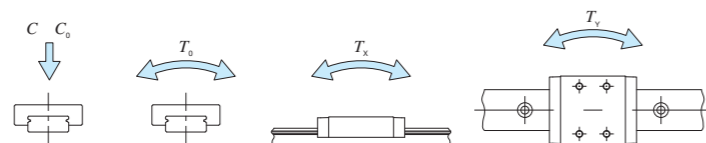
Wide type				
Shape	MLF • LWLF			
Size	4	6	10	14
	18	24	30	42



Model number	Interchangeable	Mass (Reference) g	Dimension of assembly mm			Dimension of slide unit mm							Dimension of track rail mm						Appended mounting bolt for track rail (2) mm	Basic dynamic load rating (4) C N	Basic static load rating (4) C0 N	Static moment rating (4)							
			Slide unit	Track rail (per 100mm)	H	H1	N	W2	W3	W4	L1	L2	L3	M1 x depth	H3	W	H4	M2				d3	d4	h	E	F	T0 N·m	Tx N·m	Ty N·m
MLFC 18	LWLFC 18...B	○	26	90	12	3	6	30	21	4.5	38.5	12	28.6	M3 x 3	2.5	18	7	-	3.5	6.5	4.5	15	30	M3 x 8	1 510	2 120	19.4	5.5 35.9	4.7 30.1
-	LWLFC 18...N	-																											
MLF 18	LWLF 18...B	○	42	90	12	3	6	30	23	3.5	50.5	24	40.4	M3 x 3	2.5	18	7	-	3.5	6.5	4.5	15	30	M3 x 8	2 280	3 810	34.9	16.9 90.1	14.2 75.6
-	LWLF 18...BCS	○	44	92																									
MLFG 18	LWLFG 18...B	○	59	90	12	3	6	30	23	3.5	50.5	24	40.4	M3 x 3	2.5	18	7	-	3.5	6.5	4.5	15	30	M3 x 8	2 870	5 300	48.5	31.9 159	26.7 134
-	LWLFG 18...N	-	61	92																									
MLFC 24	LWLFC 24...B	○	46	139	14	3	8	40	28	6	43.5	15	31	M3 x 3.5	3.2	24	8	-	4.5	8	4.5	20	40	M4 x 10	2 800	3 340	40.7	9.7 67.6	8.2 56.8
MLF 24	LWLF 24...B	○	45																										
-	LWLF 24...BCS	○	74	76	14	3	8	40	28	6	43.5	15	31	M3 x 3.5	3.2	24	8	-	4.5	8	4.5	20	40	M4 x 10	4 310	6 200	75.6	30.6 168	25.7 141
MLFG 24	LWLFG 24...B	○	108	59																									
-	LWLFG 24...N	○	111	92	14	3	8	40	28	6	43.5	15	31	M3 x 3.5	3.2	24	8	-	4.5	8	4.5	20	40	M4 x 10	5 620	9 060	111	63.3 321	53.1 270

Note (1) : Track rail lengths are shown in Table 3.2 on page II-11, Table 3.3 on page II-12.  
 (2) : The appended track rail mounting bolts are hexagon socket head bolts of JIS B 1176 or equivalent. In stainless steel model, stainless steel made bolts are appended.  
 (3) : Fixing thread depth of bolt  $l$  must be less than  $H_4$   
 (4) : The direction of basic dynamic load rating ( $C$ ), basic static load rating ( $C_0$ ) and static moment rating ( $T_0$ ,  $T_x$ ,  $T_y$ ) are shown in the sketches below. The upper values in the  $T_x$  and  $T_y$  columns apply to one slide unit, and the lower values apply to two slide units in close contact.

Remark : The specification of oil hole is shown in Table13 on page II-18.

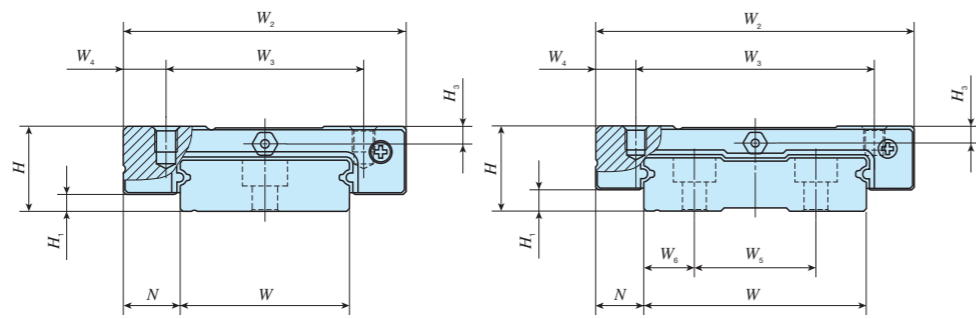


### Example of identification number for assembled set

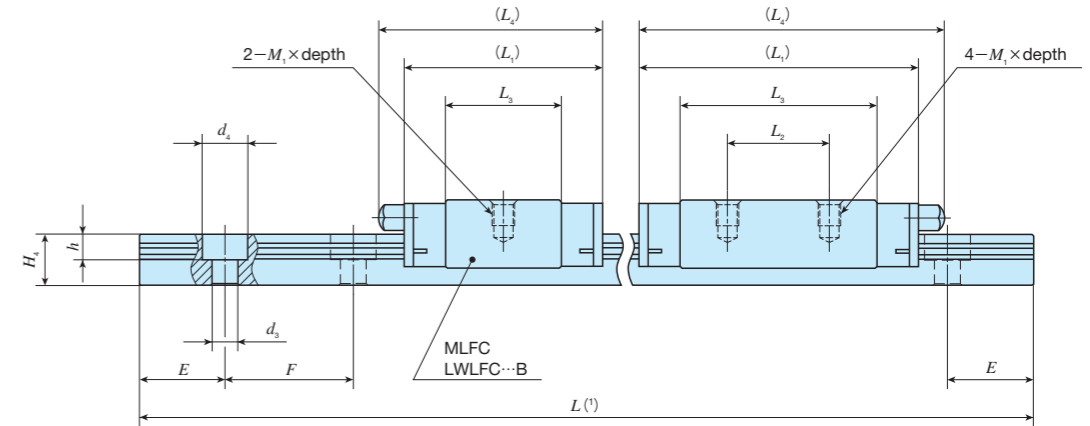
Model code	Size	Part code	Model code	Material	Preload amount	Class symbol	Interchangeable code	Supplemental code
<b>MLF</b>	<b>G</b>	<b>18</b>	<b>C2</b>	<b>R300</b>	<b>T1</b>	<b>P</b>	<b>S1</b>	<b>/S</b>
①	②	③	④	⑤	⑥	⑦	⑧	⑨
① Series	② Length of slide unit	③ Size	④ Number of slide unit (two units)	⑤ Length of track rail (300mm)	⑥ Length of track rail	⑦ Preload amount	⑧ Accuracy class	⑨ Interchangeable code
MLF LWLF...B Wide type LWLF...N	C Short No symbol Standard G Extra High rigidity long	18, 24	2	No symbol Stainless steel made CS High carbon steel made	No symbol CS	To Clearance No symbol Standard T1 Light preload	H High P Precision	S1 Interchangeable specification S2 Interchangeable specification No symbol Non interchangeable specification
								⑩ Special specification A, BS, D, E, I, LR, MN N, Q, RE, S, U, W, Y

# IKO C-Lube Linear Way ML

Wide type				
MLF • LWLF				
Shape				
Size	4 18	6 24	10 30	14 42

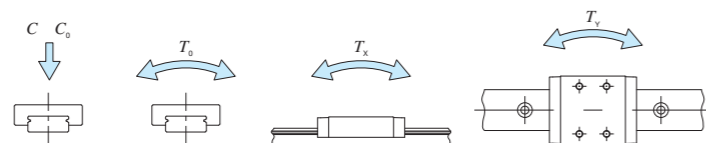


MLFC 42, LWLFC 42...B  
MLF 42, LWLF 42...B (CS)  
MLFG 42, LWLFG 42...B



Model number	Interchangeable	Mass (Reference) g	Dimension of assembly mm	Dimension of slide unit mm											Dimension of track rail mm										Appended mounting bolt for track rail (2) mm	Basic dynamic load rating (3) C N	Basic static load rating (3) C <sub>0</sub> N	Static moment rating (3)			
				Slide unit	Track rail (per 100mm)	H	H <sub>1</sub>	N	W <sub>2</sub>	W <sub>3</sub>	W <sub>4</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	M <sub>1</sub> × depth	H <sub>3</sub>	W	H <sub>4</sub>	W <sub>5</sub>	W <sub>6</sub>	d <sub>3</sub>	d <sub>4</sub>	h				E	F	T <sub>0</sub> N·m	T <sub>x</sub> N·m
MLFC 30	LWLFC 30...B	○	70	198	15	3	10	50	35	7.5	35.5	-	20.5	40	M4×4.5	3.1	30	9	-	-	4.5	8	4.5	20	40	M4×12	3 890	4 540	69.1	15.4	13.0
MLF 30	LWLF 30...B	○	111								49.5	18	34.8	54															48.7	40.8	
-	LWLF 30...BCS	○	112								68.5	35	53.8	73															259	217	
MLFG 30	LWLFG 30...B	○	167								74.5	35	58.7	79															100	84.3	
-	LWLFG 30...B	○	170								58.3	79	508	426																	
MLFC 42	LWLFC 42...B	○	95	294	16	4	9	60	45	7.5	41.5	-	25.7	46	M4×4.5	3.2	42	10	23	9.5	4.5	8	4.5	20	40	M4×12	5 440	6 810	144	30.8	25.8
MLF 42	LWLF 42...B	○	138								55	20	39	60															24.8	20.8	
-	LWLF 42...BCS	○	140								74.5	35	58.7	79															333	280	
MLFG 42	LWLFG 42...B	○	200								58.3	79	140	117																	
-	LWLFG 42...B	○	204								126	106																			

Note (1) : Track rail lengths are shown in Table 3.2 on page II-11, Table 3.3 on page II-12.  
 (2) : The appended track rail mounting bolts are hexagon socket head bolts of JIS B 1176 or equivalent. In stainless steel model, stainless steel made bolts are appended.  
 (3) : The direction of basic dynamic load rating (C), basic static load rating (C<sub>0</sub>) and static moment rating (T<sub>0</sub>, T<sub>x</sub>, T<sub>y</sub>) are shown in the sketches below. The upper values in the T<sub>x</sub> and T<sub>y</sub> columns apply to one slide unit, and the lower values apply to two slide units in close contact.  
 Remark : The specifications of oil hole and grease nipple are shown in Table14 on page II-18.



### Example of identification number for assembled set

Model code	Size	Part code	Model code	Material	Preload amount	Class symbol	Interchangeable code	Supplemental code
MLF	G	42	C2	R320	T1	P	S1	/S
①	②	③	④	⑤	⑥	⑦	⑧	⑨

① Series MLF Wide type LWLF...B	③ Size 30, 42	⑦ Preload amount T <sub>0</sub> Clearance No symbol Standard T <sub>1</sub> Light preload	⑨ Interchangeable code S1 Interchangeable specification S2 Interchangeable specification No symbol Non interchangeable specification
② Length of slide unit C Short No symbol Standard G Extra High rigidity long	⑤ Length of track rail (320mm)	⑧ Accuracy class H High P Precision	⑩ Special specification A, BS, D, E, I, LR, MN N, Q, RE, S, U, W, Y
④ Number of slide unit (two units)	⑥ Length of track rail No symbol Stainless steel made CS High carbon steel made		