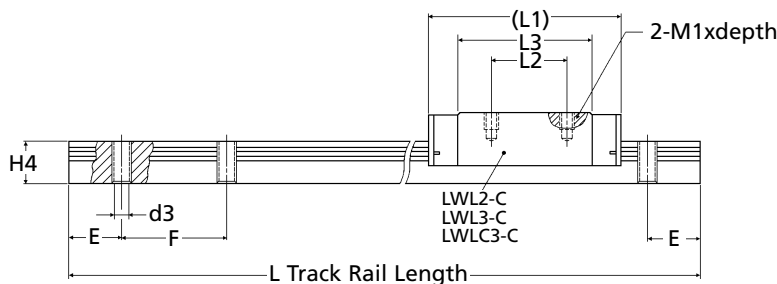
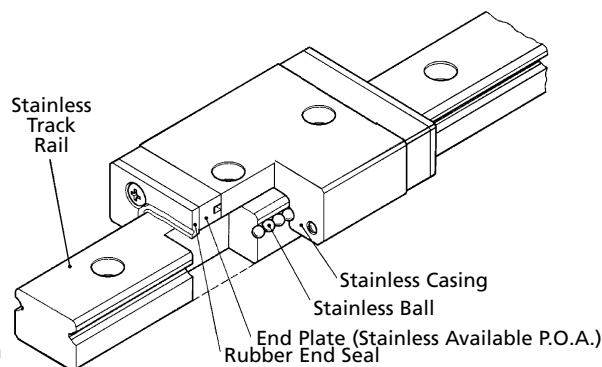
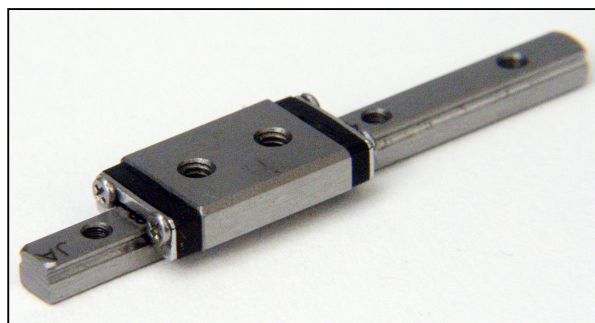


**LWL**  
**LWL-C**  
**LWLC-C**

# LINEAR MOTION

## Precision Linear Slides - Stainless

L-Series Non Ball Retained - 2 Row 4 point Ball Contact



Part Number	L Track Rail Length	No. of Holes	Max. Length	Carriage (Slide Unit)	Price Each
LWL2-32	32	4	104	-	£P.O.A
LWL2-40	40	5		-	£P.O.A
LWL2-48	48	6		-	£P.O.A
LWL2-56	56	7		-	£P.O.A
LWL2-64	64	8		-	£P.O.A
LWL2-72	72	9		-	£P.O.A
LWL2-80	80	10		-	£P.O.A
LWL2-88	88	11		-	£P.O.A
LWL2-96	96	12		-	£P.O.A
LWL2-104	104	13		-	£P.O.A
LWL2-C	Carriage			Standard Type	£P.O.A
LWL3-30	30	3	150	-	£24.32
LWL3-40	40	4		-	£26.47
LWL3-60	60	6		-	£30.81
LWL3-80	80	8		-	£35.72
LWL3-100	100	10		-	£41.09
LWL3-110	110	11		-	£43.79
LWL3-120	120	12		-	£46.99
LWL3-130	130	13		-	£50.31
LWL3-140	140	14		-	£53.53
LWL3-150	150	15		-	£56.80
LWL3-C	Carriage			Standard Type	£67.56
LWLC3-C	Carriage			Short Type	£56.80

A minimum of 1 carriage per rail must be ordered

### Material

Rail, Carriage & Balls: Stainless Steel. Hardened Similar to 440c. End Plates: Synthetic Resin. End Seals: Rubber

### Performance

Max. Speed: 3m/sec. Maximum Temperature: +100°C (Constant), +120°C (Intermittent)

### Other Info.

**Characteristics:** Easy handling (non ball retained - balls liable to falling out if carriage removed). Easy maintenance. Smooth operation. Low noise. High accuracy. Long life. High reliability. Load Torques need de-rating for Static safety factors 1~5, or Dynamic 1~3

**Lubrication:** Every 6 months under general use. Every 3 months for daily use. Use a lithium-soap based grease. (Oil can be used).

When ordering track rail, please order carriages required (1, 2, 3, etc.) per rail. For example:

Standard slide assembly of 1 x LWL3-80 rail and 2 x LWL3-C carriages = **LWL3-80C2**.

Short slide assembly of 1 x LWL3-80 rail and 1 x LWLC3-C carriages = **LWLC3-80C1**

Carriages and tracks are produced to suit each individual set.

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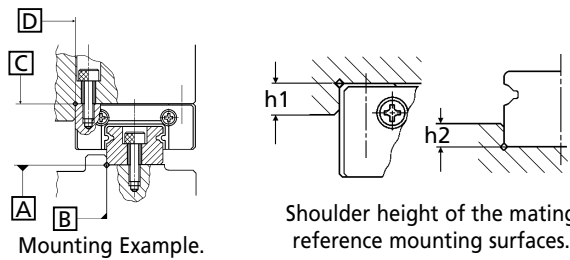
Product information updated 1st April 2011 and subject to change. Please contact Sales for the latest prices and availability.

# LINEAR MOTION

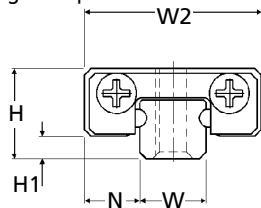
## Precision Linear Slides - Stainless

L-Series Non Ball Retained - 2 Row 4 point Ball Contact

**LWL**  
**LWL-C**  
**LWLC-C**



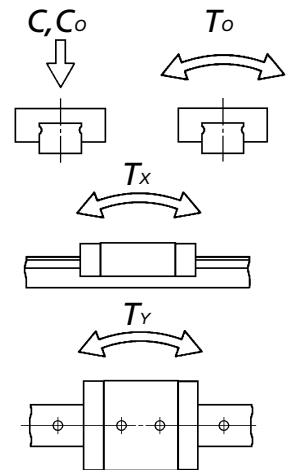
Mounting Example.



LWL 2, LWL3-C & LWLC3-C

Model Number	Slide Unit Shoulder Height $h_1$	Track Rail Shoulder Height $h_2$
LWL 2	1.0	0.5
LWL 3	1.2	0.8

Figures shown in  $T_o$  column and upper figures of all  $T_x$  and  $T_y$  of each model number apply to one slide unit as illustrated right. The values shown below the single case figures for  $T_x$  and  $T_y$  are for two slide units in close contact.



	Part Number		
	LWL2-C	LWLC3-C	LWL3-C
<b>Weight g</b>			
Carriage (Slide Unit)	0.90	1.00	1.60
Track Rail per 100mm	2.80	5.30	5.30
<b>Dimensions of Assembly mm</b>			
$H \pm 0.020$ (Std.) ( $P \pm 0.010$ )	3.20	4.00	4.00
H1	0.70	1.00	1.00
$N \pm 0.025$ (Std.) ( $P \pm 0.015$ )	2.00	2.50	2.50
<b>Dimensions of Slide Unit mm</b>			
W2	6.00	8.00	8.00
L1	12.40	12.00	16.00
L2	4.00	3.50	5.50
L3	8.80	6.70	10.70
M1 x Depth	M1.4 x 1.1 (0.10 Nm)	M1.6 x 1.3 (0.15 Nm)	M2 x 1.3 (0.31 Nm)
<b>Dimensions of Track Rail mm</b>			
W	2.00	3.00	3.00
H4	2.00	2.60	2.60
d3	M1 Thro. (0.04 Nm)	M1.6 Thro. (0.15 Nm)	M1.6 Thro. (0.15 Nm)
E	4.00	5.00	5.00
F	8.00	10.00	10.00
<b>Basic Dynamic Load Rating</b>			
C N	204.00	245.00	339.00
<b>Basic Static Load Rating</b>			
Co N	395.00	375.00	609.00
<b>Static Rated Moment</b>			
To Nm	0.43	0.60	0.97
Tx Nm	0.56	0.41	1.00
	3.00	3.00	6.10
Ty Nm	0.67	0.49	1.20
	3.60	3.50	7.20

### Performance

**Dim Variation Between Carriage Slides on Same Rail (Std. Grade):**  $H = 0.015$ ,  $N = 0.020$

**Dim Variation Between Carriage Slides on Same Rail (High Precision P Grade - P.O.A.):**  $H = 0.007$ ,  $N = 0.010$

**Parallelism in Operation Over:** 100mm = 0.005mm, 250mm = 0.008mm, 500mm = 0.012mm, 1000mm = 0.018mm (A to C and D to B).

A higher tolerance grade is available. P.O.A.

**Load Direction:** If upward or downward, as table. If lateral, dynamic x 1.13 C, Static x 1.19 Co.

**Dynamic Rating:** From a group of the same slide units, 90% achieve a distance of  $50 \times 10^3$  metres.

For temperatures over 100°C (max. 120°C) we can supply special high temperature grease (clean room quality supplied in syringe) **CG2-SY : £31.80**

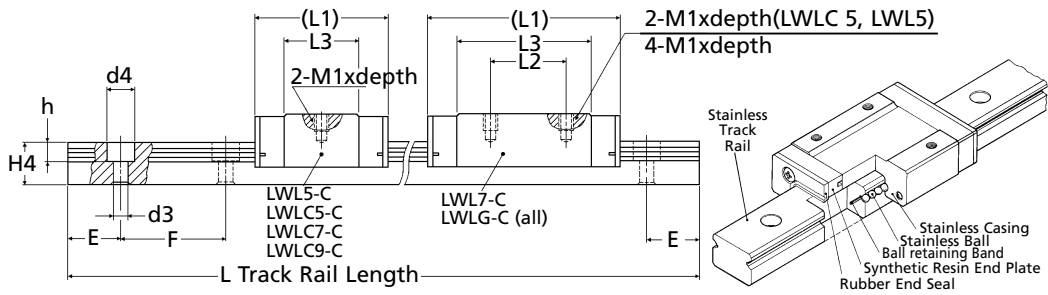
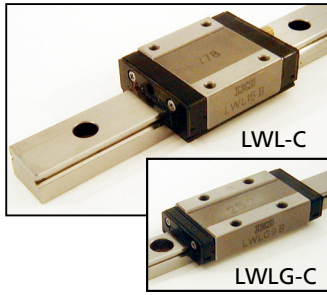
Preload is available (To) zero to minimal clearance, zero to minimal preload, (T1) 0.02 Co preload.

**LWL**  
**LWL-C**  
**LWLC-C**  
**LWLG-C**

# LINEAR MOTION

## Precision Linear Slides - Stainless

L-Series Non Ball Retained - 2 Row 4 point Ball Contact



Part Number	L Track Rail Length	No. of Holes	Max. Length	Carriage (Slide Unit)	Price Each	
LWL5-45	45	3	210 Special Lengths - P.O.A. Max end butt 915mm	-	£24.60	
LWL5-60	60	4		-	£28.04	
LWL5-90	90	6		-	£34.94	
LWL5-120	120	8		-	£42.78	
LWL5-150	150	10		-	£51.67	
LWL5-180	180	12		-	£61.51	
LWL5-195	195	13		-	£67.45	
LWL5-210	210	14		-	£51.67	
LWL5-C	Carriage (with oil hole H3)				Standard Type	£67.56
LWLC5-C	Carriage (with oil hole H3)				Short Type	£56.80
LWL7-60	60	4		300 Special Lengths - P.O.A. Max end butt 1905mm	-	£26.15
LWL7-120	120	8			-	£39.86
LWL7-150	150	10			-	£46.99
LWL7-180	180	12			-	£56.39
LWL7-240	240	16	-		£77.92	
LWL7-300	300	20	-		£105.31	
LWL7-C	Carriage (with oil hole H3)				Standard Type	£57.02
LWLC7-C	Carriage (with oil hole H3)				Short Type	£49.11
LWLG7-C	Carriage (with oil hole H3)				High Rigidity long Type	£70.26
LWL9-60	60	3	860 Special Lengths - P.O.A. Max end butt 1660mm		-	£34.57
LWL9-120	120	6			-	£51.71
LWL9-180	180	8			-	£75.45
LWL9-240	240	12			-	£100.35
LWL9-280	280	14			-	£117.37
LWL9-320	320	16		-	£135.69	
LWL9-380	380	19		-	£165.14	
LWL9-420	420	21		-	£186.15	
LWL9-480	480	24		-	£216.95	
LWL9-560	560	28		-	£264.21	
LWL9-680	680	32		-	£331.21	
LWL9-720	720	36		-	£350.70	
LWL9-860	860	43		-	£431.58	
LWL9-C	Carriage (with oil hole H3)				Standard Type	£70.11
LWLC9-C	Carriage (with oil hole H3)			Short Type	£55.41	
LWLG9-C	Carriage (with oil hole H3)			High Rigidity long Type	£79.69	

### Material

Rail, Carriage & Balls: Stainless Steel. Hardened Similar to 440c. End Plates: Synthetic Resin. End Seals: Rubber

### Performance

Max. Speed: 3m/sec. Maximum Temperature: +100°C (Constant), +120°C (Intermittent)

### Other Info.

**Characteristics:** Easy handling (Ball retaining band structure, prevents balls falling out).

Easy maintenance. Smooth operation. Low noise. High accuracy. Long life. High reliability.

**Lubrication:** Every 6 months under general use. Every 3 months for daily use. Use a lithium-soap based grease. (Oil can be used).

When ordering track rail, please order carriages required (1, 2, 3, etc.) per rail. For example:

Standard slide assembly of 1 x LWL7-300 rail and 2 x LWL7-C carriages = **LWL7-300C2**.

High Rigidity slide assembly of 1 x LWL9-480 rail and 1 x LWL9-C carriages = **LWLG7-480C1**

Carriages and tracks are produced to suit each individual set.

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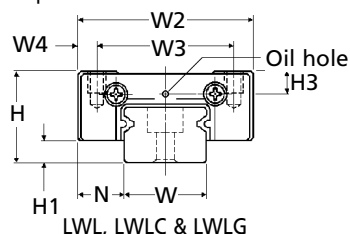
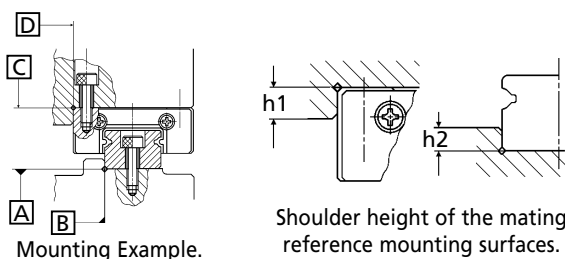
Product information updated 1st April 2011 and subject to change. Please contact Sales for the latest prices and availability.

# LINEAR MOTION

LWL  
LWL-C  
LWLC-C  
LWLG-C

## Precision Linear Slides - Stainless

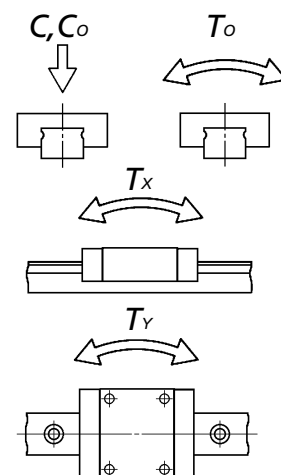
L-Series Non Ball Retained - 2 Row 4 point Ball Contact



Model Number	Slide Unit Shoulder Height h1	Track Rail Shoulder Height h2
LWL 5	2.0	0.8
LWL 7	2.5	1.2
LWL 9	3.0	1.5

Figures shown in  $T_0$  column and upper figures of all  $T_x$  and  $T_y$  of each model number apply to one slide unit as illustrated right. The values shown below the single case figures for  $T_x$  and  $T_y$  are for two slide units in close contact.

Dim. variation of H for multiple assembly sets :  
Std.: 0.030  
High Precision (P): 0.020



	Part Number							
	LWL5-C	LWLC5-C	LWL7-C	LWLC7-C	LWLG7-C	LWL9-C	LWLC9-C	LWLG9-C
<b>Weight g</b>								
Carriage (Slide Unit)	4.40	3.40	10.00	7.10	14.00	19.00	11.00	28.00
Track Rail per 100mm	12.00	12.00	22.00	22.00	22.00	35.00	35.00	35.00
<b>Dimensions of Assembly mm</b>								
H ± 0.020 (Std.) (P=±0.010)	6.00	6.00	8.00	8.00	8.00	10.00	10.00	10.00
H1	1.00	1.00	1.50	1.50	1.50	2.00	2.00	2.00
N ± 0.025 (Std.) (P=±0.015)	3.50	3.50	5.00	5.00	5.00	5.50	5.50	5.50
<b>Dimensions of Slide Unit mm</b>								
W2	12.00	12.00	17.00	17.00	17.00	20.00	20.00	20.00
W3	8.00	8.00	12.00	12.00	12.00	15.00	15.00	15.00
W4	2.00	2.00	2.50	2.50	2.50	2.50	2.50	2.50
L1	19.00	16.00	23.50	19.00	31.00	30.00	21.50	40.50
L2	-	-	8.00	-	12.00	10.00	-	15.00
L3	12.60	9.60	14.30	9.60	21.60	20.80	11.90	30.90
M1 x Depth	M2x1.5 (0.31Nm)	M2x1.5 (0.31Nm)	M2x2.5 (0.31Nm)	M2x2.5 (0.31Nm)	M2x2.5 (0.31Nm)	M3x3 (1.1Nm)	M3x3 (1.1Nm)	M3x3 (1.1Nm)
H3	1.20	1.20	1.50	1.50	1.50	2.20	2.20	2.20
<b>Dimensions of Track Rail mm</b>								
W	5.00	5.00	7.00	7.00	7.00	9.00	9.00	9.00
H4	3.70	3.70	5.00	5.00	5.00	6.00	6.00	6.00
d3	2.40	2.40	2.40	2.40	2.40	3.50	3.50	3.50
d4	3.60	3.60	4.20	4.20	4.20	6.00	6.00	6.00
h	0.80	0.80	2.30	2.30	2.30	3.50	3.50	3.50
E	7.50	7.50	7.50	7.50	7.50	10.00	10.00	10.00
F	15.00	15.00	15.00	15.00	15.00	20.00	20.00	20.00
<b>Track Rail Mounting Bolt</b>	M2 x 6	M2 x 6	M2 x 6	M2 x 6	M2 x 6	M3 x 8	M3 x 8	M3 x 8
<b>Basic Dynamic Load Rating</b>								
C N	612.00	514.00	1200.00	856.00	1510.00	1610.00	1070.00	2080.00
<b>Basic Static Load Rating</b>								
Co N	1130.00	872.00	1960.00	1180.00	2750.00	2860.00	1540.00	4180.00
<b>Static Rated Moment</b>								
To Nm	3.00	2.30	7.20	4.30	10.00	13.30	7.20	19.40
Tx Nm	2.40	1.40	4.90	1.90	9.10	9.40	3.00	19.40
Ty Nm	13.30	8.90	29.20	15.40	52.60	53.00	22.20	102.00
	2.00	1.20	4.10	1.60	7.70	7.90	2.50	16.30
	11.20	7.40	24.50	12.90	44.10	44.50	18.60	85.60

### Performance

Dim Variation Between Carriage Slides on Same Rail (Std. Grade): H = 0.015, N = 0.020

Dim Variation Between Carriage Slides on Same Rail (High Precision P Grade - P.O.A.): H = 0.007, N = 0.010

Parallelism in Operation Over: 100mm = 0.005mm, 250mm = 0.008mm, 500mm = 0.012mm, 1000mm = 0.018mm (A to C and D to B).

A higher tolerance grade is available. P.O.A.

Load Direction: If upward or downward, as table. If lateral, dynamic x 1.13 C, Static x 1.19 Co.

Dynamic Rating: From a group of the same slide units, 90% achieve a distance of 50 x 10<sup>3</sup> metres.

For temperatures over 100°C (max. 120°C) we can supply special high temperature grease (clean room quality supplied in syringe) **CG2-SY : £31.80**

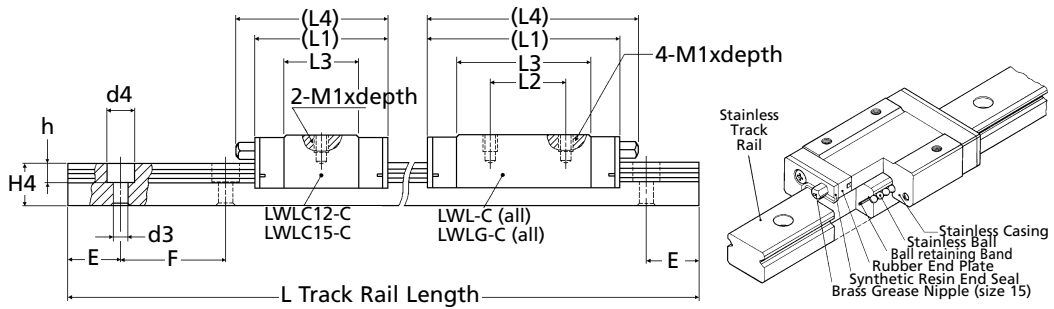
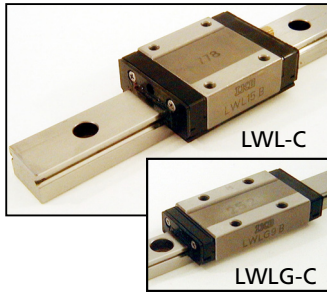
Preload is available (To) zero to minimal clearance, zero to minimal preload, (T1) 0.02 Co preload.

**LWL  
LWL-C  
LWLC-C  
LWLG-C**

# LINEAR MOTION

## Precision Linear Slides - Stainless

L-Series Non Ball Retained - 2 Row 4 point Ball Contact



Part Number	L Track Rail Length	No. of Holes	Max. Length	Carriage (Slide Unit)	Price Each	
LWL12-50	50	3	1000 Special Lengths - P.O.A. Max end butt 1925mm	-	£30.52	
LWL12-100	100	4		-	£45.78	
LWL12-150	150	6		-	£62.03	
LWL12-200	200	8		-	£77.92	
LWL12-250	250	10		-	£100.72	
LWL12-300	300	12		-	£123.14	
LWL12-400	400	16		-	£167.06	
LWL12-500	500	20		-	£213.09	
LWL12-600	600	24		-	£268.83	
LWL12-700	700	28		-	£324.50	
LWL12-800	800	32		-	£380.25	
LWL12-900	900	36		-	£436.03	
LWL12-1000	1000	40		-	£483.18	
LWL12-C	Carriage (with oil hole H3)				Standard Type	£71.66
LWLC12-C	Carriage (with oil hole H3)			Short Type	£56.72	
LWLG12-C	Carriage (with oil hole H3)			High Rigidity long Type	£85.09	
LWL15-80	80	2	1000 Special Lengths - P.O.A. Max end butt 1880mm	-	£45.17	
LWL15-120	120	3		-	£60.76	
LWL15-240	240	6		-	£115.32	
LWL15-480	480	12		-	£238.15	
LWL15-600	600	15		-	£307.82	
LWL15-720	720	18		-	£381.97	
LWL15-800	800	20		-	£431.40	
LWL15-880	880	22		-	£480.87	
LWL15-960	960	24		-	£520.60	
LWL15-1000	1000	25		-	£554.99	
LWL15-C	Carriage				Standard Type	£77.92
LWLC15-C	Carriage				Short Type	£61.19
LWLG15-C	Carriage				High Rigidity long Type	£95.62

### Material

**Rail, Carriage & Balls:** Stainless Steel. Hardened Similar to 440c. **End Plates:** Synthetic Resin. **End Seals:** Rubber **Grease Nipple:** Brass (size 15)

### Performance

**Max. Speed:** 3m/sec. **Maximum Temperature:** +100°C (Constant), +120°C (Intermittent)

### Other Info.

**Characteristics:** Easy handling (Ball retaining band structure, prevents balls falling out).

Easy maintenance. Smooth operation. Low noise. High accuracy. Long life. High reliability.

**Lubrication:** Every 6 months under general use. Every 3 months for daily use. Use a lithium-soap based grease. (Oil can be used).

When ordering track rail, please order carriages required (1, 2, 3, etc.) per rail. For example:

Standard slide assembly of 1 x LWL12-1000 rail and 2 x LWL12-C carriages = **LWL12-1000C2**

Short slide assembly of 1 x LWL15-720 rail and 2 x LWLC15-C carriages = **LWLC15-720C2**. Carriages and tracks are produced to suit each individual set.

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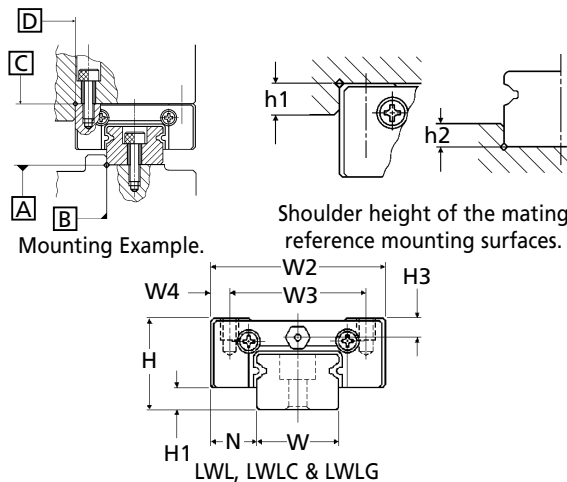
Product information updated 1st April 2011 and subject to change. Please contact Sales for the latest prices and availability.

# LINEAR MOTION

## Precision Linear Slides - Stainless

L-Series Non Ball Retained - 2 Row 4 point Ball Contact

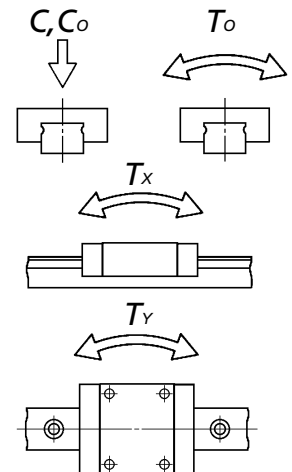
**LWL**  
**LWL-C**  
**LWLC-C**  
**LWLG-C**



Model Number	Slide Unit Shoulder Height h1	Track Rail Shoulder Height h2
LWL12	4.0	2.5
LWL15	4.5	3.0

Figures shown in  $T_o$  column and upper figures of all  $T_x$  and  $T_y$  of each model number apply to one slide unit as illustrated right. The values shown below the single case figures for  $T_x$  and  $T_y$  are for two slide units in close contact.

Dim. variation of H for multiple assembly sets :  
Std.: 0.030  
High Precision (P): 0.020



	Part Number					
	LWL12-C	LWLC12-C	LWLG12-C	LWL15-C	LWLC15-C	LWLG15-C
<b>Weight g</b>						
Carriage (Slide Unit)	35.00	22.00	51.00	64.00	42.00	95.00
Track Rail per 100mm	65.00	65.00	65.00	107.00	107.00	107.00
<b>Dimensions of Assembly mm</b>						
H ± 0.020 (Std.) (P=±0.010)	13.00	13.00	13.00	16.00	16.00	16.00
H1	3.00	3.00	3.00	4.00	4.00	4.00
N ± 0.025 (Std.) (P=±0.015)	7.50	7.50	7.50	8.50	8.50	8.50
<b>Dimensions of Slide Unit mm</b>						
W2	27.00	27.00	27.00	32.00	32.00	32.00
W3	20.00	20.00	20.00	25.00	25.00	25.00
W4	3.50	3.50	3.50	3.50	3.50	3.50
L1	34.00	25.00	44.00	42.00	32.00	57.00
L2	15.00	-	20.00	20.00	-	25.00
L3	21.60	13.00	32.00	27.80	17.70	42.70
L4	-	-	-	47.00	36.00	62.00
M1 x Depth (1.1Nm)	M3 x 3.5	M3 x 3.5	M3 x 3.5	M3 x 4.0	M3 x 4.0	M3 x 4.0
H3	2.70	2.70	2.70	3.10	3.10	3.10
<b>Dimensions of Track Rail mm</b>						
W	12.00	12.00	12.00	15.00	15.00	15.00
H4	8.00	8.00	8.00	10.00	10.00	10.00
d3	3.50	3.50	3.50	3.50	3.50	3.50
d4	6.50	6.50	6.50	6.50	6.50	6.50
h	4.50	4.50	4.50	4.50	4.50	4.50
E	12.50	12.50	12.50	20.00	20.00	20.00
F	25.00	25.00	25.00	40.00	40.00	40.00
<b>Track Rail Mounting Bolt (1.1Nm)</b>	M3 x 8	M3 x 8	M3 x 8	M3 x 10	M3 x 10	M3 x 10
<b>Basic Dynamic Load Rating</b>						
C N	2960.00	2000.00	3780.00	4390.00	3120.00	5750.00
<b>Basic Static Load Rating</b>						
Co N	4450.00	2470.00	6430.00	6730.00	4040.00	10100.00
<b>Static Rated Moment</b>						
To Nm	27.60	15.30	39.90	51.80	31.10	77.70
Tx Nm	16.00	5.50	31.80	30.80	12.10	66.20
	98.60	43.30	174.00	178.00	87.60	351.00
Ty Nm	13.40	4.70	26.70	25.90	10.20	55.60
	81.10	36.30	146.00	149.00	73.50	294.00

### Performance

Dim Variation Between Carriage Slides on Same Rail (Std. Grade): H = 0.015, N = 0.020

Dim Variation Between Carriage Slides on Same Rail (High Precision P Grade - P.O.A.): H = 0.007, N = 0.010

Parallelism in Operation Over: 100mm = 0.005mm, 250mm = 0.008mm, 500mm = 0.012mm, 1000mm = 0.018mm (A to C and D to B).

A higher tolerance grade is available. P.O.A.

**Load Direction:** If upward or downward, as table. If lateral, dynamic x 1.13 C, Static x 1.19 Co.

**Dynamic Rating:** From a group of the same slide units, 90% achieve a distance of 50 x 10<sup>3</sup> metres.

For temperatures over 100°C (max. 120°C) we can supply special high temperature grease (clean room quality supplied in syringe) **CG2-SY : £31.80**

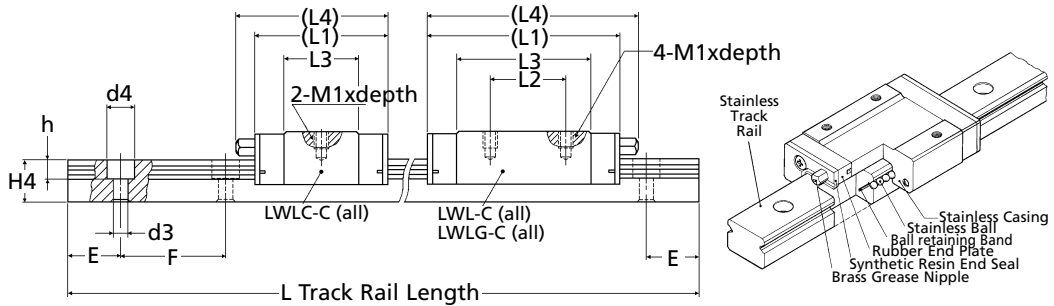
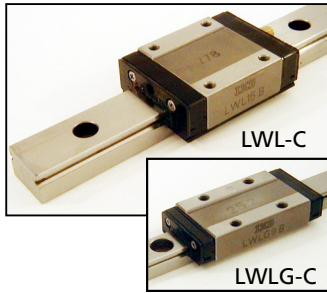
Preload is available (To) zero to minimal clearance, zero to minimal preload, (T1) 0.02 Co preload.

**LWL  
LWL-C  
LWLC-C  
LWLG-C**

# LINEAR MOTION

## Precision Linear Slides - Stainless

L-Series Non Ball Retained - 2 Row 4 point Ball Contact



Part Number	L Track Rail Length	No. of Holes	Max. Length	Carriage (Slide Unit)	Price Each	
LWL20-120	120	2	960 Special Lengths - P.O.A. Max end butt 1740mm	-	£66.99	
LWL20-180	180	3		-	£94.08	
LWL20-240	240	4		-	£120.28	
LWL20-360	360	6		-	£172.60	
LWL20-480	480	8		-	£228.79	
LWL20-540	540	9		-	£274.54	
LWL20-600	600	10		-	£312.58	
LWL20-660	660	11		-	£350.26	
LWL20-720	720	13		-	£388.40	
LWL20-840	840	14		-	£466.02	
LWL20-960	960	16		-	£524.33	
LWL20-1440	1440	24		-	£838.58	
LWL20-C	Carriage				Standard Type	£88.51
LWLC20-C	Carriage				Short Type	£68.95
LWLG20-C	Carriage				High Rigidity long Type	£105.26
LWL25-240	240	4		960 Special Lengths - P.O.A. Max end butt 1740mm	-	£P.O.A
LWL25-300	300	5	-		£171.20	
LWL25-360	360	6	-		£P.O.A	
LWL25-480	480	8	-		£P.O.A	
LWL25-660	660	11	-		£P.O.A	
LWL25-900	900	15	-		£P.O.A	
LWL25-C	Carriage				Standard Type	£P.O.A
LWLC25-C	Carriage				Short Type	£P.O.A
LWLG25-C	Carriage			High Rigidity long Type	£148.18	

### Material

**Rail, Carriage & Balls:** Stainless Steel. Hardened Similar to 440c. **End Plates:** Synthetic Resin. **End Seals:** Rubber **Grease Nipple:** Brass

### Performance

**Max. Speed:** 3m/sec. **Maximum Temperature:** +100°C (Constant), +120°C (Intermittent)

### Other Info.

**Characteristics:** Easy handling (Ball retaining band structure, prevents balls falling out).

Easy maintenance. Smooth operation. Low noise. High accuracy. Long life. High reliability.

**Lubrication:** Every 6 months under general use. Every 3 months for daily use. Use a lithium-soap based grease. (Oil can be used).

When ordering track rail, please order carriages required (1, 2, 3, etc.) per rail. For example:

Standard slide assembly of 1 x LWL20-240 rail and 2 x LWL20-C carriages = **LWL20-240C2**

Short slide assembly of 1 x LWL25-900 rail and 2 x LWLC25-C carriages = **LWLC25-900C2**. Carriages and tracks are produced to suit each individual set.

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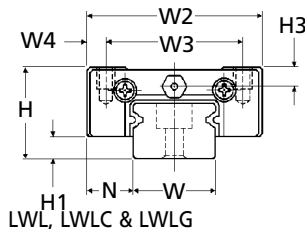
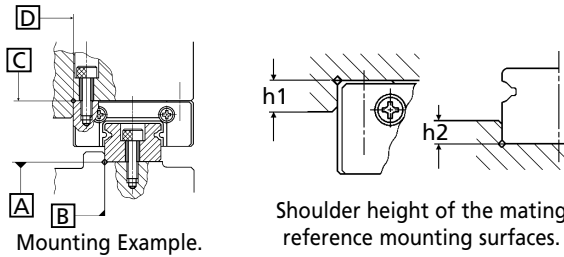
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# LINEAR MOTION

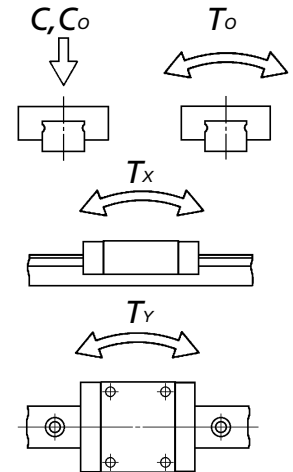
## Precision Linear Slides - Stainless

L-Series Non Ball Retained - 2 Row 4 point Ball Contact

LWL  
LWL-C  
LWLC-C  
LWLG-C



Model Number	Slide Unit Shoulder Height h1	Track Rail Shoulder Height h2
LWL20	5.0	4.0
LWL25	6.5	4.0



Figures shown in  $T_o$  column and upper figures of all  $T_x$  and  $T_y$  of each model number apply to one slide unit as illustrated right.

The values shown below the single case figures for  $T_x$  and  $T_y$  are for two slide units in close contact.

Dim. variation of H for multiple assembly sets :

Std.: 0.030

High Precision (P): 0.020

	Part Number					
	LWL20-C	LWLC20-C	LWLG20-C	LWL25-C	LWLC25-C	LWLG25-C
<b>Weight g</b>						
Carriage (Slide Unit)	133.00	89.00	196.00	310.00	190.00	413.00
Track Rail per 100mm	156.00	156.00	156.00	243.00	243.00	243.00
<b>Dimensions of Assembly mm</b>						
H ± 0.020 (Std.) (P=±0.010)	20.00	20.00	20.00	25.00	25.00	25.00
H1	5.00	5.00	5.00	5.00	5.00	5.00
N ± 0.025 (Std.) (P=±0.015)	10.00	10.00	10.00	12.50	12.50	12.50
<b>Dimensions of Slide Unit mm</b>						
W2	40.00	40.00	40.00	48.00	48.00	48.00
W3	30.00	30.00	30.00	35.00	35.00	35.00
W4	5.00	5.00	5.00	6.50	6.50	6.50
L1	50.00	38.00	68.00	78.00	55.00	98.00
L2	25.00	-	30.00	35.00	-	40.00
L3	34.60	22.30	52.30	55.70	31.90	75.50
L4	55.00	42.00	72.00	89.00	65.00	108.00
M1 x Depth	M4 x 6 (2.5Nm)	M4 x 6 (2.5Nm)	M4 x 6 (2.5Nm)	M6 x 7 (8.5Nm)	M6 x 7 (8.5Nm)	M6 x 7 (8.5Nm)
H3	4.20	4.20	4.20	5.00	5.00	5.00
<b>Dimensions of Track Rail mm</b>						
W	20.00	20.00	20.00	23.00	23.00	23.00
H4	11.00	11.00	11.00	15.00	15.00	15.00
d3	6.00	6.00	6.00	7.00	7.00	7.00
d4	9.50	9.50	9.50	11.00	11.00	11.00
h	5.50	5.50	5.50	9.00	9.00	9.00
E	30.00	30.00	30.00	30.00	30.00	30.00
F	60.00	60.00	60.00	60.00	60.00	60.00
<b>Track Rail Mounting Bolt</b>	M5x14 (5Nm)	M5x14 (5Nm)	M5x14 (5Nm)	M6x16 (8.5Nm)	M6x16 (8.5Nm)	M6x16 (8.5Nm)
<b>Basic Dynamic Load Rating</b>						
C N	5830.00	4070.00	7350.00	11600.00	8000.00	14200.00
<b>Basic Static Load Rating</b>						
Co N	9420.00	5490.00	13300.00	19200.00	11000.00	26100.00
<b>Static Rated Moment</b>						
To Nm	96.10	56.00	136.00	232.00	132.00	315.00
Tx Nm	54.60	20.20	106.00	169.00	59.50	304.00
	291.00	138.00	549.00	919.00	387.00	1530.00
Ty Nm	45.80	16.90	88.90	142.00	49.90	255.00
	244.00	116.00	461.00	771.00	324.00	1290.00

### Performance

Dim Variation Between Carriage Slides on Same Rail (Std. Grade): H = 0.015, N = 0.020

Dim Variation Between Carriage Slides on Same Rail (High Precision P Grade - P.O.A.): H = 0.007, N = 0.010

Parallelism in Operation Over: 100mm = 0.005mm, 250mm = 0.008mm, 500mm = 0.012mm, 1000mm = 0.018mm (A to C and D to B).

A higher tolerance grade is available. P.O.A.

**Load Direction:** If upward or downward, as table. If lateral, dynamic x 1.13 C, Static x 1.19 Co.

**Dynamic Rating:** From a group of the same slide units, 90% achieve a distance of 50 x 10<sup>3</sup> metres.

For temperatures over 100°C (max. 120°C) we can supply special high temperature grease (clean room quality supplied in syringe) **CG2-SY : £31.80**

Preload is available (To) zero to minimal clearance, zero to minimal preload, (T1) 0.02 Co preload.

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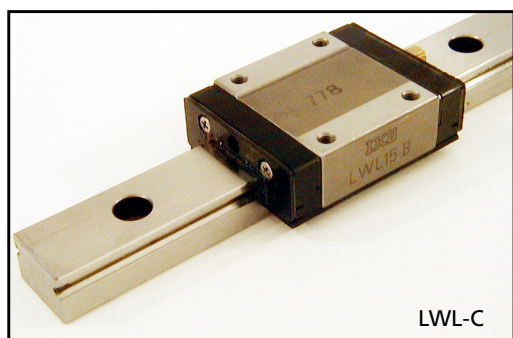
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**CLWL  
CLWL-C**

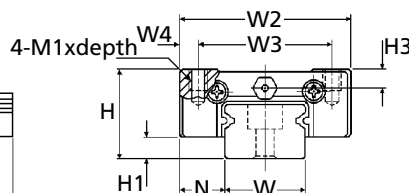
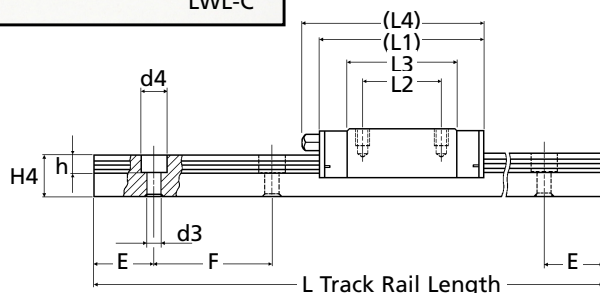
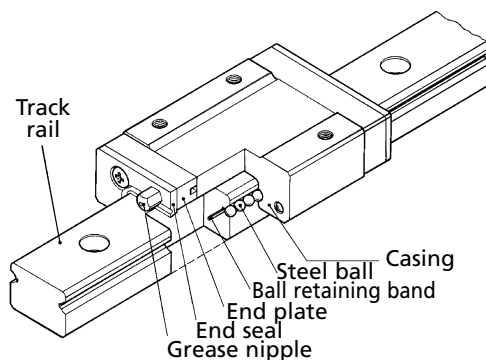
# LINEAR MOTION

## Precision Linear Slides

CL-Series Ball Retained



LWL-C



PART NUMBER	L Track Rail Length	No. of Holes	Max. Length	Carriage (Slide Unit)	Price Each
CLWL960	60	3	1000	-	£30.05
CLWL9120	120	6		-	£44.83
CLWL9240	240	12		-	£82.19
CLWL9480	480	24		-	£156.64
CLWL9720	720	36		-	£236.44
CLWL9-C	Carriage			Standard Slide	£53.91
CLWL1250	50	2	1500	-	£26.40
CLWL12100	100	4		-	£40.65
CLWL12200	200	8		-	£69.36
CLWL12400	400	16		-	£126.70
CLWL121000	1000	40		-	£315.35
CLWL12-C	Carriage			Standard Slide	£57.23
CLWL1580	80	2	1520	-	£31.02
CLWL15120	120	3		-	£42.96
CLWL15240	240	6		-	£78.80
CLWL15480	480	12		-	£155.21
CLWL15960	960	24		-	£336.77
CLWL15-C	Carriage			Standard Slide	£66.81
CLWL20120	120	2	1560	-	£47.91
CLWL20240	240	4		-	£96.06
CLWL20480	480	8		-	£189.09
CLWL20960	960	16		-	£378.76
CLWL201440	1440	24		-	£600.42
CLWL20-C	Carriage			Standard Slide	£73.57

### Material

Carbon Steel Hardened.

A minimum of 1 carriage per rail must be ordered

### Performance

Maximum Speed: 3m/sec.

Maximum Temperature: +100°C (Constant), +120°C (Intermittent)

### Other Info.

**Characteristics:** Easy handling (Ball retaining band structure, prevents balls falling out). Easy maintenance. Smooth operation. Low noise. High accuracy. Long life. High reliability.

**Lubrication:** Every 6 months under general use. Every 3 months for daily use. Use a lithium-soap based grease. (Oil can be used).

When ordering track rail, please order carriages required (1, 2, 3, etc.) per rail. For example: 1 x CLWL12100 rail and 2 x CLWL12-C carriages = **CLWL12100C2**  
Carriages and tracks are produced to suit each individual set.

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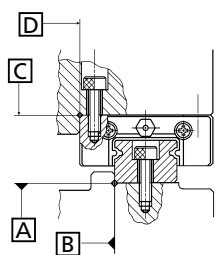
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# LINEAR MOTION

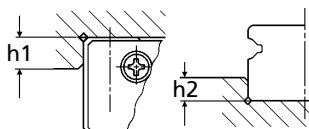
**CLWL  
CLWL-C**

## Precision Linear Slides

CL-Series Ball Retained



Mounting Example.

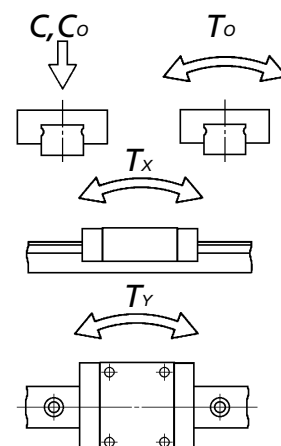


Shoulder height of the mating reference mounting surfaces.

Model Number	Slide Unit Shoulder Height h1	Track Rail Shoulder Height h2
CLWL 9	3.0	1.5
CLWL12	4.0	2.5
CLWL15	4.5	3.0
CLWL20	5.0	4.0

Figures shown in  $T_o$  column and upper figures of all  $T_x$  and  $T_y$  of each model number apply to one slide unit as illustrated right.

The values shown below the single case figures for  $T_x$  and  $T_y$  are for two slide units in close contact.



	Part Number			
	CLWL 9-C	CLWL 12-C	CLWL 15-C	CLWL 20-C
<b>Weight g</b>				
Carriage (Slide Unit)	19.00	35.00	64.00	133.00
Track Rail per 100mm	35.00	65.00	107.00	156.00
<b>Dimensions of Assembly mm</b>				
H ± 0.020	10.00	13.00	16.00	20.00
H1	2.00	3.00	4.00	5.00
N ± 0.025	5.50	7.50	8.50	10.00
<b>Dimensions of Slide Unit mm</b>				
W2	20.00	27.00	32.00	40.00
W3	15.00	20.00	25.00	30.00
W4	2.50	3.50	3.50	5.00
L1	30.00	34.00	42.00	50.00
L2	10.00	15.00	20.00	25.00
L3	20.80	21.60	27.80	34.60
L4	-	-	47.00	55.00
M1 x Depth	M3 x 3	M3 x 3.5	M3 x 4	M4 x 6
H3	2.20	2.70	3.10	4.20
<b>Dimensions of Track Rail mm</b>				
W	9.00	12.00	15.00	20.00
H4	6.00	8.00	10.00	11.00
d3	3.50	3.50	3.50	6.00
d4	6.00	6.50	6.50	9.50
h	3.50	4.50	4.50	5.50
E	10.00	12.50	20.00	30.00
F	20.00	25.00	40.00	60.00
<b>Track Rail Mounting Bolt</b>	M3 x 8	M3 x 8	M3 x 10	M5x14
<b>Basic Dynamic Load Rating</b>				
C kgf	160.00	300.00	450.00	590.00
<b>Basic Static Load Rating</b>				
Co kgf	290.00	450.00	690.00	960.00
<b>Static Rated Moment</b>				
To kgf•m	1.40	2.80	5.30	9.80
Tx kgf•m	0.96	1.60	3.10	5.60
	5.40	9.90	18.20	29.60
Ty kgf•m	0.81	1.40	2.60	4.70
	4.50	8.30	15.20	24.90

### Performance

**Dimension Variation Between Carriage Slides on Same Rail:** H = 0.015, N = 0.020

**Parallelism in Operation Over:** 500mm = 0.012mm, 1000mm = 0.018mm (A to C and D to B). A higher tolerance grade is available. P.O.A.

**Load Direction:** If upward or downward, as table. If lateral x 0.84.

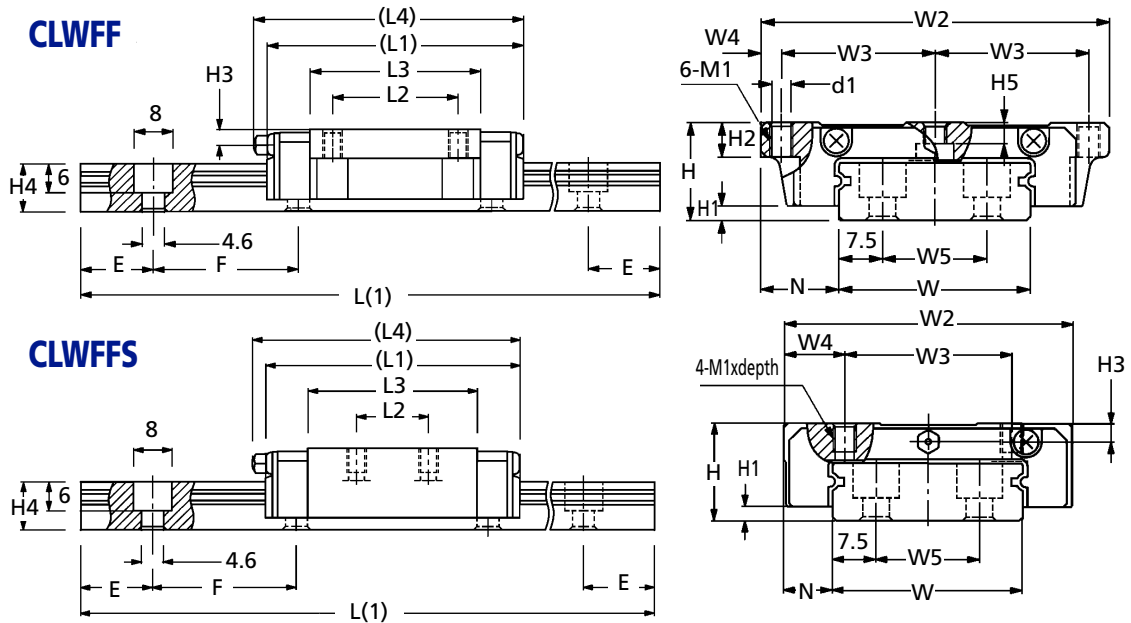
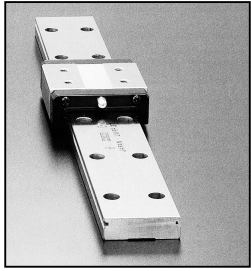
**Dynamic Rating:** From a group of the same slide units, 90% achieve a distance of 50 x 10<sup>3</sup> metres.

For temperatures over 100°C we can supply special high temperature grease (200°C - supplied in syringe) **CG2-SY : £31.80**

**CLWFF  
CLWFFS**

# LINEAR MOTION

## Precision Linear Slides F-Series Wide Rail Type



PART NUMBER	L Track Rail Length	No. of Holes	Max. Length	Carriage (Slide Unit)	Price Each	
CLWFF33120	120	3	1600	-	£86.20	
CLWFF33200	200	5		-	£111.68	
CLWFF33320	320	8		-	£151.75	
CLWFF33480	480	12		-	£210.89	
CLWFF33560	560	14		-	£242.29	
CLWFF33720	720	18		-	£309.55	
CLWFF33960	960	24		-	£420.68	
CLWFF331200	1200	30		-	£544.22	
CLWFF33-C	Carriage				Slide Unit	£111.13
CLWFFS33-C	Carriage				Slide Unit	£111.13
CLWFF37100	100	2	2000	-	£82.93	
CLWFF37150	150	3		-	£99.70	
CLWFF37250	250	5		-	£134.46	
CLWFF37400	400	8		-	£191.38	
CLWFF37500	500	10		-	£232.02	
CLWFF37600	600	12		-	£274.81	
CLWFF37800	800	16		-	£366.96	
CLWFF37900	900	18		-	£415.77	
CLWFF371000	1000	20		-	£467.29	
CLWFF371200	1200	24		-	£576.77	
CLWFF371400	1400	28	-	£694.38		
CLWFF371800	1800	36	-	£956.77		
CLWFF37-C	Carriage			Slide Unit	£116.58	
CLWFFS37-C	Carriage			Slide Unit	£116.58	

### Material

Carbon Steel Hardened.

### Performance

Maximum Speed: 3m/sec. Maximum Temperature: +100°C (Constant), +120°C (Intermittent)

### Other Info.

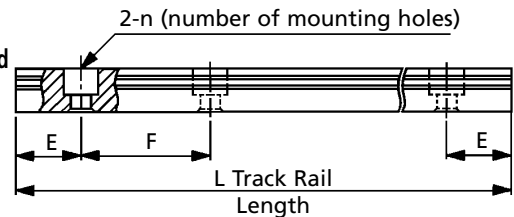
**Characteristics:** Easy maintenance. Excellent strength under moment and/or complex loads. Large load capacity in any direction. High accuracy with simple structure. High rigidity. Long life with high reliability. Smooth operation and low noise.

**Lubrication:** Every 6 months under general use. Every 3 months for daily use. Use a lithium-soap based grease. (Oil can be used).

When ordering track rail, please order carriages required (1, 2, 3, etc.) per rail.

For example: 1 x CLWFF37100 and 2 x CLWFF37-C Carriages and tracks are produced to suit each individual set.

A minimum of 1 carriage per rail must be ordered



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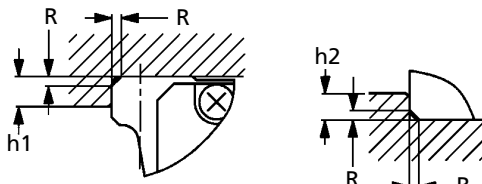
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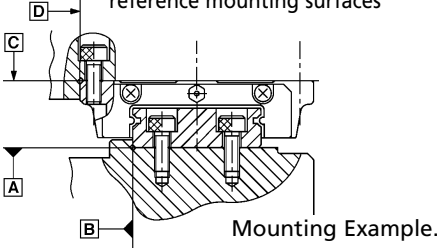
# LINEAR MOTION

**CLWFF  
CLWFFS**

## Precision Linear Slides F-Series Wide Rail Type

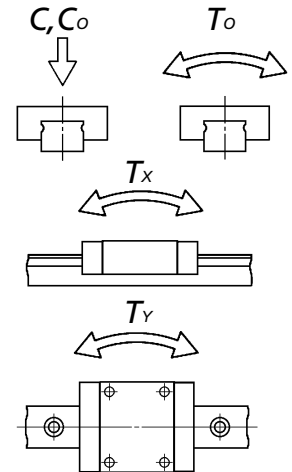


Corner radius and shoulder heights of the mating reference mounting surfaces



Model Number	Slide Unit Shoulder Height h1	Track Rail Shoulder Height h2	Corner Radius R (max)
CLWLFF33	4.0	2.0	0.4
CLWLFS33	4.0	2.0	0.4
CLWLFF37	5.0	2.5	0.4
CLWLFS37	5.0	2.5	0.4

Figures shown in  $T_o$  column and upper figures of all  $T_x$  and  $T_y$  of each model number apply to one slide unit as illustrated right. The values shown below the single case figures for  $T_x$  and  $T_y$  are for two slide units in close contact.



	Part Number			
	CLWFF33	CLWFF37	CLWFFS33	CLWFFS37
<b>Weight g</b>				
Carriage (Slide Unit)	14.00	23.00	13.00	20.00
Track Rail per 100mm	241	305	241	305
<b>Dimensions of Assembly mm</b>				
H ± 0.040	17.0	21.0	17.0	21.0
H1	2.5	3.0	2.5	3.0
N ± 0.050	13.5	15.5	8.5	8.5
<b>Dimensions of Slide Unit mm</b>				
W2	60.0	68.0	50.0	54.0
W3	26.5	30.0	29.0	31.0
W4	3.5	4.0	10.5	11.5
L1	53.5	62.0	53.5	62.0
L2	26.0	29.0	15.0	19.0
L3	35.3	40.0	35.3	40.0
L4	56.0	66.0	56.0	66.0
d1	3.3	4.4	-	-
M1 x Depth	M4	M5	M4 x 5	M5 x 6
H2	6.0	8.0	-	-
H3	3.20	4.00	3.20	4.00
H5	3.7	4.5	-	-
<b>Dimensions of Track Rail mm</b>				
W	33.0	37.0	33.0	37.0
H4	10.0	11.5	10.0	11.5
W5	18.0	22.0	18.0	22.0
E	20.0	25.0	20.0	25.0
F	40.0	50.0	40.0	50.0
<b>Track Rail Mounting Bolt</b>	M4 x 10	M4 x 12	M4 x 10	M4 x 12
<b>Basic Dynamic Load Rating</b>				
C kgf	600	900	600	900
<b>Basic Static Load Rating</b>				
Co kgf	910	1290	910	1290
<b>Static Rated Moment</b>				
To kgf•m	15.5	24.9	15.2	24.9
Tx kgf•m	5.2	8.5	5.2	8.5
	30.6	50.3	30.6	50.3
Ty kgf•m	5.2	8.5	5.2	8.5
	30.6	50.3	30.6	50.3

### Performance

**Dimension Variation Between Carriage Slides on Same Rail:** H = 0.015, N = 0.020

**Parallelism in Operation Over:** 500mm = 0.013, 1000mm = 0.019 (A to C and D to B). A higher tolerance grade is available. P.O.A.

**Load Direction:** If upward or downward, as table. If lateral x 0.84.

**Dynamic Rating:** From a group of the same slide units, 90% achieve a distance of 50 x 10<sup>3</sup> metres.

For temperatures over 100°C we can supply special high temperature grease (200°C - supplied in syringe) **CG2-SY : £31.80**

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Product information updated 1st April 2011 and subject to change. Please contact Sales for the latest prices and availability.

# LINEAR MOTION

## Precision Linear Slides

LWL, CLWL & CLWFF Type (L, CL & F Series)

T  
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C  
H  
N  
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A  
L

### LOAD RATING

**Basic dynamic load rating** is defined as a load whose direction and magnitude are constant and under which 90% of a group of the same slide units of Linear Way L series Ball Retained Type can travel  $50 \times 10^3 \text{m}$  without suffering from material damage due to rolling contact fatigue, when they are individually operated.

**Basic static load rating** is defined as a static load which gives a prescribed contact stress at the centre of contact area between the rolling element and the raceway which are receiving maximum load.

**Static rated moment** is defined as a static moment which gives a prescribed contact stress at the centre of contact area between the rolling element and raceway which are receiving maximum load under moment load.

1 kgf = 9.807N = 2.2046 lbs    1mm = 0.03937 inch.

### LUBRICATION

A good quality No. 2 lithium-soap base grease is supplied in Linear Way L series Ball Retained Type on delivery. However, the quality of any grease will gradually deteriorate as operating time passes. Therefore, periodic relubrication is necessary. It is generally recommended that the grease is re-applied every six months under general usage and every three months for the daily operation consisting of many cycles and long strokes. Use of lithium-soap base grease is recommended for general use. Relubrication will be made by applying grease to the grease nipple or oil hole prepared in the slide unit. Lubricating oil, such as turbine oil and spindle oil, can also be used.

### MOUNTING

To mount the Linear Way L series Ball Retained Type, correctly fit the reference mounting surfaces of the slide units and track rails onto the mating reference mounting surfaces of the table and the bed, and then fix them tightly.

#### Reference mounting surface

The slide unit reference mounting surface is always the side surface opposite to the IKO mark.

The trade rail reference mounting surface is identified by locating the IKO mark etched on the top surface of the track rail. The rail reference mounting surface is always the side surface above the IKO mark indicated by the arrow. See figs.1 & 2.

#### Assembling

Balls in the Linear Way L series Ball Retained Type are retained in the slide unit. Thus, the slide unit can be separated from the track rail. As the slide unit and the track rail are matched to ensure the accuracies do not mix with other slide units and track rails when they are separated. Balls of LWL 5 are not retained, so do not separate the slide unit from the track rail.

Steel ball holders which prevent falling out of balls and offer easy assembling are prepared. When the steel ball holder is required, please consult us.

### CAUTION IN USING

**1. When two or more slide units are mounted close to each other on a same mounting surface or in a same structure:**

An excessive load greater than the theoretically calculated load may act on the rolling guide according to the accuracy of the mounting surface and reference mounting surface of the machine. In such cases, select a rolling guide that can withstand a larger load than the calculated load.

**2. General mounting example**

Fig.2 shows the general method of mounting the Linear Way L series. The reference mounting surfaces B and D and the mounting surface A and C of the Linear Way L series are finely finished by grinding. Therefore, by mounting surfaces of the machine accurately and by fitting the Linear Way L series to these surfaces correctly, stable and smooth linear motion can be achieved.

Fig.1

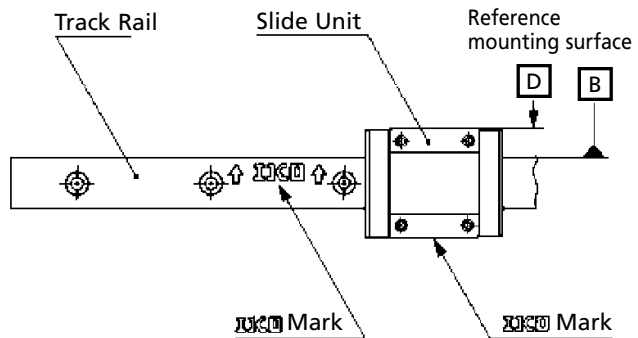
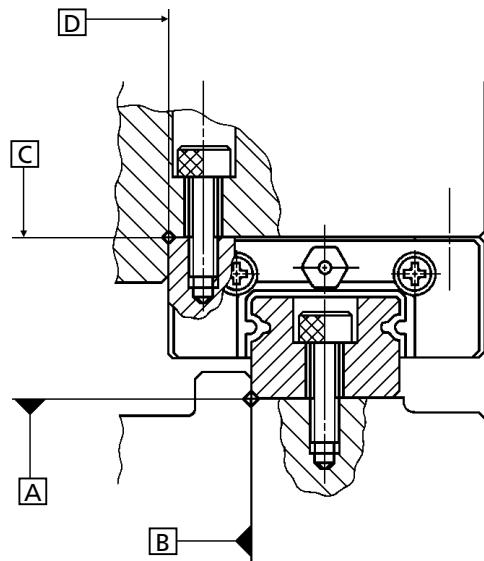


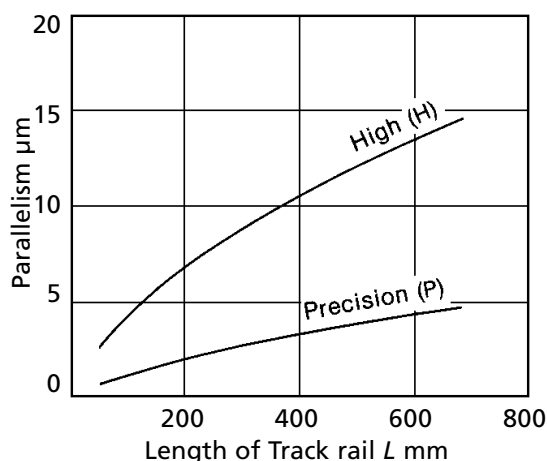
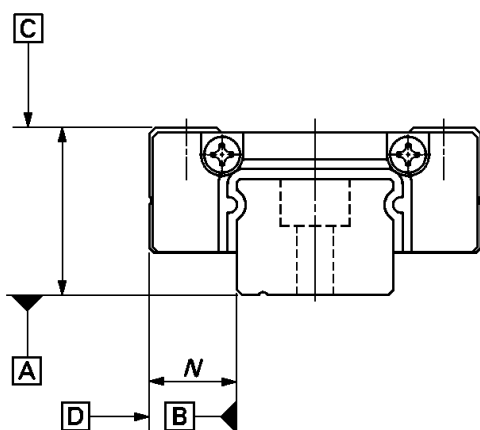
Fig.2



# LINEAR MOTION

## Precision Linear Slides

LWL, CLWL & CLWFF Type (L, CL & F Series)



### ACCURACY

Accuracies for Linear Ways L series are shown in the above graph and the table below.

Item	Classification (Symbol)	
	High (H) Standard	Precision (P) Special
Dim. <i>H</i> tolerance	±0.020	±0.010
Dim. <i>N</i> tolerance <sup>(3)</sup>	±0.025	±0.015
Dim. variation of <i>H</i> <sup>(1)</sup>	0.015	0.007
Dim. variation of <i>N</i> <sup>(2) (3)</sup>	0.020	0.010
Parallelism in operation of C to A	See Preload table below	
Parallelism in operation of D to B	See Preload table below	

**Notes:** (1) Dimensional variation of dimension *H* means the size variation between slide units mounted on the same track rail or on matched track rails.

(2) Dimensional variation of dimension *N* means the size variation between slide units mounted on the same track rail.

(3) These values also apply to Linear Way L series which have opposite reference surface arrangements.

### PRELOAD

Average amount of preload for Linear Way L series are shown below.

Preload Class	Symbol	Preload amount (kgf)	Application
Clearance	To	0 (1)	• Extremely smooth motion
Standard Preload	(no symbol)	0 (2)	• Smooth and precise motion
Light Preload	T1	0.02 <i>C</i> <sub>0</sub>	• Minimum vibration • Load is equally balanced.

**Notes:** (1) Zero or minimal amount of clearance. **Remarks:** *C*<sub>0</sub> means basic static load rating.

(2) Zero or minimal amount of preload.

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