

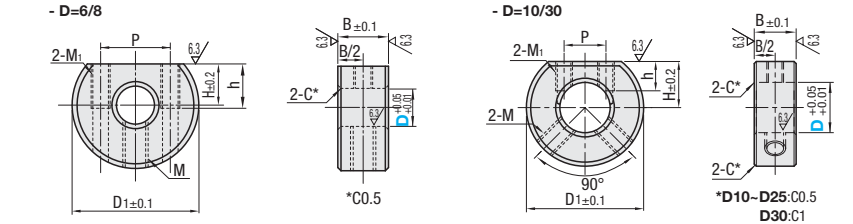
Shaft Collars -D Cut Standard / D Cut Compact (For Space Saving)- -Set Screw Flat Type / Clamp Type / Split Type-

CAD Data

Features: Mounting holes on side enable easy installation of sensor brackets. EN AW-2017 (aluminum) is recommended for weight savings.

Standard Set Screw Flat Type

Type	Material	Surface Treatment	Accessory
SDSN	1.0038	Black Oxide Coating	2 Set Screws
PSDSN	(1.1191)	Electroless Nickel Plating	2 Set Screws
SSDSN	1.4301	-	2 Set Screws (JIS SUS)



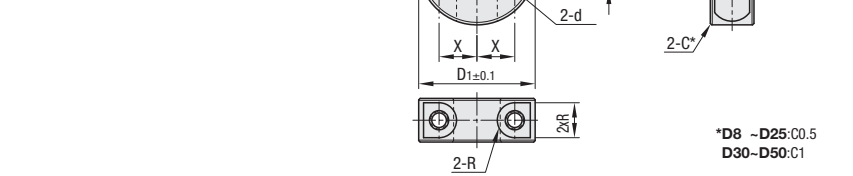
Type	Material	Surface Treatment	Accessory
SDS	1.0038	Black Oxide Coating	Hexagon Socket Head Cap Screw 1 pc.
PSDS	(1.1191)	Electroless Nickel Plating	Hexagon Socket Head Cap Screw 1 pc.
SSCDS	1.4301	-	Hexagon Socket Head Cap Screw 1 pc. (JIS SUS)
SDSA	EN AW-2017	-	-

- 1.0038/S235JR / 1.4301/X5CrNi18-10	
D	Z
8	8
10	10
12	10
13	10

- EN AW-2017/AlCu4MgSi	
D	Z
8	8
10	10
12	10
15	12
16	12
20	13
25	16
30	18

The Slitting is applicable to D8-13 only.

Type	Material	Surface Treatment	Accessory
SDN	1.0038	Black Oxide Coating	Hexagon Socket Head Cap Screw 2 pcs.
PSDN	(1.1191)	Electroless Nickel Plating	Hexagon Socket Head Cap Screw 2 pcs.
SSCDN	1.4301	-	Hexagon Socket Head Cap Screw 2 pcs. (JIS SUS)
SDNA	EN AW-2017	-	-



Standard Clamp Type



Part Number Type	D	D1	B	H	M1	P	h	Set Screw M x Length	€ Unit Price		
									SDSN	PSDSN	SSDSN
(Set Screw Type)	6	20		6.5		11					
	8	22	8	7	M3	13	7	M4x4			
	10	25		10		8					
	12	28		11							
	15	30	10	12.5	M4	10	5	M5x6			
	20	35		15							
	25	42	12	18	M5	12	6	M6x6			
	30	45		20			5				

M1 effective thread depth is 7mm (pilot hole through) for D6-12.

Part Number Type	D	D1	B	M (Coarse Thread)	d	R	H	M1	P	h	W	X	Y	€ Unit Price			
														SDS	PSDS	SSCDS	SDSA
(Clamp Type)	*8	30					13	M3	8			10					
	*10						15	M4	10	7		11.5	6				
	*12	35			M5	5.5	4.5										
	13																
	*15	40						17		12		1.5	13	8			
(Split Type)	*16	40	15					M5									
	18	45							15	9		15					
	*20				M6	7	6					18	10				
	*25	50							20			18					
	*30	55						23.5		10		20	10				
	35	60						26	M6	23		23	12				
	40	70	18			M8	9	7		30	12	26	13				
	50	85	22			M10	11	9	37	M8	28	13	3.0	32	16		

1.0038/S235JR effective thread depth is 7mm (pilot hole through) for D8-15. For others, holes are complete threads.

M1 effective thread depth is 7mm (pilot hole through) for 1.4301/X5CrNi18-10-12 and D15-18. For others, holes are complete threads.

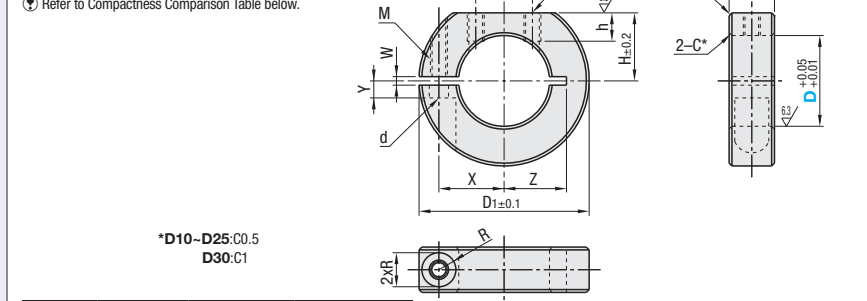
The halves must remain in the same orientation as shipped when in use.

Features: Smaller by up to 46% in width (B dimension) and 22% in outer diameter (D1 dimension) than D Cut Standard Type (P.265).

Compact Clamp Type

Type	Material	Surface Treatment	Accessory
SDSJ	1.1191/C45E	Black Oxide Coating	Hexagon Socket Head Cap Screw 1 pc.
PSDSJ		Electroless Nickel Plating	Hexagon Socket Head Cap Screw 1 pc.
SSCDSJ	1.4301	-	Hexagon Socket Head Cap Screw 1 pc. (JIS SUS)

Refer to Compactness Comparison Table below.

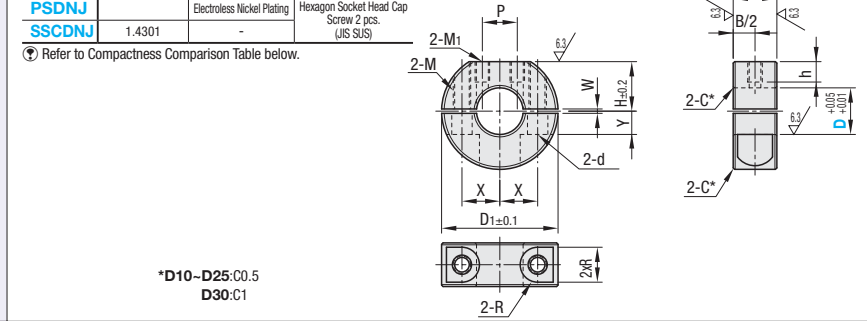


*D10-D25:C0.5 D30:C1

Compact Split Type

Type	Material	Surface Treatment	Accessory
SDNJ	1.1191/C45E	Black Oxide Coating	Hexagon Socket Head Cap Screw 2 pcs.
PSDNJ		Electroless Nickel Plating	Hexagon Socket Head Cap Screw 2 pcs.
SSCDNJ	1.4301	-	Hexagon Socket Head Cap Screw 2 pcs. (JIS SUS)

Refer to Compactness Comparison Table below.



*D10-D25:C0.5 D30:C1

Part Number Type	D	B Selectable	D1	M (Coarse Thread)	d	R	W	X	Y	Z	M1	H	h	P	€ Unit Price						
															Clamp Type		Split Type				
															SDSJ	PSDSJ	SSCDSJ	SDNJ	PSDNJ	SSCDNJ	
(Clamp Type)	10							9	5	8~10				8							
	12		30	M3	3.4	3		10		9~10											
	15	8						11	3	11	M3										
	16						1.5	11.5					4.8	10							
(Split Type)	20		35					13	5	13											
	25	10	42	M4	4.5	3.75		16.5		16.5	M4										
	30	12	50	M5	5.5	4.5		20	6	20											

The halves must remain in the same orientation as shipped when in use.

Order Example: Part Number - B
SDNJ10 - 8
SDSJ16 - 8
SDS10



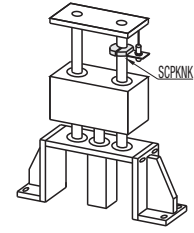
Days to Ship: 6 Days P87

2 Days

Price: Volume Discount (Round down to one Cent.) P87 - Others

Quantity	1-29	30-39	40-49	50-99
Discount Rate	€ Unit Price	5%	10%	18%
Days to Ship	Standard	To be quoted		

For orders larger than indicated quantity, please request a quotation.



Compactness Comparison Table

D	Size Differences		Compact		Standard (P.265)	
	B (Thickness)	D1 (Outer Dia.)	B (Thickness)	D1 (Outer Dia.)	B (Thickness)	D1 (Outer Dia.)
10	-7	-5	8	30	15	35
12	-7	-5	8	30	15	35
15	-7	-10	8	30	15	40
16	-7	-10	8	30	15	40
20	-7	-10	8	35	15	45
25	-5	-8	10	42	15	50
30	-3	-5	12	50	15	55

- SSDSN · SDNA · SSCDSJ · SSCDNJ

Quantity	1-29	30-39	40-49	50-99
Discount Rate	€ Unit Price	5%	10%	15%
Days to Ship	Standard	To be quoted		

For orders larger than indicated quantity, please request a quotation.

Linear Bushings · Ball Splines

Linear Bushings/ Ball Splines



Product Name Linear Bushings -Various Grease Application Services- Linear Bushings with Lubrication Unit MX -Straight-
Page 272 274



Flanged Linear Bushings with Lubrication Unit MX Center Flanged Linear Bushings with Lubrication Unit MX
274 275



Linear Bushings with Lubrication Unit MX -Flanged with Pilot- Linear Bushings with Lubrication Unit MX with Tall Blocks Linear Bushings with Lubrication Unit MX with Wide Blocks
276 277 277



Linear Bushings Straight Linear Bushings Straight Compact
278,279,281 280



Flanged Linear Bushings Medium Type Flanged Linear Bushings Single Flanged Linear Bushings Compact Single
281,282 283 284



Flanged Linear Bushings Double Flanged Linear Bushings Compact Double Flanged Linear Bushings with Grease Fitting Mini-Flanged Linear Bushings Height-Adjusting Spacers for Flanged Linear Bushings
285 286 287 287 288



Spacers Fixing Plates Flanged Linear Bushings Single with Pilot Flanged Linear Bushings Compact Single with Pilot Flanged Linear Bushings Single with Female Thread Hole
288 288 289 290 290



Flanged Linear Bushings Double with Pilot Flanged Linear Bushing Compact Double with Pilot Flanged Linear Bushings Double with Pilot and Female Thread Holes Center Flanged Linear Bushings
291 292 292 293



Flanged Linear Bushings Compact Flanged Linear Bushings with Female Thread Holes Flanged Linear Bushings Long Linear Bushings with Tall Blocks
294 294 295,296 297-299



Linear Bushings with Compact Tall Blocks Shaft-sliding Linear Bushings with Housing Units Linear Bushings with Tall Blocks with Dowel Holes Linear Bushings with Wide Blocks with Dowel Holes
297,298 300 301 302



Linear Bushings with Wide Blocks Linear Bushings with Tall Blocks with Clamp Lever Linear Bushings with Wide Blocks with Clamp Lever Flanged Linear Bushings with Clamp Lever
303,304 305 306 307



Linear Ball Bushings Ball Splines-Standard- -Both Ends Female Thread- -One End Female Thread- -Both Ends Stepped Type-
308 312 313 313 314



-One End Stepped- -Both Ends Stepped and Male Thread- -Both Ends Stepped and Female Thread- -One End Stepped and Male Thread- -One End Male Thread and Stepped, One End Female Thread-
314 315 315 316 316



Miniature Ball Bearing Guide Sets Shafts for Miniature Ball Bearing Guides Miniature Ball Guide Bushings Ball Sliders Needle Roller Guide Set
317-319 319,320 321,322 322 324

Linear Bushings Overview

Linear Bushings Selection Table by Shape and Material

Linear Bushings with Lubrication Unit MX Features: Built-in lubrication unit constantly supplies proper amounts of lubricant as needed, prolonging system life and long time maintenance-free operation.

Type				Diagram	Material of Bushing Outer Cylinder				Page Listed
Shape	Length	Outer Dia.	Standard		1.3505/100Cr6		Surface Treatment of Bushing		
					-		Electroless Nickel Plating		
					Material of Retainer				
				Plastic					
Straight	Single Double	Standard							P.274
Standard Flange	Single Double	Standard							P.274 - 275
Pilot Flanged Type	Single Double	Standard							P.276
Center Flanged Type	Double	Standard							P.275
Linear Bushings with Housing Units Tall Blocks	Single Double	Standard							P.277
Linear Bushings with Housing Units Wide Blocks	Single Double	Standard							P.277

Linear Bushings Features: Utilizes the rolling motion of steel balls to produce infinite linear motion travels.

Type				Diagram	Material of Bushing Outer Cylinder								Page Listed
Shape	Length	Outer Dia.	Standard		1.3505/100Cr6		1.4125/X105CrMo17		1.3505/100Cr6		1.3505/100Cr6		
					Surface Treatment of Bushing				Material of Retainer				
					-				Electroless Nickel Plating				
				Plastic				Plastic					
Straight	Short	Standard											P.278
	Single	Compact											P.280
		Standard											P.279
	Middle	Standard											P.281
		Compact											P.280
	Double	Standard											P.279
Standard												P.279	
Mini-Flanged	Single	Standard											P.287
	Single	Compact											P.284
Standard Flange	Single	Standard											P.283
	Middle	Standard											P.281
Pilot Flanged Type	Double	Compact											P.286
		Standard											P.285
	Long	Standard											P.295
		Standard											P.290
Standard Flange	Single	Compact											P.289
		Standard											P.290
	Middle	Standard											P.282
		Compact											P.292
	Double	Standard											P.291
		Standard											P.292
Long	Standard											P.295	
	Long with Pilot	Standard											P.296
Center Flanged Type	Middle	Standard											P.282
		Compact											P.294
	Double	Standard											P.293
Standard												P.294	

Pillow Block Type Features: A linear bushing is housed in an aluminum body. Contributes to parts count and manufacturing step reductions.

Type				Diagram	Block Material, Surface Treatment: Aluminum Alloy, Clear Anodizing				Page Listed
Shape	Length	Outer Dia.	Dowel Hole		Material of Bushing Outer Cylinder		Surface Treatment of Bushing		
					1.3505/100Cr6		1.4125/X105CrMo17		
					Material of Retainer				
				Plastic					
Linear Bushings with Housing Units Tall Blocks	Single	Compact	-						P.297
		Standard	-						P.297
	Middle	Standard	-						P.301
		Standard	-						P.299
	Double	Compact	-						P.298
		Standard	-						P.298
	Medium Long	Standard	-						P.301
		Standard	-						P.299
	Long	Standard	-						P.299
		Standard	-						P.301
Linear Bushings with Housing Units Wide Blocks	Single	Standard	-						P.303
		Standard	-						P.302
	Middle	Standard	-						P.303
		Standard	-						P.303
	Double	Standard	-						P.304
		Standard	-						P.302
Medium Long	Standard	-						P.304	
	Standard	-						P.304	
Long	Standard	-						P.304	
	Standard	-						P.302	
Shaft-sliding Housing Unit Type	Single	Standard	-						P.300
	Double	Standard	-						P.300

Linear Bushings with Clamp Lever Features: Ability to clamp at desired adjusted position enables reduction of machine parts count and part manufacturing work loads.

Type				Diagram	Material of Bushing Outer Cylinder				Page Listed
Shape	Length	Outer Dia.	Standard		1.3505/100Cr6		Surface Treatment of Bushing		
					-		Electroless Nickel Plating		
					Material of Retainer				
				Plastic					
Standard Flange	Single	Standard							P.307
	Double	Standard							P.307
Linear Bushings with Housing Units Linear Bushings with Tall Blocks	Single	Standard							P.305
	Double	Standard							P.305
Linear Bushings with Housing Units Linear Bushings with Wide Blocks	Single	Standard							P.306
	Double	Standard							P.306

Linear Ball Bushings Features: Rolling ball bearings enable both linear and rotary motions.

Type				Diagram	Surface Treatment of Bushing				Page Listed
Shape	Length	Outer Dia.	Standard		Material of Bushing Outer Cylinder		Material of Retainer		
					1.3505/100Cr6		1.4125/X105CrMo17		
					EN AW-5052/AlMg2.5				
Linear Ball Bushings Straight	Single Double	Standard							P.308
Linear Ball Bushings Standard Flange	Single Double	Standard							P.308

Linear Bushings

-Features / Antirust Performance Comparison Test / Various Grease Application Services-

Features

Linear Bushings utilize the rolling motion of steel balls to produce infinite linear motion travels. They are capable of linear motion with high accuracy and low friction, and widely used for parts of semiconductor, electronic parts, and food package machinery, etc.

Lubrication

Although MISUMI Linear Bushings, except for Lubrication Unit MX type, are coated with rust protection oil which hardly affect the effect of lubricant such as grease at the time of delivery, use with grease applied after cleaning and drying is recommended. Apply grease to the rows of balls on inner surface of linear bushing before use and repeat it appropriately. In addition to Lubrication Unit MX type, MISUMI provides L, G and H greased type.

Shaft Fits

For MISUMI linear bushings, use in combination with MISUMI shafts (hardened with g6 tolerance) is recommended (Normal clearance fit).

* Shaft **P.107~**

Reference: Tolerance range of linear bushing and shafts made by MISUMI

Dimension (mm)	Linear Bushings Single Type (LMU) Inner Diameter Tolerance	Shaft (SFJ) Outer Diameter Tolerance (g6)
0		
-0.001		
-0.002		
-0.003		
-0.004		
-0.005		
-0.006		
-0.007		
-0.008		
-0.009		
-0.010		
-0.011		
-0.012		
-0.013		
-0.014		
-0.015		
-0.016		
-0.017		
-0.018		
-0.019		
-0.020		
-0.021		
-0.022		
-0.023		
-0.024		
-0.025		

Allowable Load

-Basic Dynamic Load Rating (C)
Basic Dynamic Load rating is defined as: A load applied and ran under equal condition on a group of linear system specimen where 90% of specimen will reach 50×10^3 m without experiencing any flaking of rolling surfaces due to rolling fatigues.

-Basic Static Load Rating (Co)
Basic Static Load rating is defined as: A load applied on non-moving linear guides where a sum of rolling element plastic deformation amount and rolling surface plastic deformation amount becomes equal to 0.0001 times that of the diameter of the rolling element (balls).

Operating Life

Rated Life can be obtained from the Basic Dynamic Load Rating and the actual load applied on the linear bushings, as shown below.

$$L = \left(\frac{f_H \cdot f_T \cdot f_C}{f_w} \cdot \frac{C}{P} \right)^3 \cdot 50$$

L : Rated Life (km) fw : Load Factor (Refer to Table 4)
C : Basic Dynamic Load Rating (N) fh : Hardness Factor (Refer to Figure 1)
P : Applied Load (N) ft : Temperature Factor (Refer to Figure 2)
fc : Contact Factor (Refer to Table 3)

P.1902

Life hours can be obtained by calculating travel distance per hour. When stroke length and stroke cycles are fixed, see the equation below.

* Fig. 1 · Fig. 2 · Table 3 · Table 4 **P.1902**

$$Lh = \frac{L \cdot 10^3}{2 \cdot \ell_s \cdot n \cdot 60}$$

Lh: Life Hours (hr) ℓs: Stroke Length (m) L: Rated Life (km)
N: Reciprocating cycles per Minute (cpm)

Antirust Performance Comparison Test (Reference)

<Testing Method>
Salt water spray testing method conforms to JIS H8502.
(Spray 35°C, 5%NaCl Solution)

<Testing Sample>
Round Flanged Linear Bushings-Single Type-

Appearance of test piece 72 hr, 168 hr before test

	1.3505/100Cr6	1.4125/X105CrMo17	Electroless Nickel Plating	LTBC
Before test				
72 hr				
168 hr				

Various Grease Application Services

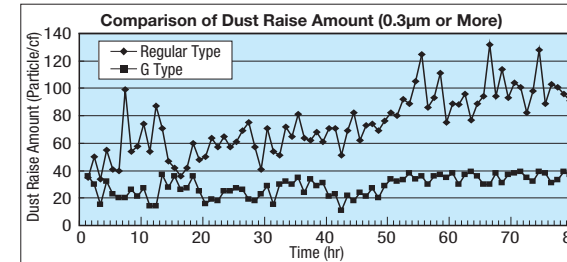
MISUMI linear bushings, except for Lubrication Unit MX type, are coated with rust protection oil, but not greased. By selecting from the following greases, you can order pre-greased type. Selecting **L** or **G** type enables great reduction of particle generation by grease dispersion in operation (See comparison of particle generation amount below). Additionally, the **H** type (NSFH-1 Attestation) can be used in the situation which has the possibility of inadvertent contacts with foods. Safety is assured even if grease contacts the foods.

Type	Product Name	Main Features
L Type	ET-100K (Made by Kyodo Yushi)	High heat resistance and oxidation stability. Also high adhesion and cohesion with limited splash or leakage.
G Type	LG2 (Made by NSK Ltd.)	Suitable for clean environment due to low particle generation grease. Highly resistant to corrosion.
H Type	FGL (Lubriplate®)	Formulated to meet increased demands of the food, beverage and pharmaceutical industries. (NSF H-1 Registration No.043534)

Grease Performance

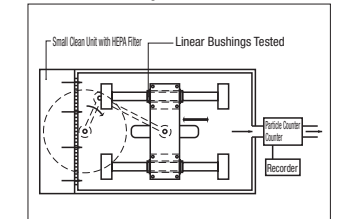
Item	Conditions	Unit	Measurement Method	L Type	G Type	H Type	
Grease Performance	Thickener	-	-	Aromatic Diurea	Lithium Type	Aluminum Complex Soap	
	Base Oil	-	-	Ether Synthetic Oil	Mineral Oil+Synthetic Hydrocarbon Oil	USP White Oil	
	Base Oil Kinetic Viscosity	40°C	mm²/s	JIS K2220 5.19	103	30	105
		100°C			12.8	-	11.5
	Miscible Consistency	-	-	JIS K2220 5.3	280	207	310
	Dropping Point	-	°C	JIS K2220 5.4	<260	200	238
	Evaporation Amount	99°Cx22hr	wt%	-	0.15%	1.40%	0.27% (ASTMD-972)
	Oil Separation	100°Cx24hr	wt%	JIS K2220 5.14	1.2%	0.8%	2.1% (ASTMD-1742)
	Operating Temp.	In Air	°C	-	-40~200	-10~80	-12~170

Particulate Generation Comparison



*Above data are for reference only. Not intended as manufacturer's guarantee.

<Test Equipment for G Type Grease Comparison>



<Test Condition>
Linear Bushings: LHFS16 (Regular Type), LHFS16G (G Type)
Liner Motion Speed: 20m / min
Stroke: 100mm
Environment: Inside clean booth (Class100)
Temperature: 22.5°C±2°C
Humidity: 50wt%
Particle Counter: Made by Rion Co.Ltd. KC03A1

Products with Various Grease Options

Applicable Products	Shaft Dia. dr	€ Unit Price (Price for grease filling service)		
		Shaft Diameter dr≤10	12≤Shaft Diameter dr<30	35≤Shaft Diameter dr
P.278~P.307 Linear bushings related Ⓢ Products below are excluded. -Linear bushings without seals -Linear ball bushings P.308	3-50			



Part Number

LMU12L (L Type Greased)
LMU12G (G Type Greased)
LMU12H (H Type Greased)

Ⓢ To place an order, add L, G, or H after Part Number of regular type.



10 Days

Express B 5,00 EUR/ piece **P.88**

Ⓢ A Express Charge of 13,50EUR for 3 or more identical pieces.



Add the price in the above table to the unit price of applicable standard product.

<Price Calculation Example>LMU12L (Straight, Single Type)
(Standard Type € Unit Price) + (€ Unit Price in the Above Table) = (Total)
3,30 EUR + 18,00 EUR = 21,30 EUR (per piece)

Quantity Discount Price (Ⓢ Round down to one Cent) **P.87**

Quantity	1~19	20~34	35~49	50~99	Ⓢ For orders larger than indicated quantity, please request a quotation.
Rate	€ Unit Price	5%	10%	18%	
Days to Ship	Standard	Quotation			



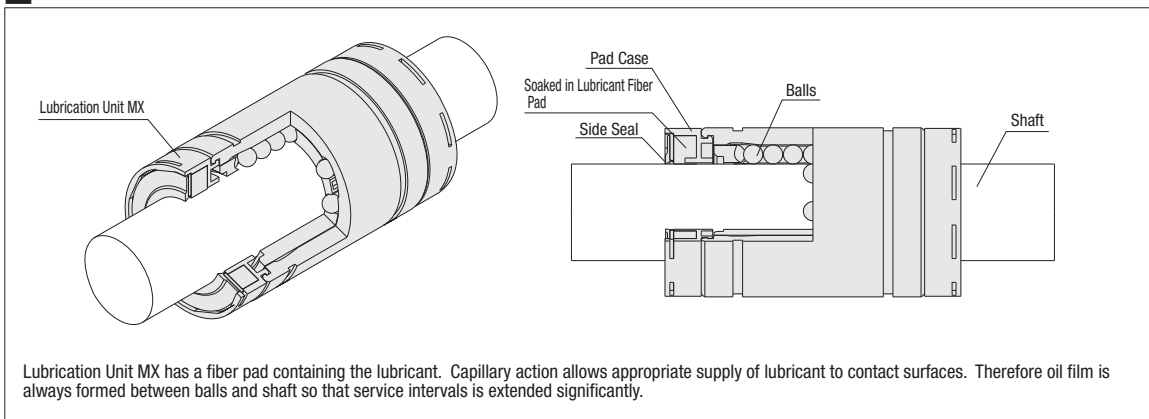
Patent Pending

-Single / Double / Flanged Single-



CAD Data

Structure of Lubrication Unit MX



Features

-Extended maintenance period

Long durability of lubrication performance have resulted in significant reduction of maintenance load especially with machines and equipment environments where applying grease is not easy.

-Environmentally friendly system

Appropriate supply of lubricant to ball rolling surface at appropriate time makes the system environment-friendly.

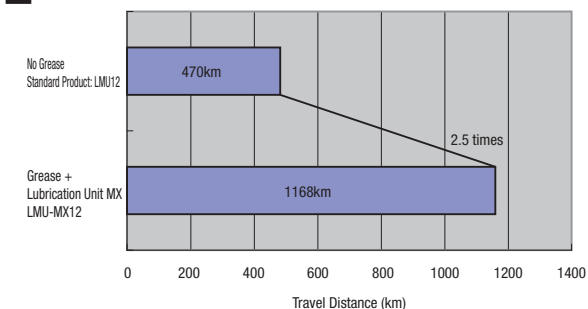
-Cost advantage

Contributes to reduction of maintenance costs and product troubles caused by failing to lubricate.

-Reduced procedural steps

No need to fill with grease prior to use because the product is already filled with Lithium soap-based grease in addition to the built-in lubrication unit.

Endurance Test Result



<Test Condition>

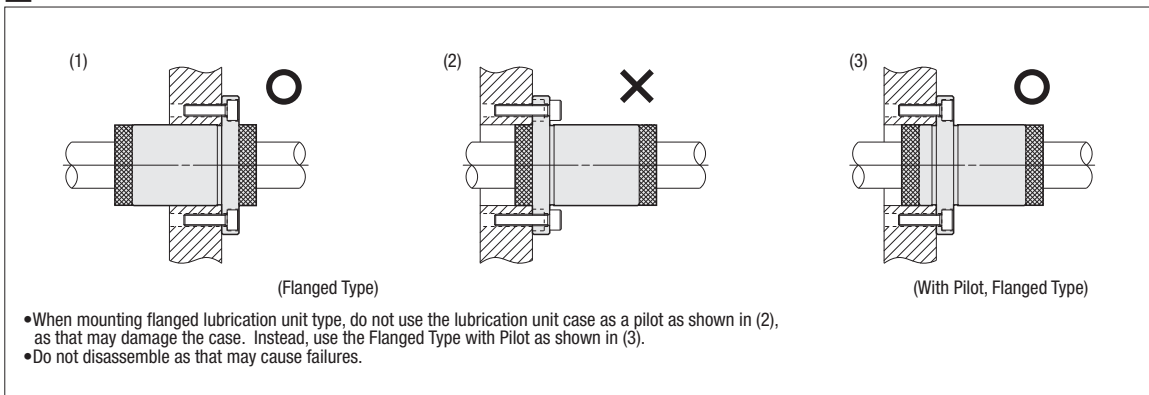
Sample : Linear Bushings before removing rust protection oil LMU12
Linear Bushings with Lubrication Unit MX LMU-MX12

Applied Load : 206N (50% against Basic Dynamic Load Rating 412N)
Average Speed : 42m/min (0.7m/sec)
Stroke : 100mm
Lubricant : Grease, initial filling only (1.3505/100Cr6--MX12 only)
Shaft Material : 1.3505/100Cr6 58HRC
24 hours, continuously operated

With 50% of basic load rating applied for testing, the Lubrication Unit MX Type has shown a 2.5 times higher durability performance compared to the one without the MX lubrication unit.

*The data above are for reference only, and not a guarantee by the manufacturer. The data was revised to the above since the 2007 catalog after the safety margin was confirmed by increased test data points.

Cautions



Details of Lubrication Unit MX P.273

Straight Single / Double



Type	Outer Cylinder	Steel balls	Pad Case / Retainer	Operating Environment Temperature	Accessory
Single	Material: 1.3505/100Cr6, Hardness: 58HRC, Surface Treatment: -	Material: 1.3505/100Cr6	Material: Plastic (Duracon M90 equivalent)	-20~80°C	Seals: Material Nitrile Rubber

RoHS

No need to fill with grease prior to use because the product is already filled with Lithium soap-based grease in addition to the built-in lubrication unit.

Single

For linear bushings, hardened shafts with g6 tolerance are recommended. P.107~195 are recommended.

Part Number	Type	dr	Tolerance	D	Tolerance	L	L1	Tolerance	V	B	Tolerance	W	D1	(r)	Eccentricity (Max.)	Steel balls Rows of Balls	Basic Load Rating C (Dynamic) N Co (Static) N	Mass (g)
LMU-MX 10	0	19	0	39	29	5	19.4	0	1.3	18	0.4	0.012	4	372	549	35		
12	-0.009	21	-0.013	41	30	5.5	20.4	-0.2	20	20	0.8	412	598	45				
16	28	49	37	6	23.3	0.4	27	775	1180	80								
20	32	56	42	7	27.3	0.4	30.5	882	1370	109								
25	40	77	59	9	37.3	0.4	38	980	1570	255								
30	-0.010	45	-0.016	84	64	10	40.8	1570	2740	286								
35	52	92	70	11	45.3	0.5	49	1670	3140	453								
40	60	104	80	12	56.3	0.5	57	2160	4020	687								
50	-0.012	80	-0.019	128	100	14	68.8	3820	7940	1763								

Double

Part Number	Type	dr	Tolerance	D	Tolerance	L	L1	Tolerance	V	B	Tolerance	W	D1	(r)	Eccentricity (Max.)	Steel balls Rows of Balls	Basic Load Rating C (Dynamic) N Co (Static) N	Allowable Static Moment (MoNm)	Mass (g)
LMUW-MX 10	0	19	0	65	55	5	41.4	0	1.3	18	0.4	0.015	4	588	1100	7.24	66		
12	-0.010	21	-0.016	68	57	5.5	43.4	-0.5	20	20	0.8	657	1200	10.9	84				
16	28	82	70	6	49.8	0.4	27	1230	2350	19.7	152								
20	32	94	80	7	57.8	0.4	30.5	1400	2740	26.8	191								
25	-0.012	40	-0.019	130	112	9	78.3	1560	3140	43.4	459								
30	45	143	123	10	85.3	0	85.3	2490	5490	82.8	504								
35	52	157	135	11	94.8	-0.4	94.8	2650	6270	110	823								
40	60	175	151	12	116.8	0	116.8	3430	8040	147	1203								
50	-0.015	80	-0.022	220	192	14	142.8	6080	15900	397	3163								

Details of Lubrication Unit MX P.273 Flange Type Height-adjusting Spacers can be selected from P.288

Flanged Single Type



Type	Outer Cylinder	Steel balls	Pad Case / Retainer	Operating Environment Temperature	Accessory
Round Flange	Material: 1.3505/100Cr6, Hardness: 58HRC, Surface Treatment: Electroless Nickel Plating	Material: 1.3505/100Cr6	Material: Plastic (Duracon M90 equivalent)	-20~80°C	Seals: Material Nitrile Rubber

RoHS

No need to fill with grease prior to use because the product is already filled with Lithium soap-based grease in addition to the built-in lubrication unit.

Part Number	Type	dr	Tolerance	D	Tolerance	L	L1	Tolerance	V	H	T	d	d1	t	P.C.D.	W	F	A	Eccentricity	*Perpendicularity	Basic Load Rating C (Dynamic) N Co (Static) N	Round Flange Square Flange Compact Flange	Mass(g)
LHFR-MX 10	0	19	0	39	29	5	40	0	4.5	7.5	4.1	29	30	-	29	0.012	0.012	372	549	76	56	68	
LHFS-MX 12	-0.009	21	-0.016	41	30	5.5	42	-0.2	32	32	-	32	32	-	32	0.012	0.012	412	598	80	61	72	
LHFC-MX 16	28	49	37	6	48	6	48	0.4	38	37	22	31	31	31	0.015	0.015	775	1180	127	111	119		
LHFR-MX 20	32	56	42	7	54	8	54	0.4	43	42	24	36	36	36	0.015	0.015	882	1370	191	156	178		
LHFSM-MX 25	-0.010	40	-0.019	77	59	9	62	±0.3	51	50	32	40	40	40	0.015	0.015	980	1570	359	319	344		
LHFCM-MX 30	45	84	64	10	74	10	74	0	60	58	35	49	49	49	0.020	0.020	1570	2740	494	399	412		
LHFRM-MX 35	52	92	70	11	82	11	82	0	67	64	38	55	55	55	0.020	0.020	1670	3140	678	588	603		
LHFSM-MX 40	60	104	80	12	96	12	96	0	78	75	45	64	64	64	0.020	0.020	2160	4020	1093	913	946		
LHFCM-MX 50	-0.012	80	-0.022	128	100	14	116	-0.4	98	92	56	80	80	80	0.020	0.020	3820	7940	2263	2063	2100		

For linear bushings, hardened shafts with g6 tolerance are recommended. P.107~195

* Perpendicularity of D part to flange mounting surface

Price

dr	Straight Single		Straight Double		Round Flange				Square Flange				Compact Flange			
	LMU-MX	LMUW-MX	LHFR-MX	LHFS-MX	LHFC-MX	LHFRM-MX	LHFSM-MX	LHFCM-MX	LHFRM-MX	LHFSM-MX	LHFCM-MX	LHFRM-MX	LHFSM-MX	LHFCM-MX		
10	€ Unit Price	€ Unit Price	€ Unit Price	€ Unit Price	€ Unit Price	€ Unit Price	€ Unit Price	€ Unit Price	€ Unit Price	€ Unit Price	€ Unit Price	€ Unit Price	€ Unit Price	€ Unit Price		
12	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19		
16																
20																
25																
30																
35																
40																
50																

Order Part Number

Example LMU-MX16 LHFR-MX12

Days to Ship

6 Days P.87

For orders larger than indicated quantity, please request a quotation.

Various Grease Application Services are not applicable.

Linear Bushings with Lubrication Unit MX

-Flanged Double · Center Flanged Double-



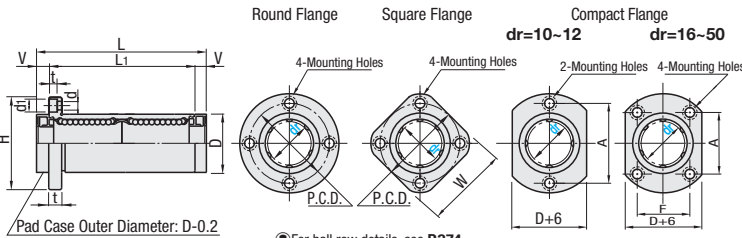
CAD Data

Details of Lubrication Unit MX P.273 Flange Type Height-adjusting Spacers can be selected from P.288

Flanged Double



Type			Outer Cylinder			Steel balls	Pad Case / Retainer	Ambient Operating Temp.	Accessory
Round Flange	Square Flange	Compact Flange	Material	Hardness	Surface Treatment	Material	Material		
LHFRW-MX	LHFSW-MX	LHFCW-MX	1.3505/100Cr6	58HRC-	-	1.3505/100Cr6	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber
LHFRWM-MX	LHFSWM-MX	LHFCWM-MX			Electroless Nickel Plating	1.4125/X105CrMo17			



RoHS No need to fill with grease prior to use because the product is already filled with Lithium soap-based grease in addition to the built-in lubrication unit. For ball row details, see P.274

Part Number	D Tolerance	L1 Tolerance	V	H	T	d	d1	t	P.C.D.	W	F	A	Eccentricity	Perpendicularity	Basic Load Rating			Mass(g)				
															C (Dynamic) N	Co (Static) N	Mo (MoNm)	Round Flange	Square Flange	Compact Flange		
LHFRW-MX	10	0	19	0	65	55	5	40	29	30	29	588	1100	7.24	102	82	94	372	549	76	56	68
LHFRW-MX	12	-0.010	21	0	68	57	5.5	42	32	32	32	657	1200	10.9	114	94	106	412	598	80	61	72
LHFRW-MX	16	-0.016	28	0	82	70	6	48	38	37	22	1230	2350	19.7	197	172	189	775	1180	127	111	119
LHFRWM-MX	20	0	32	0	94	80	7	54	43	42	24	1400	2740	26.8	271	236	258	882	1370	191	156	178
LHFRWM-MX	25	-0.012	40	0	130	112	9	62	51	50	32	1560	3140	43.4	559	519	544	980	1570	359	319	344
LHFRWM-MX	30	-0.015	45	0	143	123	10	74	60	58	35	2490	5490	82.8	704	614	669	1570	2740	494	399	412
LHFSW-MX	35	0	52	0	157	135	11	82	67	64	38	2650	6270	110	1048	958	973	1670	3140	678	588	603
LHFSW-MX	40	-0.015	60	0	175	151	12	96	78	75	45	3430	8040	147	1603	1413	1456	2160	4020	1093	913	946
LHFSW-MX	50	-0.022	80	0	220	192	14	116	98	92	56	6080	15900	397	3663	3463	3500	3820	7940	2263	2063	2100

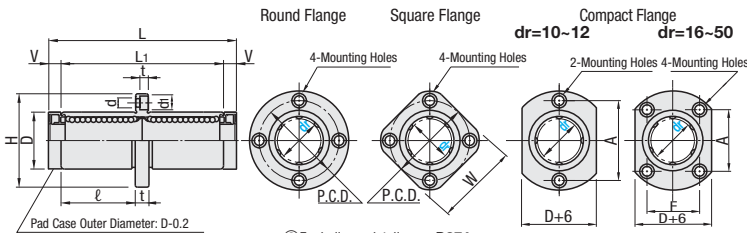
For linear bushings, hardened shafts with g6 tolerance are recommended. P.107-195 Perpendicularity of D part to flange mounting surface kgf=Nx0.101972

Details of Lubrication Unit MX P.273 Flange Type Height-adjusting Spacers can be selected from P.288

Center Flanged Double



Type			Outer Cylinder			Steel balls	Pad Case / Retainer	Ambient Operating Temp.	Accessory
Round Flange	Square Flange	Compact Flange	Material	Hardness	Surface Treatment	Material	Material		
LHMRW-MX	LHMSW-MX	LHMCW-MX	1.3505/100Cr6	58HRC-	-	1.3505/100Cr6	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber



RoHS No need to fill with grease prior to use because the product is already filled with Lithium soap-based grease in addition to the built-in lubrication unit. For ball row details, see P.274

Part Number	D Tolerance	L1 Tolerance	V	H	T	d	d1	t	P.C.D.	W	F	A	Eccentricity	Perpendicularity	Basic Load Rating			Mass(g)					
															C (Dynamic) N	Co (Static) N	Mo (MoNm)	Round Flange	Square Flange	Compact Flange			
LHMRW-MX	10	0	19	0	65	55	5	24.5	29	30	29	588	1100	7.24	102	82	94	588	1100	7.24	102	82	94
LHMRW-MX	12	-0.010	21	0	68	57	5.5	25.5	32	32	32	657	1200	10.9	114	94	106	657	1200	10.9	114	94	106
LHMRW-MX	16	-0.016	28	0	82	70	6	32	38	37	22	1230	2350	19.7	197	172	189	1230	2350	19.7	197	172	189
LHMSW-MX	20	0	32	0	94	80	7	36	43	42	24	1400	2740	26.8	271	236	258	1400	2740	26.8	271	236	258
LHMSW-MX	25	-0.012	40	0	130	112	9	52	51	50	32	1560	3140	43.4	559	519	544	1560	3140	43.4	559	519	544
LHMSW-MX	30	-0.015	45	0	143	123	10	66	60	58	35	2490	5490	82.8	704	614	669	2490	5490	82.8	704	614	669
LHMCW-MX	35	0	52	0	157	135	11	82	67	64	38	2650	6270	110	1048	958	973	2650	6270	110	1048	958	973
LHMCW-MX	40	-0.014	60	0	175	151	12	96	78	75	45	3430	8040	147	1603	1413	1456	3430	8040	147	1603	1413	1456
LHMCW-MX	50	-0.022	80	0	220	192	14	116	98	92	56	6080	15900	397	3663	3463	3500	6080	15900	397	3663	3463	3500

For linear bushings, hardened shafts with g6 tolerance are recommended. P.107-195 Perpendicularity of D part to flange mounting surface kgf=Nx0.101972

Price

dr	Flanged Linear Bushings Double												Center Flanged Double								
	Round Flange						Square Flange						Round Flange			Square Flange			Compact Flange		
	LHFRW-MX		LHFRWM-MX		LHFSW-MX		LHFSWM-MX		LHFCW-MX		LHFCWM-MX		LHMRW-MX		LHMSW-MX		LHMCW-MX				
	€ Unit Price	Volume Discount	€ Unit Price	Volume Discount	€ Unit Price	Volume Discount	€ Unit Price	Volume Discount	€ Unit Price	Volume Discount	€ Unit Price	Volume Discount	€ Unit Price	Volume Discount	€ Unit Price	Volume Discount	€ Unit Price	Volume Discount	€ Unit Price	Volume Discount	
10	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	Qty. 1-9	Qty. 10-19	
12																					
16																					
20																					
25																					
30																					
35																					
40																					
50																					

Order Example Part Number LHFRW-MX16 LHMSW-MX20 Various Grease Application Services are not applicable. Days to Ship 6 Days For orders larger than indicated quantity, please request a quotation. P.87

Linear Bushings with Lubrication Unit MX

-Flanged Single with Pilot · Double with Pilot-



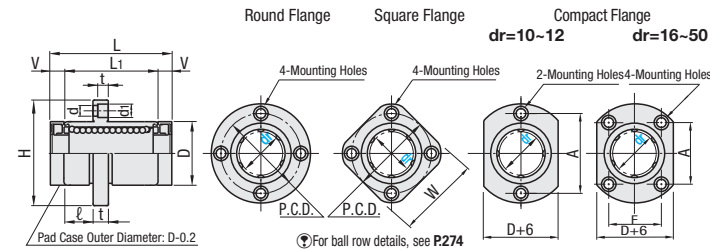
CAD Data

Details of Lubrication Unit MX P.273 Flange Type Height-adjusting Spacers can be selected from P.288

Flanged Single with Pilot



Type			Outer Cylinder			Steel balls	Pad Case / Retainer	Ambient Operating Temp.	Accessory
Round Flange	Square Flange	Compact Flange	Material	Hardness	Surface Treatment	Material	Material		
LHIFR-MX	LHIFS-MX	LHIFC-MX	1.3505/100Cr6	58HRC-	-	1.3505/100Cr6	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber



RoHS No need to fill with grease prior to use because the product is already filled with Lithium soap-based grease in addition to the built-in lubrication unit. For ball row details, see P.274

Part Number	D Tolerance	L1 Tolerance	V	H	T	d	d1	t	P.C.D.	W	F	A	Eccentricity	Perpendicularity	Basic Load Rating			Mass(g)				
															C (Dynamic) N	Co (Static) N	Mo (MoNm)	Round Flange	Square Flange	Compact Flange		
LHIFR-MX	10	0	19	0	65	55	5	40	29	30	29	588	1100	7.24	102	82	94	372	549	76	56	68
LHIFR-MX	12	-0.009	21	0	68	57	5.5	42	32	32	32	657	1200	10.9	114	94	106	412	598	80	61	72
LHIFR-MX	16	-0.016	28	0	82	70	6	48	38	37	22	1230	2350	19.7	197	172	189	775	1180	127	111	119
LHIFS-MX	20	0	32	0	94	80	7	54	43	42	24	1400	2740	26.8	271	236	258	882	1370	191	156	178
LHIFS-MX	25	-0.010	40	0	130	112	9	62	51	50	32	1560	3140	43.4	559	519	544	980	1570	359	319	344
LHIFS-MX	30	-0.012	45	0	143	123	10	74	60	58	35	2490	5490	82.8	704	614	669	1570	2740	494	399	412
LHIFC-MX	35	0	52	0	157	135	11	82	67	64	38	2650	6270	110	1048	958	973	1670	3140	678	588	603
LHIFC-MX	40	-0.012	60	0	175	151	12	96	78	75	45	3430	8040	147	1603	1413	1456	2160	4020	1093	913	946
LHIFC-MX	50	-0.022	80	0	220	192	14	116	98	92	56	6080	15900	397	3663	3463	3500	3820	7940	2263	2063	2100

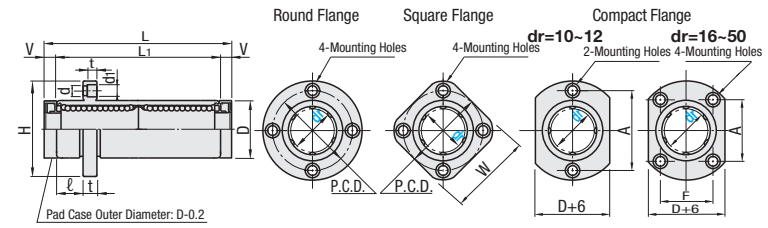
For linear bushings, hardened shafts with g6 tolerance are recommended. P.107-195 Perpendicularity of D part to flange mounting surface kgf=Nx0.101972

Details of Lubrication Unit MX P.273 Flange Type Height-adjusting Spacers can be selected from P.288

Flanged Double with Pilot



Type			Outer Cylinder			Steel balls	Pad Case / Retainer	Ambient Operating Temp.	Accessory
Round Flange	Square Flange	Compact Flange	Material	Hardness	Surface Treatment	Material	Material		
LHIRW-MX	LHISW-MX	LHICW-MX	1.3505/100Cr6	58HRC-	-	1.3505/100Cr6	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber



RoHS No need to fill with grease prior to use because the product is already filled with Lithium soap-based grease in addition to the built-in lubrication unit. For ball row details, see P.274

Part Number	D Tolerance	L1 Tolerance	V	H	T	d	d1	t	P.C.D.	W	F	A	Eccentricity	Perpendicularity	Basic Load Rating			Mass(g)					
															C (Dynamic) N	Co (Static) N	Mo (MoNm)	Round Flange	Square Flange	Compact Flange			
LHIRW-MX	10	0	19	0	65	55	5	40	29	30	29	588	1100	7.24	102	82	94	588	1100	7.24	102	82	94
LHIRW-MX	12	-0.010	21	0	68	57	5.5	42															

Linear Bushings Housing Unit with Lubrication Unit MX

-Tall Block / Wide Block Type-



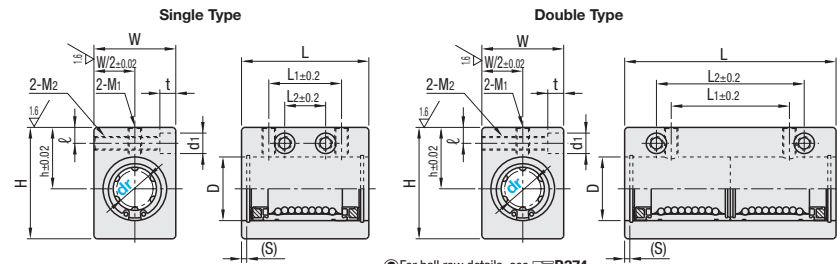
CAD Data

Details of Lubrication Unit MX P.273

Linear Bushings with Tall Blocks



Type	Linear Bushings (P.274)	Housing	Ambient Operating Temp.
Single	LMU-MX	Material: Aluminum Alloy Surface Treatment: Clear Anodizing	-20~80°C
Double	LHSSW-MX		



No need to fill with grease prior to use because the product is already filled with Lithium soap-based grease in addition to the built-in lubrication unit.

Linear Bushings with Tall Blocks

Type	Part Number		D (S)	L				h	W	H	H ₁	H ₂	W ₁	W ₂	M	d	A	B	N	Basic Load Rating				Mass (g)		Single		Double												
	dr	Tolerance		C (Dynamic) N		Co (Static) N														C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	
				Single	Double	Single	Double																																	Single
LHSS-MX LHSSW-MX	10	0	19	45	74	27	36	15	50	19	26	32	6	M6	M5	8x6 (For M4 Screws)	372	588	549	1100	92	166																		
	12	-0.009	21	47	77	27	36	15	50	20	28	34	6	M6	M5	8x6 (For M4 Screws)	412	657	598	1200	103	185																		
	16	0	28	56	93	32	52	18	65	27	36	49	7	M6	M8	9x7 (For M5 Bolt)	775	1230	1180	2350	237	423																		
	20	0	32	64	106	36	58	18	70	31	42	54	8	M8	M8	11x8 (For M6 screws)	882	1400	1370	2740	324	584																		
	25	-0.010	40	85	144	42	80	22	100	37	52	65	9	M10	M10	14x10 (For M8 Screws)	980	1560	1570	3140	672	1239																		
	30	0	45	92	156	44	90	22	110	40	58	71	10	M10	M10	14x10 (For M8 Screws)	1570	2490	2740	5490	843	1545																		

For linear bushings, hardened shafts with g6 tolerance are recommended. P.107~195

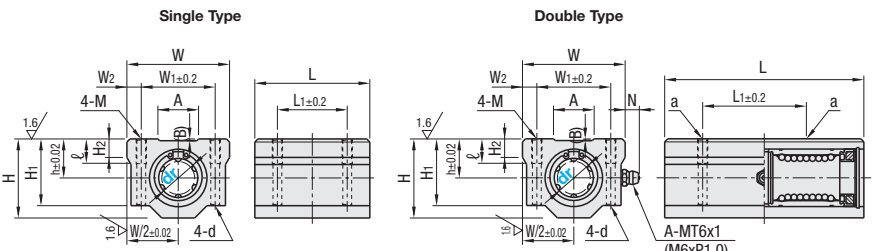
For orders larger than indicated quantity, please request a quotation.

Details of Lubrication Unit MX P.273

Linear Bushings with Wide Blocks



Type	Linear Bushings (P.274)	Housing	Ambient Operating Temp.
Single	LMU-MX	Material: Aluminum Alloy Surface Treatment: Clear Anodizing	-20~80°C
Double	LHBBW-MX		



No need to fill with grease prior to use because the product is already filled with Lithium soap-based grease in addition to the built-in lubrication unit.
There will be dowel holes on "a" locations for dr50.

Linear Bushings with Wide Blocks

Type	Part Number		L				h	H	H ₁	H ₂	W	W ₁	W ₂	M	d	A	B	N	Basic Load Rating				Mass (g)		Single		Double																		
	dr	Tolerance	C (Dynamic) N		Co (Static) N														C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N	C (Dynamic) N	Co (Static) N							
			Single	Double	Single	Double																																	Single	Double	Single	Double	Single	Double	Single
LHBB-MX LHBBW-MX	10	0	45	78	21	46	13	26	21	8	40	28	6	M5	4.3	15.5	0.4	7.5	372	588	549	1100	114	206																					
	12	-0.009	47	81	26	50	15	28	24	8	42	30.5	5.75	M5	4.3	17.5	0.4	7	412	657	598	1200	125	233																					
	16	0	56	97	34	60	19	38.5	32.5	9	50	36	7	M6	5.2	19.8	0.85	6.5	775	1230	1180	2350	268	450																					
	20	0	64	110	40	70	21	41	35	11	54	40	11	M6	5.2	21	0.5	7.5	882	1400	1370	2740	310	647																					
	25	-0.010	85	148	50	100	26	51.5	42	12	76	54	11	M8	7	36	1	4.5	980	1560	1570	3140	717	1339																					
	30	0	92	160	58	110	30	59.5	49	15	78	58	10	M8	7	39.9	0.75	5.5	1570	2490	2740	5490	891	1665																					
LHBB-MX LHBBW-MX	35	0	102	177	60	120	34	68	54	18	90	70	10	M10	8.7	53	1	6	1670	2650	3140	6270	1314	2448																					
	40	-0.012	114	199	60	140	40	78	62	20	102	80	11	M10	8.7	61	1.5	5.5	2160	3430	4020	8040	1873	3526																					
50	0	138	243	80	160	52	102	80	25	122	100	11	M10	8.7	81	1.5	5.5	3820	6080	7940	15900	3821	7256																						

For linear bushings, hardened shafts with g6 tolerance are recommended. P.107~195

For orders larger than indicated quantity, please request a quotation.



Part Number
LHSS-MX16
LHBBW-MX25



6 Days P. 87

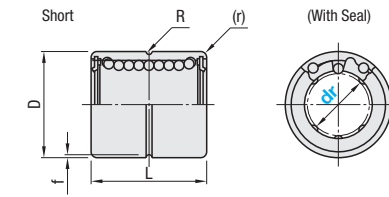
Linear Bushings

-Short Type / Features of LTBC-

CAD Data



Type	Outer Cylinder	Steel balls	Retainer	Ambient Operating Temp.	Accessory
Short	Material: 1.3505/100Cr6 Hardness: 58HRC~ Surface Treatment: 56HRC~	Material: 1.3505/100Cr6 1.4125/X105CrMo17	Material: Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material: Nitrile Rubber (-20 ~120°C)



Short Type

Type	Part Number	dr	Tolerance	D		L		R	f	(r)	Eccentricity (Max.)	Steel balls Rows of Balls	Basic Load Rating		Mass (g)	€ Unit Price	
				Tolerance	Tolerance	Tolerance	Tolerance						C (Dynamic) N	Co (Static) N		LMUT	SLMUT
LMUT SLMUT	6	12	0	16	1	0.3	0.4	0.012	4	113	155	6.6					
	8	15	-0.011	20	1.2	0.4	0.012	4	155	226	14.7						
	10	19	0	25	1.5	0.5	0.015	5	254	359	26.1						
	12	21	-0.013	30	1.5	0.5	0.015	5	317	407	28.6						
	13	23	0	30	1.5	0.5	0.015	5	320	413	36.3						
	16	28	0	35	1.5	0.5	0.015	5	582	724	60.0						
20	32	-0.010	35	1.5	0.5	0.015	5	777	1034	81.6							

For short type linear bushings, hardened shafts with h5 tolerance are recommended. P.107~195 are recommended.



Part Number

- LMUT10 (L Type Greased)
- LMUT10G (G Type Greased)
- LMUT10H (H Type Greased)

Alternative grease types available. For Days to Ship, Price and Performance, refer to P.272



6 Days P. 87 2 Days



Quantity Discount Price (Round down to one Cent) P. 87

Quantity	1~19	20~34	35~49	50~99
Rate	5%	10%	18%	

For orders larger than indicated quantity, please request a quotation.

LTBC plating on linear bushings:

Type: LTBC plating with fluoropolymer layer on top
Thickness: 5µm thick. Internal running diameter remains unchanged due to tolerance control.
Corrosion protection: Excellent rust prevention for long term period
Material benefits: Chemically deposited at low temperature without any change in material structure.
Peeling: The coating is resistant to cracking from extreme and repeated bending. Even hairpin-shaped bending won't cause cracks. Plating won't be exfoliated by repeat bending (Any superficial coating particles that may come off the rolling contact surfaces are mixed in with the grease and remain its lubricity).
Optical benefits: Less reflections (suitable for places where light reflections are undesirable). Matching LTBC plated shafts.

LTBC plating on linear shafts:

Type: LTBC plating without fluoropolymer layer.
Thickness: 1µm~2µm thick. Shaft outer diameter tolerance remains g6 after LTBC plating is applied.
Corrosion protection: Normal rust prevention effect (better than black oxide, and less than LTBC with fluoropolymer layer on top and suitable in normal environment).
Material benefits: Chemically deposited at low temperature without any change in material structure.
Peeling: The coating is resistant to cracking from extreme and repeated bending. Even hairpin-shaped bending won't cause cracks. Plating won't be exfoliated by repeat bending (Any superficial coating particles that may come off the rolling contact surfaces are mixed in with the grease and remain its lubricity).
Optical benefits: Less reflections (suitable for places where light reflections are undesirable when used in combination with LTBC plated linear bushings).
(LTBC plated shafts can be found on page, P.173~P.180, P.183~P.191)

Condition of shafts and linear bushings after sliding test



For details, refer to each page.



6 Days P. 87

Sliding Test Conditions

Linear Bushings : LMUR12
Shafts : RSFJ12

50km sliding test was conducted with a 412N load on the linear bushing. No performance degradation after the test.

Linear bushings Applicable to LTBC

Linear Bushings Straight	Applicable Inner Diameter	Page Listed	Flanged Type	Applicable Inner Diameter	Page Listed
Single LMUR	03-030	P.279	Single LHF_R	06-030	P.283
Double LMUWR	05-030		Double LHF_WR		P.285

(Note) No surface treatment is applied to inner diameter surface of LTBC plated linear bushings.

Flanged Linear Bushings Standard

-Single / Opposite Counterbored Hole-

Price Reduction



Flanged Linear Bushings Compact Type

-Single-

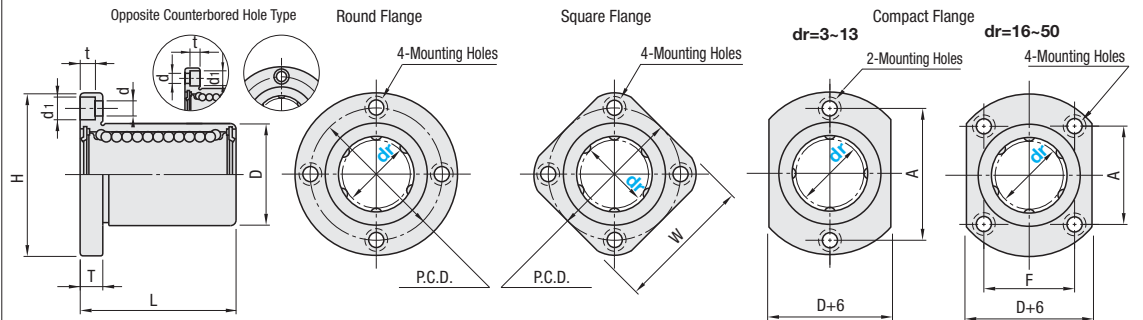
Flange Type Height-adjusting Spacers can be select from P.288

CAD Data



RoHS

Counterbored Holes	Type			Outer Cylinder			Steel balls	Retainer	Ambient Operating Temp.	Accessory
	Round Flange	Square Flange	Compact Flange	Material	Hardness	Surface Treatment				
Opposite Counterbored Hole	LHZR	LHZS	LHZC	1.3505/100Cr6	58HRC~	-	1.3505/100Cr6	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber (-20~120°C)
	LHFR-N	LHFS-N	LHFC-N							
	LHFR	LHFS	LHFC							
Standard	LHFRF	LHFSF	LHFCF	1.4125/X105CrMo17 equivalent	56HRC~	-	1.4125/X105CrMo17 equivalent	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber (-20~120°C)
	LHFRM	LHFSM	LHFCM							
	LHFRMF	LHFSMF	LHFCMF							
	SLHFR	SLHFS	SLHFC							
	SLHFRS	SLHFS	SLHFC							
	SLHFRS	SLHFS	SLHFC							



Features of Raydent see P.278. No seal for dr=3 and 4, LHFR-N, LHFS-N and LHFC-N. For ball row details, see P.279

dr	Tol.	D Tolerance		L	H	T	d	d ₁	t	P.C.D.	W	F	A	Eccentricity	Perpendicularity	Basic Load Rating			Mass(g)		
		Surface Treatment No	Surface Treatment Yes													C (Dynamic) N	Co (Static) N	Round Flange	Square Flange	Compact Flange	
3	0	7	0	10	19	3.5	2.5	4.5	2.1	13	15	-	13	0.008	0.008	69	105	7	5.1	6	
4	0	8	0	12	20	4	3	5	2.5	14	16	-	14	0.008	0.008	88	127	8	6.2	7	
5	-0.008	10	-0.011	15	25	5	4	6	3.1	17	20	-	17	0.012	0.012	167	206	17	13	14	
6	0	12	0	19	28	5	3.5	6	3.1	20	22	-	20	0.012	0.012	206	265	24	18	21	
8	0	15	-0.013	24	32	6	4.5	7.5	4.1	24	25	-	24	0.012	0.012	265	380	37	29	33	
10	0	19	0	29	40	6	5	9	5.1	29	30	-	29	0.015	0.015	372	549	72	52	64	
12	-0.009	21	0	30	42	6	5	9	5.1	32	32	-	32	0.020	0.020	412	598	76	57	68	
13	-0.009	23	-0.016	32	43	6	5	9	5.1	33	34	-	33	0.020	0.020	510	784	88	72	81	
16	0	28	0	37	48	8	5.5	9	5.1	38	37	22	31	0.020	0.020	775	1180	120	104	112	
20	0	32	0	42	54	8	5.5	9	5.1	43	42	24	36	0.020	0.020	882	1370	180	145	167	
25	-0.010	40	-0.019	59	62	10	6.6	11	6.1	51	50	32	40	0.020	0.020	980	1570	340	300	325	
30	0	45	0	64	74	10	6.6	11	6.1	60	58	35	49	0.020	0.020	1570	2740	470	375	388	
35	0	52	0	70	82	13	9	14	8.1	67	64	38	55	0.020	0.020	1670	3140	650	560	575	
40	0	60	-0.022	80	96	13	9	14	8.1	78	75	45	64	0.020	0.020	2160	4020	1060	880	913	
50	-0.012	80	-0.030	100	116	13	9	14	8.1	98	92	56	80	0.020	0.020	3820	7940	2200	2000	2037	

For linear bushings, hardened shafts with g6 tolerance are recommended. P.107-195

kgf=Nx0.101972

Quantity	Quantity Discount Price (Round down to one Cent) P.87				-Others
	1-19	20-34	35-49	50-99	
Rate	€ Unit Price	5%	10%	18%	For orders larger than indicated quantity, Quotation
Days to Ship	Standard				Quotation

dr	Round Flange			Square Flange						Compact Flange														
	LHZR	LHFR-N	LHFR	LHFRF	LHFRM	LHFRMF	SLHFR	SLHFRS	LHZS	LHFS-N	LHFS	LHFSF	LHFSM	LHFSMF	SLHFS	SLHFS	LHFC	LHFC-N	LHFC	LHFCF	LHFCM	LHFCMF	SLHFC	SLHFC
3																								
4																								
5																								
6																								
8																								
10																								
12																								
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16																								
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35																								
40																								
50																								

Order Example: LHFCR8, LHFCR-N10 (No Seal), LHFCR10L (L Type Greased), LHFCR10G (G Type Greased), LHFCR10H (H Type Greased). Alternative grease types available. For Days to Ship, Price and Performance, refer to P.272.

Days to Ship: 6 Days P.87

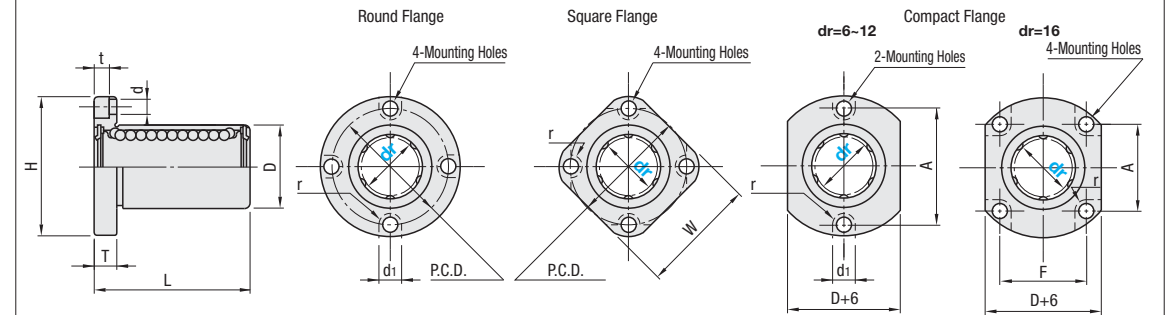
CAD Data

Features: 4 to 5mm smaller in flange diameter (H Dimension) and 2mm smaller in outer diameter (D dimension) than Standard Type. Standard and Compact Comparison P.280



RoHS

Type	Outer Cylinder			Steel balls	Retainer	Ambient Operating Temp.	Accessory		
	Round Flange	Square Flange	Compact Flange					Material	Hardness
LHRK	LHSK	LHCK	1.3505/100Cr6	58HRC~	-	1.3505/100Cr6	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber (-20~120°C)
LHRKM	LHSKM	LHCKM							
			1.4125/X105CrMo17 equivalent	-	Electroless Nickel Plating	1.4125/X105CrMo17 equivalent	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber (-20~120°C)



For ball row details, see P.280

dr	Tol.	D Tolerance		L	H	T	d	d ₁	t	r	P.C.D.	W	F	A	Eccentricity	Perpendicularity	Basic Load Rating			Mass(g)		
		Surface Treatment No	Surface Treatment Yes														C (Dynamic) N	Co (Static) N	Round Flange	Square Flange	Compact Flange	
6	0	10	-0.011	19	25	5	3.5	6	3.1	3	19	20	-	19	0.012	0.012	131	155	18	14	15	
8	0	13	0	24	28	6	4.5	7.5	4.1	3	22	23	-	22	0.012	0.012	235	277	27	22	24	
10	-0.009	17	-0.013	29	35	6	5	9	5.1	3	27	27	-	27	0.012	0.012	368	433	52	41	46	
12	0	19	0	30	38	6	5	9	5.1	3	30	29	-	30	0.012	0.012	381	449	64	50	55	
16	0	26	-0.016	37	44	8	6.6	11	6.1	3	36	34	24	27	0.012	0.012	608	716	96	77	83	

For linear bushings, hardened shafts with g6 tolerance are recommended. P.107-195

* Perpendicularity of D part to flange mounting surface

kgf=Nx0.101972

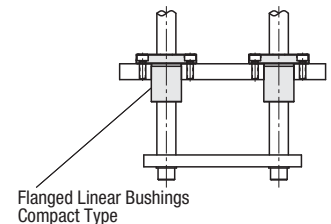
Quantity	Quantity Discount Price (Round down to one Cent) P.87				-Others
	1-19	20-34	35-49	50-99	
Rate	€ Unit Price	5%	10%	18%	For orders larger than indicated quantity, Quotation
Days to Ship	Standard				Quotation

dr	€ Unit Price					
	Round Flange	Square Flange	Compact Flange	Round Flange	Square Flange	Compact Flange
6	LHRK	LHCK	LHCK	LHRKM	LHCKM	LHCKM
8						
10						
12						
16						

Order Example: Part Number LHRK12 (L Type Greased), LHRK12G (G Type Greased), LHRK12H (H Type Greased). Alternative grease types available. For Days to Ship, Price and Performance, refer to P.272.

Example: For 2 linear bushings of Compact type, their mounting plate is 6 to 10mm smaller than that for Standard Type.

Days to Ship: 6 Days P.87



Flanged Linear Bushings Compact Type

Flanged Linear Bushings Standard

-Double Type / Opposite Counterbored Hole-



CAD Data

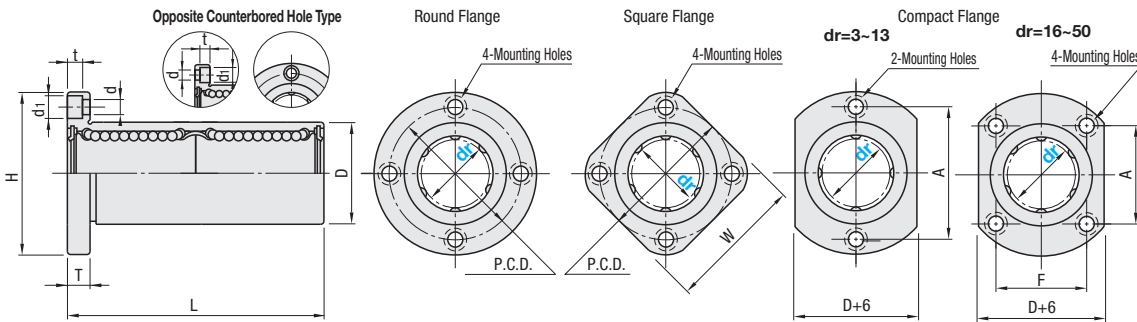
Flange Type Height-adjusting Spacers can be select from P.288

Standard Type

RoHS



Counterbored Holes	Type			Outer Cylinder			Steel balls	Retainer	Ambient Operating Temp.	Accessory
	Round Flange	Square Flange	Compact Flange	Material	Hardness	Surface Treatment				
Opposite Counterbored Hole	LHZRW	LHZSW	LHZCW	1.3505/100Cr6	58HRC~	-	1.3505/100Cr6	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber (-20 ~120°C)
	LHFRW-N	LHFSW-N	LHFCW-N							
	No Seal	No Seal	No Seal							
	LHFRW	LHFSW	LHFCW							
	LHFRWF	LHFSWF	LHFCWF							
	LHFRWR	LHFSWR	LHFCWR							
	LHFRWM	LHFSWM	LHFCWM							
	LHFRWFM	LHFSWFM	LHFCWFM							
	SLHFRW	SLHFSW	SLHFCW							
	SLHFRWF	SLHFSWF	SLHFCWF							
	SLHFRWR	SLHFSWR	SLHFCWR							
	SLHFRWM	SLHFSWM	SLHFCWM							
Standard Type				1.4125/X105CrMo17 equivalent	56HRC~	-	1.4125/X105CrMo17 equivalent	Plastic (Duracon M90 equivalent)	-20~80°C	-



Features of Raydent see P.278 No seal for dr=3 and 4, LHFRW-N, LHFSW-N and LHFCW-N. For ball row details, see P.279

dr	Tolerance	D Tolerance		L Tolerance	H	T	d	d1	t	P.C.D.	W	F	A	Eccentricity	Perpendicularity	Basic Load Rating			Mass(g)		
		Surface Treatment No	Surface Treatment Yes													C (Dynamic) N	Co (Static) N	Allowable Static Moment Mo Nm	Round Flange	Square Flange	Compact Flange
3	0	7	0	19	19	3.5	2.5	4.5	2.1	13	15	-	13	0.010	0.010	138	210	0.51	8.7	7	7.7
4	0	8	-0.011	23	20					14	16	-	14			176	254	0.63	11	9	10
5	0	10	-0.015	28	25					17	20	-	17			263	412	1.38	24	20	21
6	0	12	-0.013	35	28	5	3.5	6	3.1	20	22	-	20			324	529	2.18	31	25	28
8	0	15	-0.018	45	32					24	25	-	24			431	784	4.31	51	43	47
10	0	19	-0.021	55	40					29	30	-	29			588	1100	7.24	98	78	90
12	0	21	-0.025	57	42					32	32	-	32			657	1200	10.9	110	90	102
13	0	23	-0.016	61	43	6	4.5	7.5	4.1	33	34	-	33			813	1570	11.6	130	108	123
16	0	28	-0.021	70	48					38	37	22	31			1230	2350	19.7	190	165	182
20	0	32	-0.019	80	54	8	5.5	9	5.1	43	42	24	36			1400	2740	26.8	260	225	247
25	0	40	-0.025	112	62					51	50	32	40	0.020	0.020	1560	3140	43.4	540	500	525
30	0	45	-0.019	123	74	10	6.6	11	6.1	60	58	35	49			2490	5490	82.8	680	590	645
35	0	52	-0.022	135	82					67	64	38	55			2650	6270	110	1020	930	945
40	0	60	-0.022	151	96					78	75	45	64	0.025	0.025	3430	8040	147	1570	1380	1423
50	0	80	-0.030	192	116	13	9	14	8.1	98	92	56	80			6080	15900	397	3600	3400	3437

For linear bushings, hardened shafts with g6 tolerance are recommended. P.107-195

Quantity	Price			Days to Ship	Quantity	Price			Days to Ship	Quantity	Price			Days to Ship
	1-19	20-34	35-49			1-19	20-34	35-49			1-19	20-34	35-49	
Rate	€ Unit Price	5%	10%	18%	Rate	€ Unit Price	5%	10%	18%	Rate	€ Unit Price	5%	10%	18%
Days to Ship	Standard				Days to Ship	Standard				Days to Ship	Standard			

dr	€ Unit Price																					
	Round Flange				Square Flange				Compact Flange													
3	LHZRW	LHFRW-N	LHFRW	LHFRWF	LHFRWR	LHFRWM	LHFRWFM	LHFRWF	LHFRWR	LHFRWM	LHFRWFM	LHZCW	LHFCW-N	LHFCW	LHFCWF	LHFCWR	LHFCWM	LHFCWFM	SLHFRW	SLHFRWF	SLHFRWR	SLHFRWM
4																						
5																						
6																						
8																						
10																						
12																						
13																						
16																						
20																						
25																						
30																						
35																						
40																						
50																						

Order Example: Part Number LHFCW-N12 (No Seal), LHFCWR10, LHFCWR10L (L Type Greased), LHFCWR10G (G Type Greased), LHFCWR10H (H Type Greased). Days to Ship: 6 Days, 2 Days. Alternative grease types available. For Days to Ship, Price and Performance, refer to P.272



Flanged Linear Bushings Compact Type

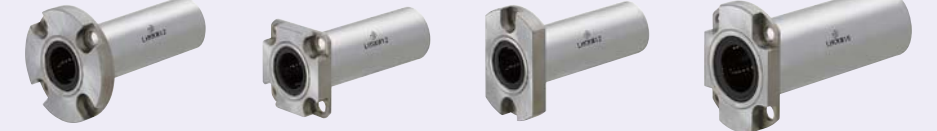
-Double-

CAD Data

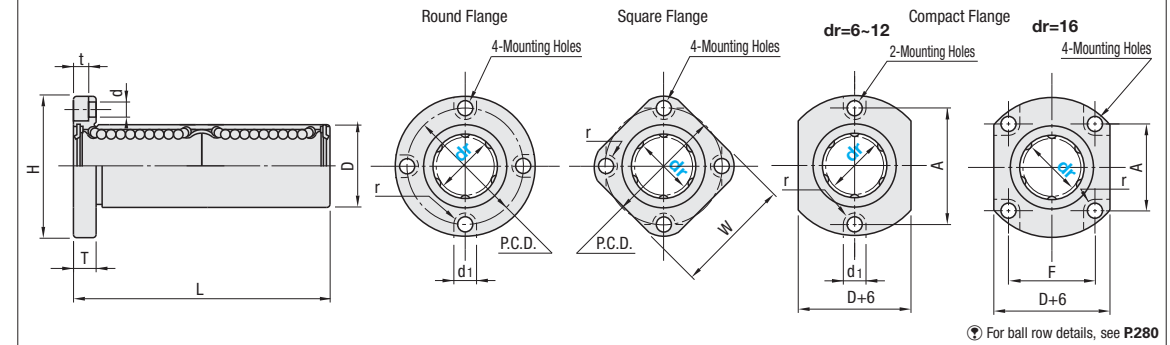
Features: 4 to 5mm smaller in flange diameter (H Dimension) and 2mm smaller in outer diameter (D dimension) than Standard Type. Standard and Compact Comparison P.280

Compact Type

RoHS



Type	Outer Cylinder			Steel balls	Retainer	Ambient Operating Temp.	Accessory			
	Round Flange	Square Flange	Compact Flange					Material	Hardness	Surface Treatment
LHRKW	LHCKW	LHCKW		1.3505/100Cr6	58HRC~	-	1.3505/100Cr6	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber (-20 ~120°C)
LHRKWM	LHCKWM	LHCKWM		1.3505/100Cr6	58HRC~	Electroless Nickel Plating	1.4125/X105CrMo17 equivalent	Plastic (Duracon M90 equivalent)	-20~80°C	



dr	Tolerance	D Tolerance		L Tolerance	H	T	d	d1	t	r	P.C.D.	W	F	A	Eccentricity	Perpendicularity	Basic Load Rating			Allowable Static Moment (Nm)			Mass(g)		
		Surface Treatment No	Surface Treatment Yes														C (Dynamic) N	Co (Static) N	Allowable Static Moment (Nm)	Round Flange	Square Flange	Compact Flange			
6	0	10	-0.011	35	25	5	3.5	6	3.1	3	19	20	-	19	0.015	0.015	206	309	2.46	24	20	21			
8	0	13	-0.013	45	28						22	23	-	22			383	555	5.76	38	34	35			
10	0	17	-0.018	55	35						27	27	-	27			585	867	10.99	79	68	73			
12	0	19	-0.021	57	38	6	4.5	7.5	4.1	3.75	30	29	-	30			608	899	11.85	95	82	87			
16	0	26	-0.021	70	44						36	34	24	27			965	1431	23.48	154	135	141			

For linear bushings, hardened shafts with g6 tolerance are recommended. P.107-195. Perpendicularity of D part to flange mounting surface kgf=Nx0.101972

Quantity	Price			Days to Ship
	1-19	20-34	35-49	
Rate	€ Unit Price	5%	10%	Quotation
Days to Ship	Standard			

dr	€ Unit Price					
	Round Flange		Square Flange		Compact Flange	
6	LHRKW	LHRKWM	LHCKW	LHCKWM	LHCKW	LHCKWM
8						
10						
12						
16						

Order Example: Part Number LHRKW12, LHRKW12L (L Type Greased), LHRKW12G (G Type Greased), LHRKW12H (H Type Greased). Alternative grease types available. For Days to Ship, Price and Performance, refer to P.272

Days to Ship: 6 Days, 2 Days. P.87. Flanged Linear Bushings Compact Type

Flanged Linear Bushing Standard Type

-Center Flanged Double-

Price Reduction

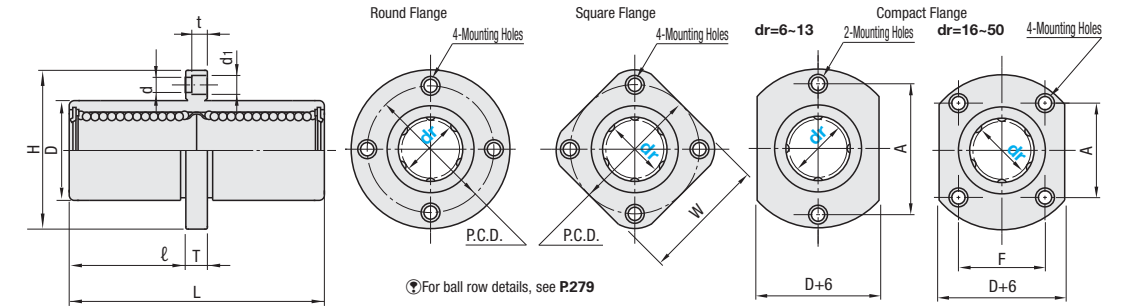
CAD Data

Flange Type Height-adjusting Spacers can be select from P.288

RoHS



Type			Outer Cylinder			Steel balls	Retainer	Ambient Operating Temp.	Accessory
Round Flange	Square Flange	Compact Flange	Material	Hardness	Surface Treatment	Material	Material		
LHMRW	LHMSW	LHMCW	1.3505/100Cr6	58HRC~	Electroless Nickel Plating	1.3505/100Cr6	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber (-20~120°C)
LHMRWF	LHMSWF	LHMCWF					1.4125/X105CrMo17	-20~110°C	
LHMRWM	LHMSWM	LHMCWM	1.4125/X105CrMo17	56HRC~		1.4125/X105CrMo17	Plastic (Duracon M90 equivalent)	-20~80°C	Nitrile Rubber (-20~120°C)
LHMRWMF	LHMSWMF	LHMCWMF					1.4125/X105CrMo17	-20~110°C	
SLHMRW	SLHMSW	SLHMCW	1.4125/X105CrMo17			1.4125/X105CrMo17	Plastic (Duracon M90 equivalent)	-20~80°C	
SLHMRWS	SLHMSWS	SLHMCWS					1.4125/X105CrMo17	-20~120°C	



dr	Tolerance	D Tolerance		L Tolerance	Eccentricity	Perpendicularity	Basic Load Rating		Allowable Static Moment (Nm)			Mass(g)		
		Surface Treatment No	Surface Treatment Yes				C (Dynamic) N	Co (Static) N	Round Flange	Square Flange	Compact Flange			
6	0	12	0	35	0.015	0.015	324	529	2.18	31	25	28		
8	0	15	-0.013	45			431	784	4.31	51	43	47		
10	0	19	0	55	0.020	0.020	588	1100	7.24	98	78	90		
12	-0.010	21	0	57			657	1200	10.9	110	90	102		
13	0	23	-0.016	61	0.025	0.025	813	1570	11.6	130	108	123		
16	0	28	0	70			1230	2350	19.7	190	165	182		
20	0	32	0	80	0.025	0.025	1400	2740	26.8	260	225	247		
25	-0.012	40	-0.019	112			1560	3140	43.4	540	500	525		
30	0	45	0	123	0.025	0.025	2490	5490	82.8	680	590	645		
35	0	52	0	135			2650	6270	110	1020	930	945		
40	0	60	-0.022	151	0.025	0.025	3430	8040	147	1570	1380	1423		
50	0	80	-0.030	192			6080	15900	397	3600	3400	3437		

For linear bushings, hardened shafts with g6 tolerance are recommended. P.107-195

* Perpendicularity of D part to flange mounting surface

kgf=Nx0.101972



Quantity Discount Price (Round down to one Cent.) P.87

Quantity	Rate	Days to Ship
1-19	5%	Standard
20-34	10%	Quotation
35-49	10%	Quotation
50-99	18%	Quotation

For orders larger than indicated quantity, please request a quotation.

-Others

Quantity	Rate	Days to Ship
1-19	5%	Standard
20-34	10%	Standard
35-49	10%	Standard
50-99	18%	Standard

For orders larger than indicated quantity, please request a quotation.

dr	Round Flange				Square Flange				Compact Flange			
	LHMRW	LHMRWF	LHMRWM	LHMRWMF	LHMSW	LHMSWF	LHMSWM	LHMSWMF	LHMCW	LHMCWF	LHMCWM	LHMCWMF
6												
8												
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16												
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25												
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35												
40												
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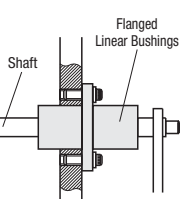
Order Example Part Number

- LHMCW25L (L Type Greased)
- LHMCW25G (G Type Greased)
- LHMCW25H (H Type Greased)

Alternative grease types available. For Days to Ship, Price and Performance, refer to P.272



When a long stroke distance is required, use of longer bushings is recommended.



Days to Ship 6 Days P.87

2 Days



Flanged Linear Bushing Compact / With Female Thread Holes

-Center Flanged Double-

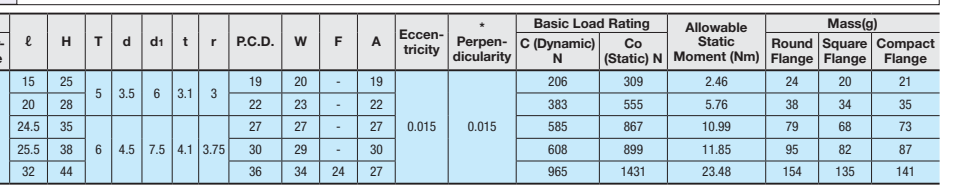
CAD Data

Features: 4 to 5mm smaller in flange diameter (H Dimension) and 2mm smaller in outer diameter (D dimension) than Standard Type. Standard and Compact Comparison P.280

Compact Type RoHS



Type	Outer Cylinder	Steel balls	Retainer	Ambient Operating Temp.	Accessory
Round Flange	Material	Material	Material		
LHMRKW	1.3505/100Cr6	1.3505/100Cr6	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber (-20~120°C)



For linear bushings, hardened shafts with g6 tolerance are recommended. P.107-195

* Perpendicularity of D part to flange mounting surface kgf=Nx0.101972

Features: (1) Cost for tapping can be reduced. (2) Effective for connecting soft materials (3) Can be screw tightened from above.

Female Thread Type RoHS



Type	Outer Cylinder	Steel balls	Retainer	Ambient Operating Temp.	Accessory
Round Flange	Material	Material	Material		
LHMTRW	1.3505/100Cr6	1.3505/100Cr6	Plastic (Duracon M90 equivalent)	-20~80°C	Seals Material Nitrile Rubber (-20~120°C)

dr	Tolerance	D Tolerance		L Tolerance	Eccentricity	Perpendicularity	Basic Load Rating		Allowable Static Moment (Nm)			Mass(g)		
		Surface Treatment No	Surface Treatment Yes				C (Dynamic) N	Co (Static) N	Round Flange	Square Flange	Compact Flange			
6	0	12	0	35	0.015	0.015	324	529	2.18	31	25	28		
8	0	15	-0.013	45			431	784	4.31	51	43	47		
10	0	19	0	55	0.020	0.020	588	1100	7.24	98	78	90		
12	-0.010	21	0	57			657	1200	10.9	110	90	102		
16	0	28	0	70	0.025	0.025	813	1570	11.6	130	108	123		
20	0	32	0	80			1230	2350	19.7	190	165	182		
25	-0.012	40	-0.019	112	0.025	0.025	1400	2740	26.8	260	225	247		
30	0	45	0	123			1560	3140	43.4	540	500	525		

For linear bushings, hardened shafts with g6 tolerance are recommended. P.107-195

* Perpendicularity of D to flange mounting surface kgf=Nx0.101972



Quantity Discount Price (Round down to one Cent.) P.87

Quantity	Rate	Days to Ship
1-19	5%	Standard
20-34	10%	Quotation
35-49	10%	Quotation

For orders larger than indicated quantity, please request a quotation.

dr	Compact Type			Female Thread Type		
	Round Flange	Square Flange	Compact Flange	Round Flange	Square Flange	Compact Flange
6	LHMRKW	LHMSKW	LHMCCKW	LHMTRW	LHMTSW	LHMTCW
8						
10						
12						
16						
20						
25						
30						

Order Example Part Number

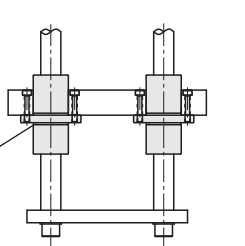
- LHMRKW12L (L Type Greased)
- LHMRKW12G (G Type Greased)
- LHMRKW12H (H Type Greased)

Alternative grease types available. For Days to Ship, Price and Performance, refer to P.272

Days to Ship 6 Days P.87



Flanged Linear Bushings Tapped Type



Flanged Linear Bushings

-Long / Long with Pilot-

CAD Data

Flanged Linear Bushings

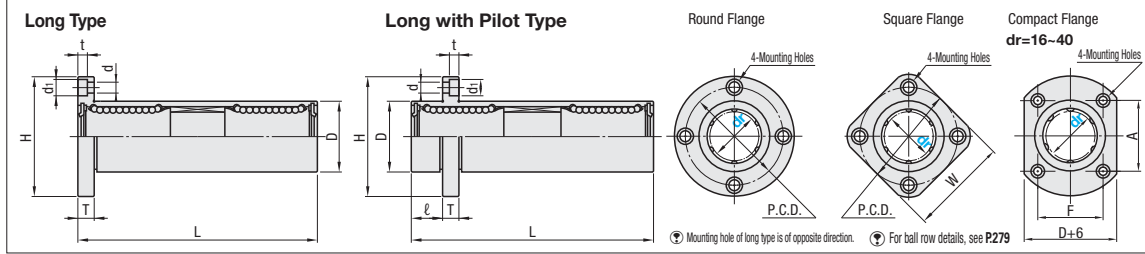
-Long / with Long Pilot-

CAD Data



RoHS

	Type			Outer Cylinder / Balls		Outer Cylinder	Retainer	Ambient Operating Temp.	A Accessory	
	Round Flange	Square Flange	Compact Flange	M Material	H Hardness	S Surface Treatment	M Material			
Long	LHKRNL	LHKSNL	LHKCNL	1.3505/100Cr6	58HRC~	-	Plastic (Duracon M90 equivalent)	-20~80°C	Seals M Material Nitrile Rubber (-20~120°C)	
	LHKRNL	LHKSNL	LHKCNL				1.4125/X105CrMo17	-20~110°C		
	LHKRNL	LHKSNL	LHKCNL				Electroless Nickel Plating	Plastic (Duracon M90 equivalent)		-20~80°C
	LHKRNL	LHKSNL	LHKCNL				1.4125/X105CrMo17	-20~110°C		
	LHKRNL	LHKSNL	LHKCNL				1.4125/X105CrMo17	-20~120°C		
	LHKRNL	LHKSNL	LHKCNL				Plastic (Duracon M90 equivalent)	-20~80°C		
Long Pilot	LHKIRNL	LHKISNL	LHKICNL	1.3505/100Cr6	58HRC~	-	Plastic (Duracon M90 equivalent)	-20~80°C	Seals M Material Nitrile Rubber (-20~120°C)	
	LHKIRNL	LHKISNL	LHKICNL				1.4125/X105CrMo17	-20~110°C		
	LHKIRNL	LHKISNL	LHKICNL				Electroless Nickel Plating	Plastic (Duracon M90 equivalent)		-20~80°C
	LHKIRNL	LHKISNL	LHKICNL				1.4125/X105CrMo17	-20~110°C		
	LHKIRNL	LHKISNL	LHKICNL				1.4125/X105CrMo17	-20~120°C		
	LHKIRNL	LHKISNL	LHKICNL				Plastic (Duracon M90 equivalent)	-20~80°C		



dr	D Tolerance	L	Tolerance	L	H	T	d	di	t	P.C.D.	W	F	A	Eccentricity	Perpendicularity	Basic Load Rating			Allowable Static Moment			Mass(g)			
																C (Dynamic)	Co (Static)	N	Round Flange	Square Flange	Compact Flange	Round Flange	Square Flange	Compact Flange	Round Flange
6	0	15	±0.013	49	±0.03	5	32	5	3.5	6	3.1	24	25	-	-	0.020	0.020	324	529	8.2	66	58	-	-	-
8	-0.012	19	0	68	±0.03	6	40	6	4.5	7.5	4.1	29	30	-	-	0.020	0.020	431	784	16.0	135	117	-	-	-
10	-0.012	23	0	82	±0.03	6	43	6	4.5	7.5	4.1	33	34	-	-	0.020	0.020	588	1100	27.0	205	189	-	-	-
12	0	26	-0.016	86	±0.03	6	46	6	4.5	7.5	4.1	36	35	-	-	0.020	0.020	657	1200	40.1	248	228	-	-	-
13	0	28	-0.016	92	±0.03	6	48	6	4.5	7.5	4.1	38	37	-	-	0.020	0.020	813	1570	42.9	308	286	-	-	-
16	-0.015	32	0	105	±0.03	8	54	8	5.5	9	5.1	43	42	24	36	0.025	0.025	1230	2350	73.5	412	376	386	-	-
20	0	40	-0.019	120	±0.03	8	62	8	5.5	9	5.1	51	50	32	40	0.025	0.025	1400	2740	98.0	752	714	724	-	-
25	-0.018	45	-0.025	167	±0.03	10	74	10	6.6	11	6.1	60	58	35	49	0.025	0.025	1560	3140	157	1244	1163	1178	-	-
30	0	52	-0.022	184	±0.03	10	82	10	6.6	11	6.1	67	64	38	55	0.030	0.030	2490	5490	297	1636	1543	1567	-	-
35	0	60	-	200	±0.03	13	96	13	9	14	8.1	78	75	45	64	0.030	0.030	2650	6270	373	2580	2400	2433	-	-
40	-0.021	65	-0.030	230	±0.03	13	101	13	9	14	8.1	83	80	48	68	0.030	0.030	3430	8040	553	2950	2510	2798	-	-

For linear bushings, hardened shafts with g6 tolerance are recommended. P107-195
 Quantity Discount Price (Round down to one Cent) P87
 -LHKRL - LHKIRL - LHKIRNL - LHKISL - LHKIRNL - LHKISL - LHKRNL - LHKSL
 Price
 Quantity 1-19 20-34 35-49 50-99
 Rate € Unit Price 5% 10% 18%
 Days to Ship Standard Quotation
 For orders larger than indicated quantity, please request a quotation.
 -Others
 Quantity 1-19 20-34 35-49 50-99
 Rate € Unit Price 5% 10% 18%
 Days to Ship Standard Quotation
 For orders larger than indicated quantity, please request a quotation.
 * Perpendicularity of D part to flange mounting surface kgf=Nx0.101972

Part Number	€ Unit Price Long												
	Type	dr	LHKRNL	LHKRNL	LHKRNL	LHKRNL	LHKRNL	LHKRNL	LHKRNL	LHKRNL	LHKRNL	LHKRNL	LHKRNL
(Round Flange)	LHKRNL	6											
(Round Flange)	LHKRNL	8											
(Round Flange)	LHKRNL	10											
(Round Flange)	LHKRNL	12											
(Round Flange)	LHKRNL	13											
(Square Flange)	LHKSNSL	16											
(Square Flange)	LHKSNSL	20											
(Square Flange)	LHKSNSL	25											
(Square Flange)	LHKSNSL	30											
(Compact Flange)	LHKCNL	35											
(Compact Flange)	LHKCL	40											

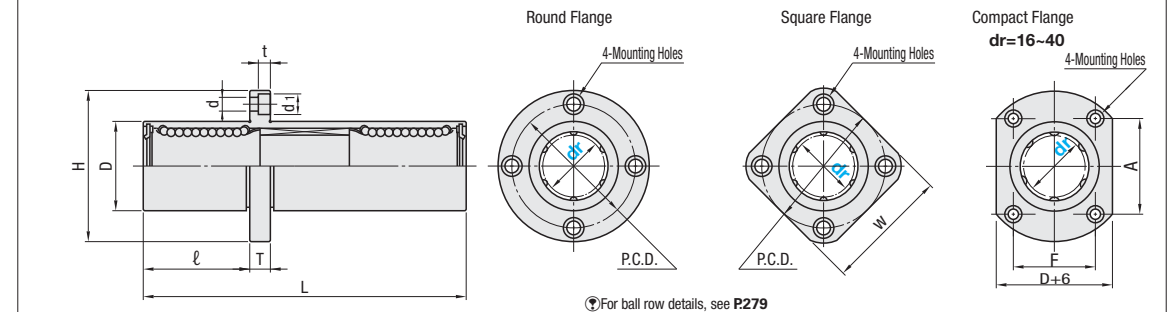
Part Number	€ Unit Price Long with Pilot												
	Type	dr	LHKIRNL	LHKIRNL	LHKIRNL	LHKIRNL	LHKIRNL	LHKIRNL	LHKIRNL	LHKIRNL	LHKIRNL	LHKIRNL	LHKIRNL
(Round Flange)	LHKIRNL	6											
(Round Flange)	LHKIRNL	8											
(Round Flange)	LHKIRNL	10											
(Round Flange)	LHKIRNL	12											
(Round Flange)	LHKIRNL	13											
(Square Flange)	LHKISNSL	16											
(Square Flange)	LHKISNSL	20											
(Square Flange)	LHKISNSL	25											
(Square Flange)	LHKISNSL	30											
(Compact Flange)	LHKICNL	35											
(Compact Flange)	LHKICL	40											

Order Example
 Part Number LHKRL8
 LHKRL8L (L Type Greased)
 LHKRL8G (G Type Greased)
 LHKRL8H (H Type Greased)
 Days to Ship 6 Days P87
 Alternative grease types available.
 For Days to Ship, Price and Performance, refer to P272



RoHS

	Type			Outer Cylinder / Balls		Outer Cylinder	Retainer	Ambient Operating Temp.	A Accessory	
	Round Flange	Square Flange	Compact Flange	M Material	H Hardness	S Surface Treatment	M Material			
Long	LHKMRNL	LHKMSNL	LHKMCNL	1.3505/100Cr6	58HRC~	-	Plastic (Duracon M90 equivalent)	-20~80°C	Seals M Material Nitrile Rubber (-20~120°C)	
	LHKMRNL	LHKMSNL	LHKMCNL				1.4125/X105CrMo17	-20~110°C		
	LHKMRNL	LHKMSNL	LHKMCNL				Electroless Nickel Plating	Plastic (Duracon M90 equivalent)		-20~80°C
	LHKMRNL	LHKMSNL	LHKMCNL				1.4125/X105CrMo17	-20~110°C		
	LHKMRNL	LHKMSNL	LHKMCNL				1.4125/X105CrMo17	-20~120°C		
	LHKMRNL	LHKMSNL	LHKMCNL				Plastic (Duracon M90 equivalent)	-20~80°C		



dr	D Tolerance	L	Tolerance	L	H	T	d	di	t	P.C.D.	W	F	A	Eccentricity	Perpendicularity	Basic Load Rating			Allowable Static Moment			Mass(g)			
																C (Dynamic)	Co (Static)	N	Round Flange	Square Flange	Compact Flange	Round Flange	Square Flange	Compact Flange	Round Flange
6	0	15	±0.013	49	±0.03	5	32	5	3.5	6	3.1	24	25	-	-	0.020	0.020	324	529	8.2	66	58	-	-	-
8	-0.012	19	0	68	±0.03	6	40	6	4.5	7.5	4.1	29	30	-	-	0.020	0.020	431	784	16.0	135	117	-	-	-
10	-0.012	23	0	82	±0.03	6	43	6	4.5	7.5	4.1	33	34	-	-	0.020	0.020	588	1100	27.0	205	189	-	-	-
12	0	26	-0.016	86	±0.03	6	46	6	4.5	7.5	4.1	36	35	-	-	0.020	0.020	657	1200	40.1	248	228	-	-	-
13	0	28	-0.016	92	±0.03	6	48	6	4.5	7.5	4.1	38	37	-	-	0.020	0.020	813	1570	42.9	308	286	-	-	-
16	-0.015	32	0	105	±0.03	8	54	8	5.5	9	5.1	43	42	24	36	0.025	0.025	1230	2350	73.5	412	376	386	-	-
20	0	40	-0.019	120	±0.03	8	62	8	5.5	9	5.1	51	50	32	40	0.025	0.025	1400	2740	98.0	752	714	724	-	-
25	-0.018	45	-0.025	167	±0.03	10	74	10	6.6	11	6.1	60	58	35	49	0.025	0.025	1560	3140	157	1244	1163	1178	-	-
30	0	52	-0.022	184	±0.03	10	82	10	6.6	11	6.1	67	64	38	55	0.030	0.030	2490	5490	297	1636	1543	1567	-	-
35	0	60	-	200	±0.03	13	96	13	9	14	8.1	78	75	45	64	0.030	0.030	2650	6270	373	2580	2400	2433	-	-
40	-0.021	65	-0.030	230	±0.03	13	101	13	9	14	8.1	83	80	48	68	0.030	0.030	3430	8040	553	2950	2510	2798	-	-

For linear bushings, hardened shafts with g6 tolerance are recommended. P107-195
 Quantity Discount Price (Round down to one Cent) P87
 -LHKMRL - LHKMRNL - LHKMSL
 Price
 Quantity 1-19 20-34 35-49 50-99
 Rate € Unit Price 5% 10% 18%
 Days to Ship Standard Quotation
 For orders larger than indicated quantity, please request a quotation.
 -Others
 Quantity 1-19 20-34 35-49 50-99
 Rate € Unit Price 5% 10% 18%
 Days to Ship Standard Quotation
 For orders larger than indicated quantity, please request a quotation.
 * Perpendicularity of D part to flange mounting surface kgf=Nx0.101972

Part Number	€ Unit Price												
	Type	dr	LHKMRNL	LHKMRNL	LHKMRNL	LHKMRNL	LHKMRNL	LHKMRNL	LHKMRNL	LHKMRNL	LHKMRNL	LHKMRNL	LHKMRNL
(Round Flange)	LHKMRNL	6											
(Round Flange)	LHKMRNL	8											
(Round Flange)	LHKMRNL	10											
(Round Flange)	LHKMRNL	12											
(Round Flange)	LHKMRNL	13											
(Square Flange)	LHKMSNSL	16											
(Square Flange)	LHKMSNSL	20											
(Square Flange)	LHKMSNSL	25											
(Square Flange)	LHKMSNSL	30											
(Compact Flange)	LHKMCNL	35											
(Compact Flange)	LHKMCL	40											

Order Example
 Part Number LHKMSL6
 LHKMSL6L (L Type Greased)
 LHKMSL6G (G Type Greased)
 LHKMSL6H (H Type Greased)
 Days to Ship 6 Days P87
 Alternative grease types available.
 For Days to Ship, Price and Performance, refer to P272
 ex Example
 When a long stroke distance is required, use of longer bushings is recommended.