



# Linear Bushing (Straight)

Compact Type, Single / Double

**Linear Bushings Compact Type (Straight) – Single**

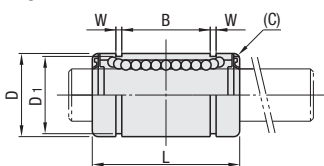


**Linear Bushings Compact Type (Straight) – Double**

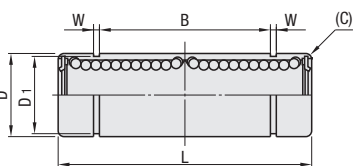


Type		Outer Cylinder		Balls	Retainer	Ambient Operating Temp.	Accessories
Single	Double	Material	Hardness	Material	Material		
LMK	LMKW	52100 Bearing Steel	58 HRC min.	52100 Bearing Steel	Plastic (Duracon M90 Equivalent)	-20~80°C	Seal Material Nitrile Rubber (-20~120°C)

Single



Double



## Single

Part Number	Type	dr	Tolerance	D	Tolerance	L	Tolerance	B	Tolerance	W	D <sub>1</sub>	(C)	Eccentricity (Max.)	Rows of Balls	Basic Load Rating		Mass (g)
															C (Dynamic) N	Co (Static) N	
LMK	6	0	-0.009	10	0	19	0	11.3	0	1.15	9.6	0.1	0.012	6	131	155	6
	8			13	0			15.3							235	277	12
	10			17	-0.011			19.4							368	433	26
	12			19	0			20.4							381	449	32
	16			26	-0.013			23.3							608	716	58

## Double

Part Number	Type	dr	Tolerance	D	Tolerance	L	Tolerance	B	Tolerance	W	D <sub>1</sub>	(C)	Eccentricity (Max.)	Rows of Balls	Basic Load Rating		Allowable Static Moment (N·m)	Mass (g)
															C (Dynamic) N	Co (Static) N		
LMKW	6	0	-0.010	10	0	35	0	24.8	0	1.15	9.6	0.1	0.015	6	206	309	2.46	12
	8			13	0			32.8							383	555	5.76	24
	10			17	-0.011			41.4							585	867	10.99	52
	12			19	0			43.4							608	899	11.85	64
	16			26	-0.013			49.8							965	1431	23.48	116

For linear bushings, hardened shafts with g6 tolerance are recommended. P.202-288

**Part Number Example**

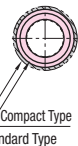
Part Number	Part Number
LMK12	LMKW12
LMK12L	(L Type Greased)
LMK12G	(G Type Greased)
LMK12H	(H Type Greased)

## Standard & Compact Comparison

dr	Straight / Flanged			Flanged Type			Housing Unit						Rows of Balls	
	Outer Diameter (D)			Flange Diameter (H)			Width (W)			Height (H)			Compact	Standard
	Compact	Standard	Difference	Compact	Standard	Difference	Compact	Standard	Difference	Compact	Standard	Difference		
6	10	12	-2	25	28	-3	14	16	-2	20	22	-2	6	4
8	13	15	-2	28	32	-4	17	20	-3	24	26	-2	6	4
10	17	19	-2	35	40	-5	23	26	-3	30	32	-2	6	4
12	19	21	-2	38	42	-4	25	28	-3	32	34	-2	6	4
16	26	28	-2	44	48	-4	33	36	-3	43	49	-6	6	4

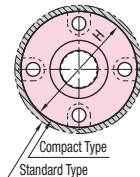
## Dimension Comparison of Compact and Standard Types (When dr=6)

**Straight (P.376)**



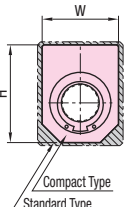
Standard	O.D. 12
<b>31% MORE COMPACT</b>	<b>Compact</b>
Compact	O.D. 10

**Flanged (P.380, 382, 386, 388, 390)**



Standard	Flange Dia. 28
<b>20% MORE COMPACT</b>	<b>Compact</b>
Compact	Flange Dia. 25

**Housing Unit Type (P.393-394)**




Standard	W 16 / H 22
<b>20% MORE COMPACT</b>	<b>Compact</b>
Compact	W 14 / H 20

# Linear Bushings (Straight) / Flanged Linear Bushings

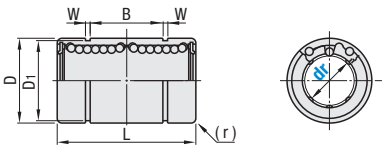
Medium Type

**Feature:** Body length is approximately 1.5 times of single type, and allowable moment is approximately 4.3 times. Suitable for applications where there is no enough space for double type.



RoHS 10

Type		Outer Cylinder		Balls	Retainer	Ambient Operating Temp.	Accessories	
Straight	LMUD	Material	Hardness	Surface Treatment	Material			
LMUD	LMUDM	52100 Bearing Steel	58 HRC min.	Electroless Nickel Plating	52100 Bearing Steel 440C Stainless Steel Equivalent	Plastic (Duracon M90 Equivalent)	-20~80°C	Seal Material Nitrile Rubber




Body length is approximately 1.5 times of single type, and allowable moment is approximately 4.3 times. (See Allowable Load Comparison)

Part Number	Type	dr	Tolerance	D Tolerance		L	Tolerance	B	Tolerance	W	D <sub>1</sub>	(r)	Eccentricity (Max.)	Rows of Balls	Basic Load Rating		Static Allowable Moment (N·m)	Mass (g)
				No Surface Treatment	Surface Treatment										C (Dynamic) N	Co (Static) N		
LMUD LMUDM	6	0	-0.010	12	0	29	0	20	0	1.1	11.5	0.4	0.015	4	226	310	1.42	12
	8			15	-0.013			-0.018							37	25	14.3	27
	10			19	0			0							47	30	18	49
	12			21	-0.016			-0.021							56	35	20	69
	13			23	0			0							65	40	22	112
	16			28	0			0							83	55	30.5	152
	20			32	-0.019			-0.025							90	71.3	42.5	332
	25			40	0			0							83	55	38	422
	30			45	-0.012			-0.019							90	71.3	42.5	422

For Precautions for Use, see P.369.

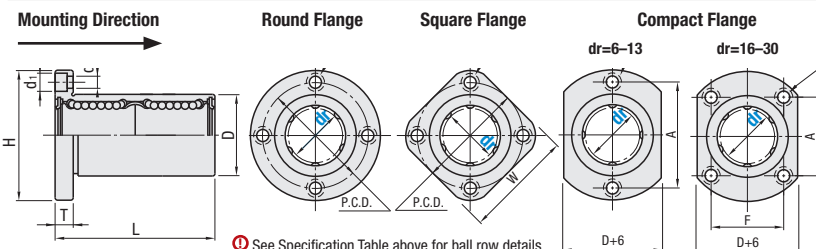
## Flanged Linear Bushings – Medium Type



RoHS 10

Type			Outer Cylinder			Steel balls	Retainer	Operating Environment Temp.	Accessories
Round Flange	Square Flange	Compact Flange	Material	Hardness	Surface Treatment	Material	Material		
LHFRD	LHFSD	LHFCO	52100 Bearing Steel	58 HRC min.	Electroless Nickel Plating	52100 Bearing Steel	Plastic (Duracon M90 Equivalent)	-20~80°C	Seal Material Nitrile Rubber
LHFSDM	LHFSOM	LHFCO				440C Stainless Steel Equivalent			

Mounting Direction



Body length is approximately 1.5 times of single type, and allowable moment is approximately 4.3 times. (See Allowable Load Comparison)

Part Number	Type	dr	ToI.	D Tolerance		L	ToI.	H	T	d	d <sub>1</sub>	t	P.C.D.	W	F	A	Eccentricity (Max.)	Rows of Balls	*Perpendicularity	Basic Load Rating			Mass(g)						
				No Surface Treatment	Surface Treatment															C (Dynamic) N	Co (Static) N	Allowable Static Moment (N·m)	Round Flange	Square Flange	Compact Flange				
LHFRD LHFSD LHFCO LHFSDM LHFSOM LHFCO	6	0	-0.010	12	0	29	±0.3	28	5	3.5	6	3.1	20	22	—	20	0.015	4	0.015	226	310	1.42	27	21	24				
	8			15	-0.013			-0.018												37	32	25	24	310	452	2.12	47	39	43
	10			19	0			0												47	40	—	29	508	718	4.37	85	65	77
	12			21	-0.016			-0.021												56	42	—	32	634	814	6.2	89	69	81
	13			23	0			0												65	43	—	33	640	826	6.2	109	87	102
	16			28	0			0												83	48	—	38	1164	1448	13.1	157	132	149
	20			32	-0.019			-0.025												90	54	—	43	1554	2068	18.3	232	197	219
	25			40	0			0												83	62	—	51	1725	3068	25.3	479	440	450
	30			45	-0.012			-0.019												90	74	—	60	2440	3974	42.7	559	481	492

For linear bushings, hardened shafts with g6 tolerance are recommended. P.202-288

For Precautions for Use, see P.369.

\*Perpendicularity of D to flange mounting surface

**Part Number Example**

Part Number	Part Number
LMUD8	LHFRD10
LHFSDM12L	(L Type Greased)
LHFSDM12G	(G Type Greased)
LHFSDM12H	(H Type Greased)

Alternative grease types available.

## Features of Medium Type Bushings

- Body length is approximately 1.5 times of single type, and allowable moment is approximately 4.3 times. Suitable where there is no enough space for double type. (See Allowable Load Comparisons)
- B dimension (distance between retaining ring grooves) of the Straight Type is designed to match MISUMI's standard plate thickness to help reduce machining steps and costs.

## Allowable Load Comparison

Type	Basic Dynamic Load Rating	Basic Static Load Rating	Allowable Static Moment
Short	0.7	0.6	Approx. 0.6
Single	1	1	1
Middle	1.4	1.3	Approx. 4.3
Double	1.6	2	Approx. 6
Medium Long	1.6	1.6	Approx. 10
Long	1.6	2	Approx. 21

\*1 represents Single Type for comparison.