







Precision Linear Guideway

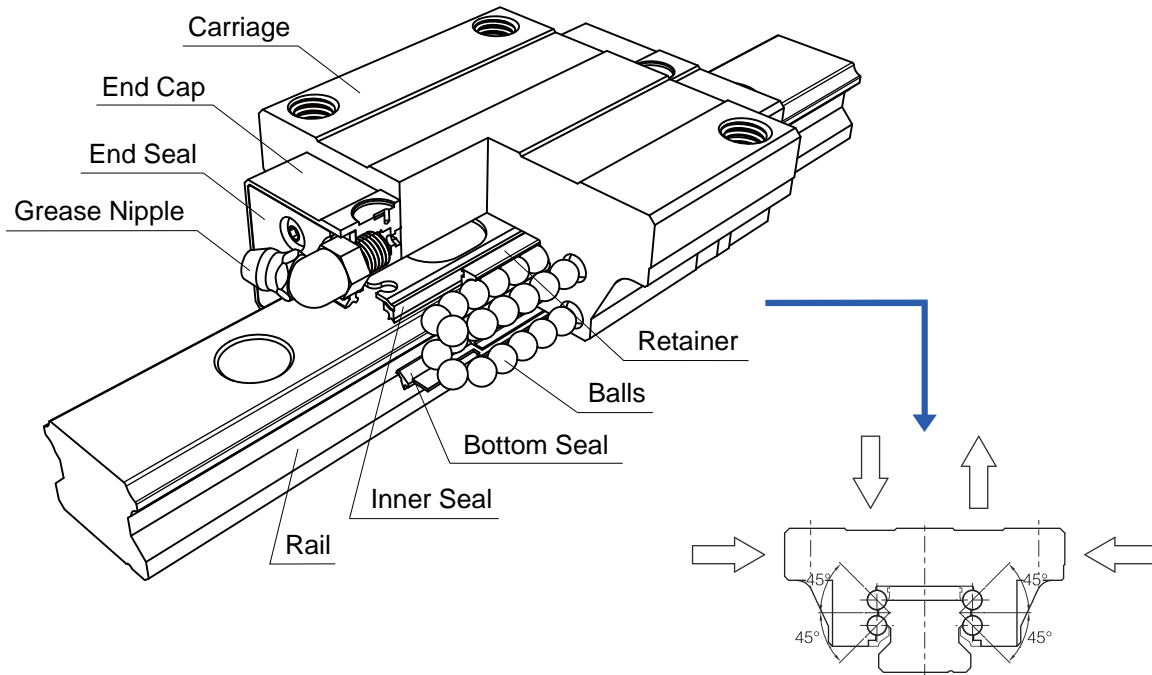
LMG Series



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1. Construction



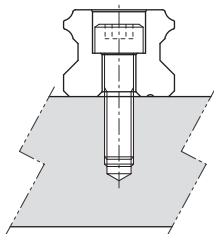
2. Characteristics

The four trains of balls are designed with a contact angle of 45° which enables it not only to bear load equally in radial, reversed radial and lateral directions but also can achieve high rigidity and high loading capacity. Therefore, it is suitable for all directional installation. Furthermore, the unique self alignment function of LMG series can compensate the certain error while assembling, and which results in high precision and smooth motion.

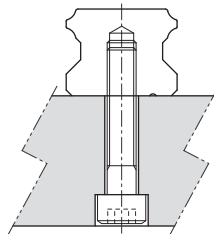
- ◆ **High Rigidity**
- ◆ **Four-Way Equal Load**
- ◆ **Self Alignment Capability**
- ◆ **Complete Dust Sealing System**
- ◆ **Interchangeability**
- ◆ **Smooth Movement**
- ◆ **Low Noise and High Speed Application**
- ◆ **High Positioning Accuracy**
- ◆ **High Repeatability**
- ◆ **Low Frictional Resistance**

3. Rail Type

Counter-bore (R type)



Tapped-hole (T type)

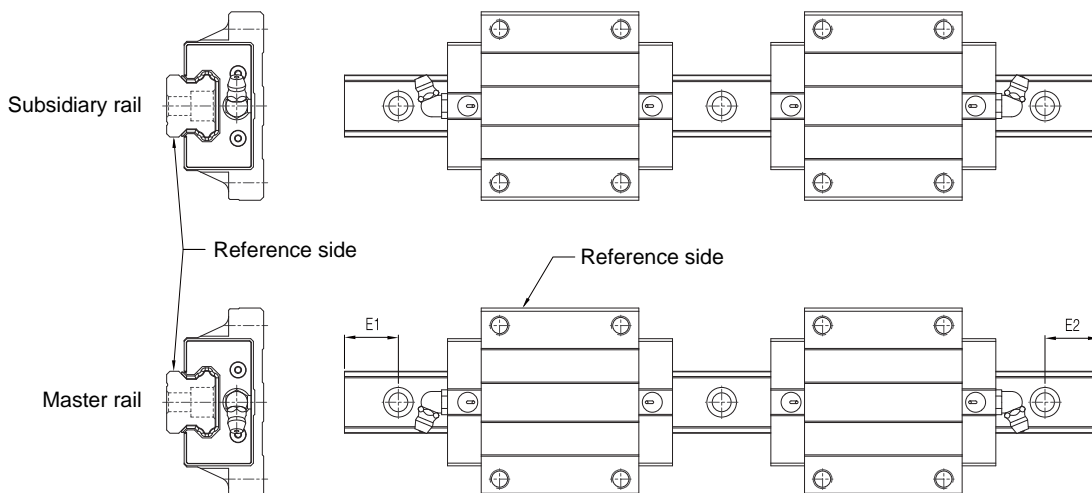
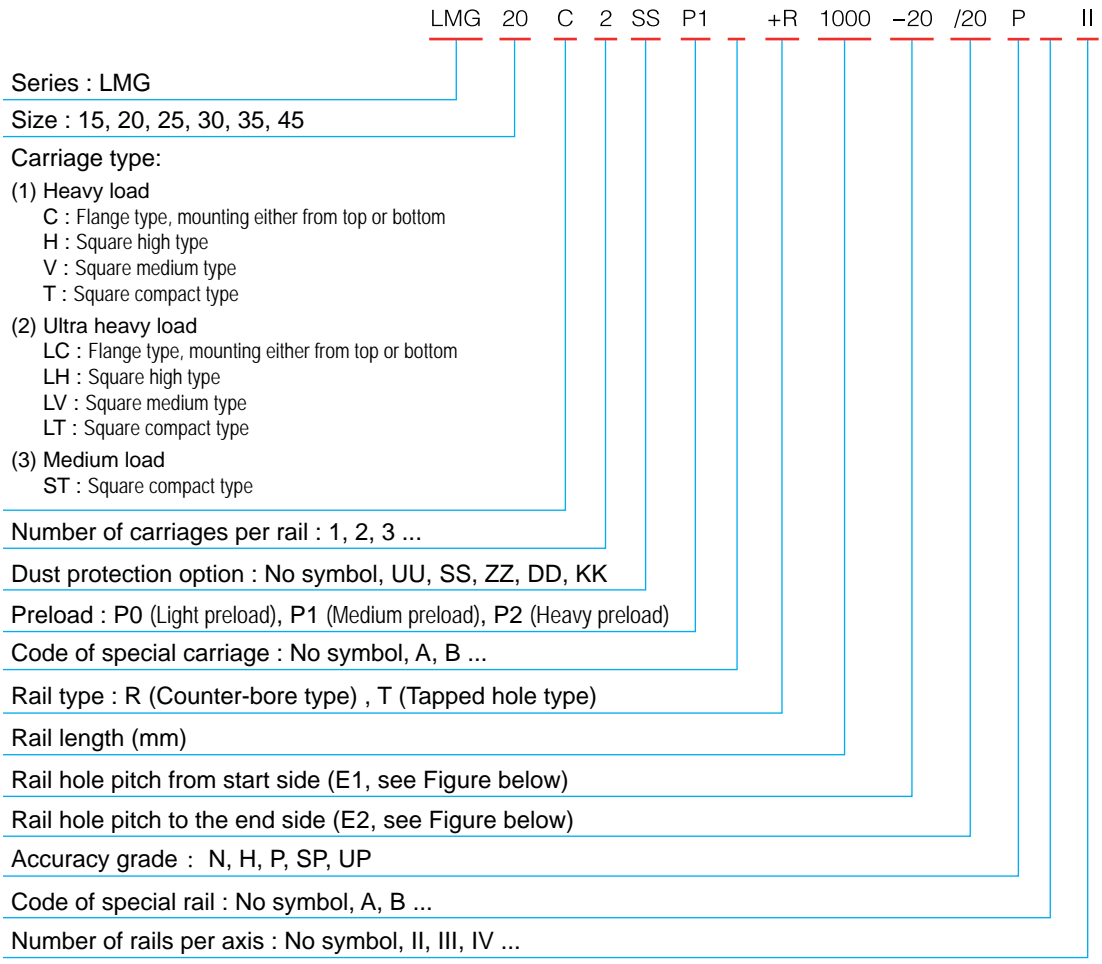


4. Carriage Type

Contour	Length	Spec. code
<p>Flange type</p>	<p>Heavy load</p>	<p>→ LMG ... C</p>
	<p>Ultra heavy load</p>	<p>→ LMG ... LC</p>
<p>Square high type</p>	<p>Heavy load</p>	<p>→ LMG ... H</p>
	<p>Ultra heavy load</p>	<p>→ LMG ... LH</p>
<p>Square medium type</p>	<p>Heavy load</p>	<p>→ LMG ... V</p>
	<p>Ultra heavy load</p>	<p>→ LMG ... LV</p>
<p>Square compact type</p>	<p>Medium load</p>	<p>→ LMG ... ST</p>
	<p>Heavy load</p>	<p>→ LMG ... T</p>
	<p>Ultra heavy load</p>	<p>→ LMG ... LT</p>

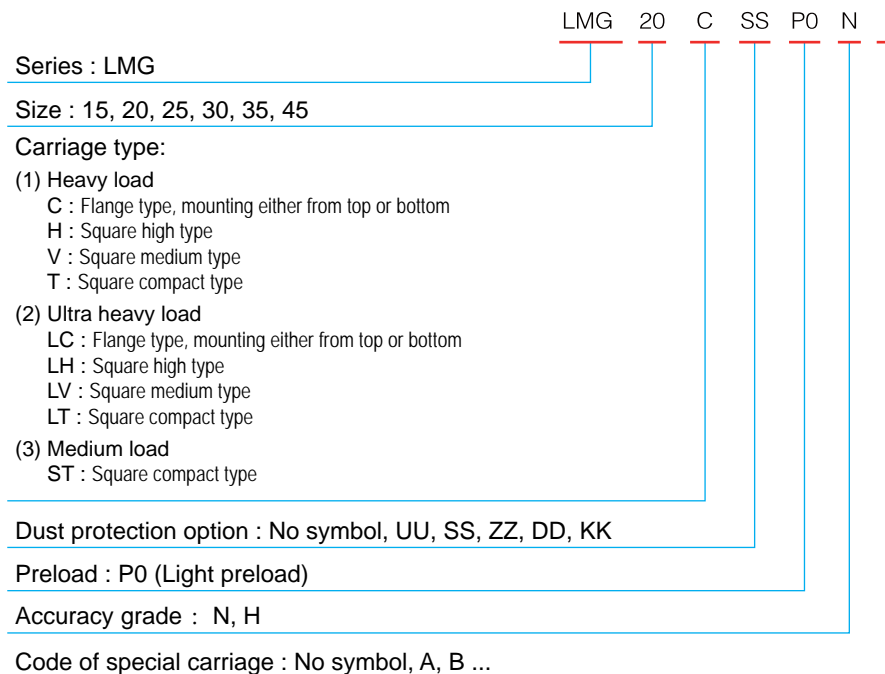
5. Description of Specification

(1) Non-Interchangeable Type

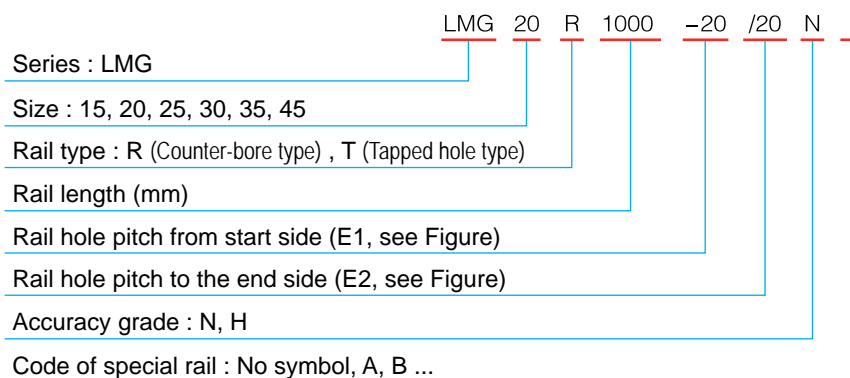


(2) Interchangeable Type

Code of Carriage

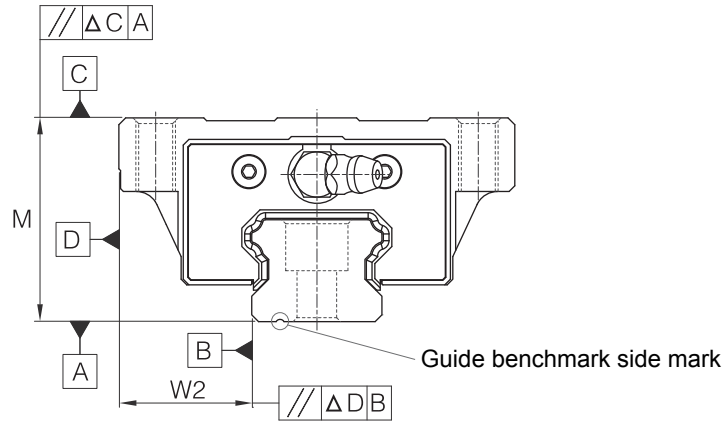


Code of Rail



6. Accuracy Grade

The accuracy of LMG series is divided into five classes, normal grade (N), high precision (H), precision (P), super precision (SP) and ultra precision (UP), as shown in Table.



Unit : mm

Model No.	Item	Accuracy Grade				
		Normal N	High H	Precision P	Super Precision SP	Ultra Precision UP
LMG 15 LMG 20	Tolerance for height ΔM	± 0.1	± 0.03	0 -0.03	0 -0.015	0 -0.008
	Height difference ΔM	0.02	0.01	0.006	0.004	0.003
	Tolerance for distance $W2$	± 0.1	± 0.03	0 -0.03	0 -0.015	0 -0.008
	Difference in distance $W2$ ($\Delta W2$)	0.02	0.01	0.006	0.004	0.003
	Running parallelism of surface C with surface A	ΔC (see Running parallelism of carriage)				
	Running parallelism of surface D with surface B	ΔD (see Running parallelism of carriage)				
LMG 25 LMG 30 LMG 35	Tolerance for height ΔM	± 0.1	± 0.04	0 -0.04	0 -0.02	0 -0.01
	Height difference ΔM	0.02	0.015	0.007	0.005	0.003
	Tolerance for distance $W2$	± 0.1	± 0.04	0 -0.04	0 -0.02	0 -0.01
	Difference in distance $W2$ ($\Delta W2$)	0.03	0.015	0.007	0.005	0.003
	Running parallelism of surface C with surface A	ΔC (see Running parallelism of carriage)				
	Running parallelism of surface D with surface B	ΔD (see Running parallelism of carriage)				
LMG 45	Tolerance for height ΔM	± 0.1	± 0.05	0 -0.05	0 -0.03	0 -0.02
	Height difference ΔM	0.03	0.015	0.007	0.005	0.003
	Tolerance for distance $W2$	± 0.1	± 0.05	0 -0.05	0 -0.03	0 -0.02
	Difference in distance $W2$ ($\Delta W2$)	0.03	0.02	0.01	0.007	0.005
	Running parallelism of surface C with surface A	ΔC (see Running parallelism of carriage)				
	Running parallelism of surface D with surface B	ΔD (see Running parallelism of carriage)				

Running Parallelism of Carriage

Rail length (mm)		Running Parallelism Values (μm)				
Above	Or less	Normal N	High H	Precision P	Super Precision SP	Ultra Precision UP
0	315	9	6	3	2	1.5
315	400	11	8	4	2	1.5
400	500	13	9	5	2	1.5
500	630	16	11	6	2.5	1.5
630	800	18	12	7	3	2
800	1000	20	14	8	4	2
1000	1250	22	16	10	5	2.5
1250	1600	25	18	11	6	3
1600	2000	28	20	13	7	3.5
2000	2500	30	22	15	8	4
2500	3000	32	24	16	9	4.5
3000	3500	33	25	17	11	5
3500	4000	34	26	18	12	6

7. Preload Grade

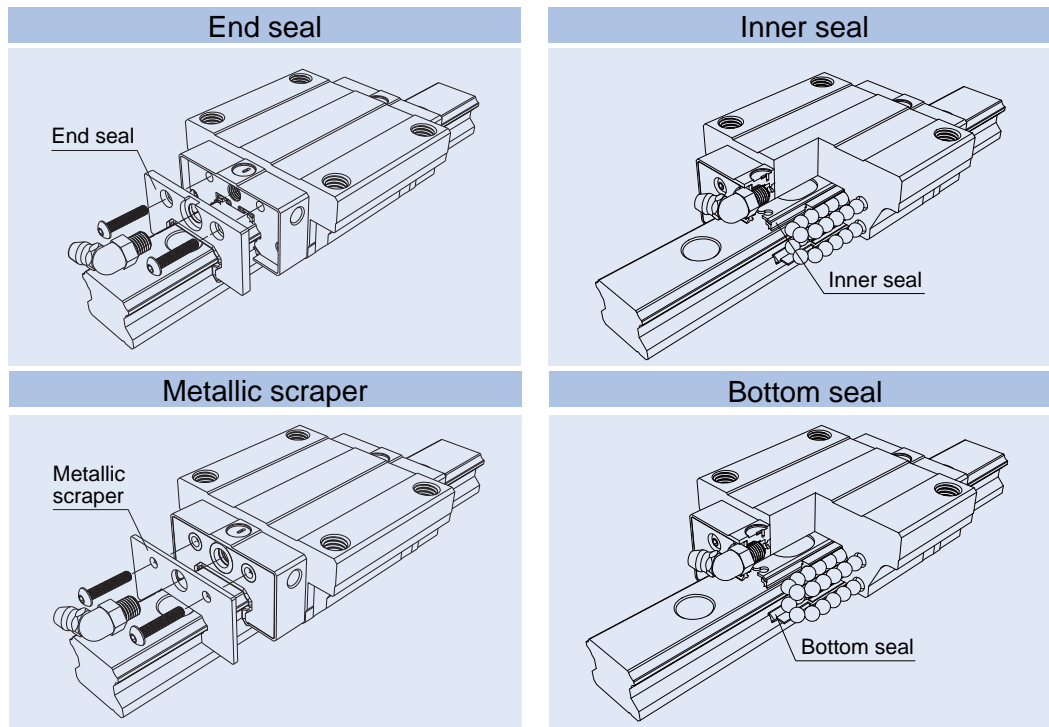
Preload Grade	Code	Preload	Operating Condition
Light preload	P0	0~0.02C	<ul style="list-style-type: none"> The loading direction is fixed, vibration and impact are light, and two axes are applied in parallel. High precision is not required, and the low frictional resistance is needed.
Medium preload	P1	0.04~0.06C	<ul style="list-style-type: none"> Overhang application with a moment load Applied in one-axis configuration The need of light preload and high precision
Heavy preload	P2	0.07~0.09C	<ul style="list-style-type: none"> Machine is subjected to vibration and impact, and high rigidity required. Application of heavy load or heavy cutting

Note : The preload is the percentage of basic dynamic load rating (C).

8. Dust Proof

(1) Contamination protection

LMG series of linear guideway offers various kinds of dust protection accessory to keep the foreign matters from entering into the carriage.



(2) Code of contamination protection

The codes for selection of dust protection accessory are shown as Table.

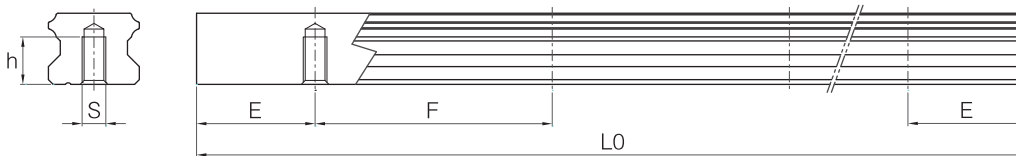
Code	Contamination Protection
No symbol	Metallic scraper (both ends)
UU	Bidirectional end seal (both ends)
SS	Bidirectional end seal + Bottom seal + Inner seal
ZZ	SS + Metallic scraper
DD	Double bidirectional end seal + Bottom seal + Inner seal
KK	DD + Metallic scraper

(3) Types of seal to the carriage overall length

The increment to be added to the length of carriage with different applications of dust protection accessory is shown as Table.

Model No.	No symbol	UU	SS	ZZ	DD	KK
LMG 15	-	-	-	3	6	9
LMG 20	-	-	-	3	6	9
LMG 25	-	-	-	3	6	9
LMG 30	-	-	-	3	6	9
LMG 35	-	-	-	3	6	9
LMG 45	-	- </td <td>-</td> <td>3</td> <td>6</td> <td>9</td>	-	3	6	9

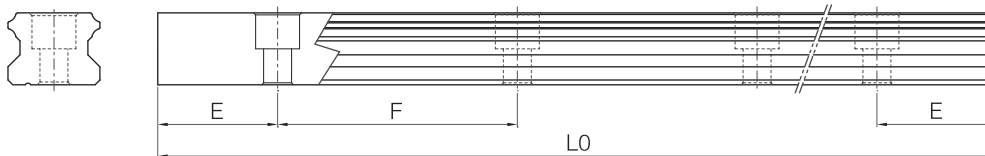
9. Dimensions of Tapped-hole Rails



Rail Size	S	h (mm)
LMG 15T	M5	8
LMG 20T	M6	10
LMG 25T	M6	12

Rail Size	S	h (mm)
LMG 30T	M8	15
LMG 35T	M12	17
LMG 45T	M14	24

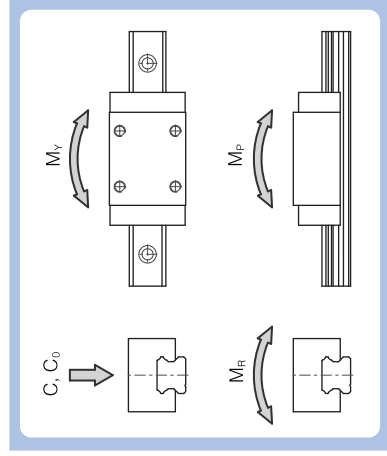
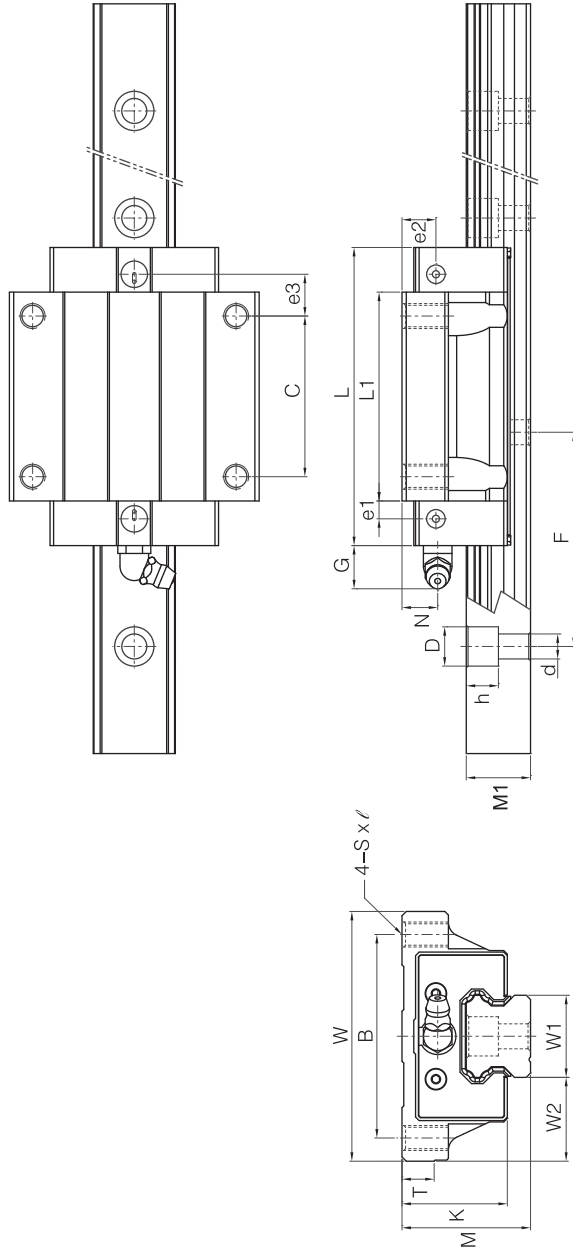
10. Rail Standard and Maximum Length



Unit : mm

Size	LMG15	LMG20	LMG25	LMG30	LMG35	LMG45
Standard Pitch (F)	60	60	60	80	80	105
Standard E (E _{std.})	20	20	20	20	20	22.5
Minimum E (E _{min.})	5	6	7	8	8	11
Max. Length (L0)	4000	4000	4000	4000	4000	4000

11. Dimensions of LMG...C/LC

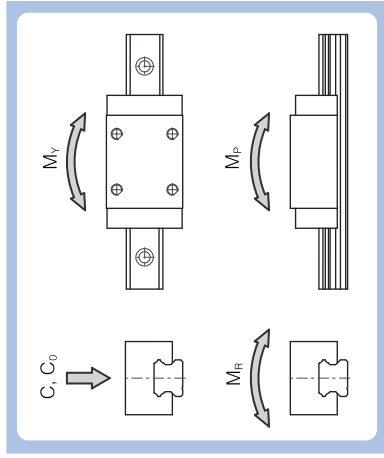
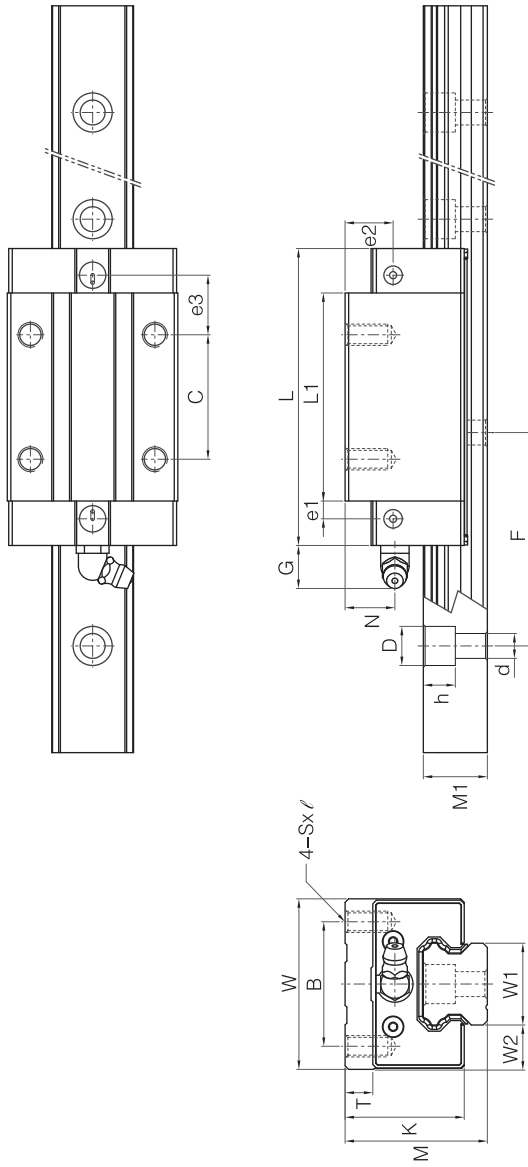


Unit : mm

Model No.	External dimension		Carriage dimension										Rail dimension			Basic load rating		Static moment rating				Weight										
	Height M	Width W	L	B	C	S x l	L1	T	K	N	e1	e2	e3	G	Grease nipple	Width W1	W2	Height M1	Pitch F	D x h x d	Dynamic C KN	Static C ₀ KN	M _h (KN-m)	Single Carriage	Double Carriages	M _y (KN-m)	Single Carriage	Double Carriages	M _r KN-m	Carriage Kg	Rail Kg/m	
LMG15 C	24	47	58.2	38	30	M5x8	39.5	5.5	19.5	5	3.3	4	8.6	7	M4x0.7	15	16	13	60	7.5x5.3x4.5	11.8	18.9	0.13	0.13	0.76	0.13	0.76	0.15	0.19	1.29	0.42	1.92
LMG20 C	30	63	75	53	40	M6x10	52.5	7	25	8.5	4.5	7	10.8	12	M6x0.75	20	21.5	15	60	9.5x8.5x6	20	32	0.30	0.30	1.68	0.30	1.68	0.33	0.42	1.92	0.53	1.92
LMG20 LC	30	63	88.8	53	40	M6x10	66.3	7	25	8.5	4.5	7	17.7	12	M6x0.75	20	21.5	15	60	9.5x8.5x6	23.2	39.3	0.44	0.44	2.36	0.44	2.36	0.41	0.53	1.92	0.62	2.67
LMG25 C	36	70	83.6	57	45	M8x13	58.6	9	29.5	10	5	9.5	11.8	12	M6x0.75	23	23.5	18	60	11x9x7	27.9	42.5	0.44	0.44	2.47	0.44	2.47	0.51	0.62	2.67	0.81	2.67
LMG25 LC	36	70	102.6	57	45	M8x13	77.6	9	29.5	10	5	9.5	21.3	12	M6x0.75	23	23.5	18	60	11x9x7	34.2	56.6	0.76	0.76	3.99	0.76	3.99	0.67	0.81	2.67	1.10	4.48
LMG30 C	42	90	98	72	52	M10x15	69.8	10	33.5	8	5	8	14	12	M6x0.75	28	31	23	80	14x12x9	38.8	57.8	0.70	0.70	3.88	0.70	3.88	0.83	1.10	4.48	1.43	6.24
LMG30 LC	42	90	120.2	72	52	M10x15	92	10	33.5	8	5	8	25.1	12	M6x0.75	28	31	23	80	14x12x9	47.5	77.1	1.21	1.21	6.28	1.21	6.28	1.11	1.43	6.24	1.50	6.24
LMG35 C	48	100	111.2	82	62	M10x15	80.2	10	38.5	8	7.5	8	15.6	12	M6x0.75	34	33	26	80	14x12x9	51.7	75.5	1.04	1.04	5.72	1.04	5.72	1.31	1.50	6.24	1.94	6.24
LMG35 LC	48	100	136.6	82	62	M10x15	105.6	10	38.5	8	7.5	8	28.3	12	M6x0.75	34	33	26	80	14x12x9	63.2	100.7	1.81	1.81	9.29	1.81	9.29	1.75	1.94	6.24	2.83	10.25
LMG45 C	60	120	137.8	100	80	M12x18	102.2	12	49	10	8.5	10	17.6	13.5	PT 1/8	45	37.5	32	105	20x17x14	83.2	118.0	2.03	2.03	10.89	2.03	10.89	2.71	2.83	10.25	3.68	10.25
LMG45 LC	60	120	169.5	100	80	M12x18	133.9	12	49	10	8.5	10	33.5	13.5	PT 1/8	45	37.5	32	105	20x17x14	101.7	157.3	3.54	3.54	17.76	3.54	17.76	3.62	3.68	10.25	3.68	10.25

Note : "Double carriages" in static moment rating means two carriages are closely contacting with each other.

12. Dimensions of LMG...H / LH

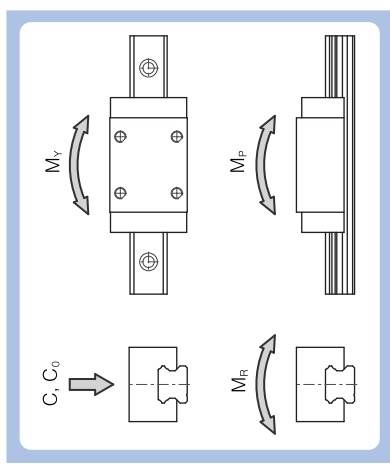
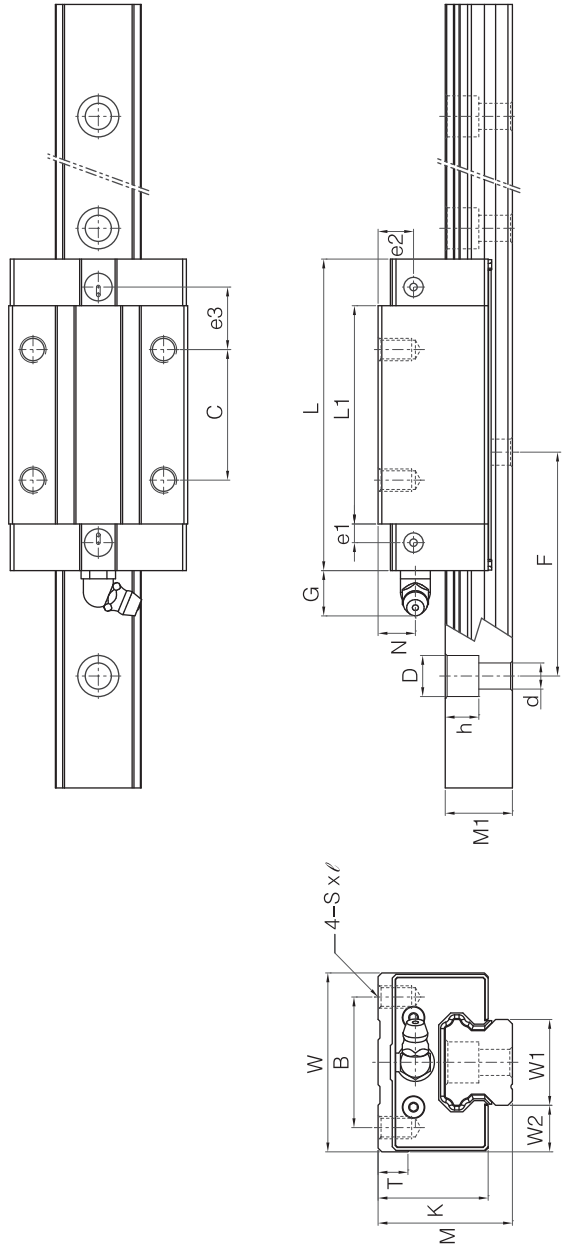


Unit : mm

Model No.	External dimension			Carriage dimension										Rail dimension			Basic load rating			Static moment rating				Weight						
	Height M	Width W	Length L	B	C	Sx/l	L1	T	K	N	e1	e2	e3	G	Grease nipple	Width W1	Width W2	Height M1	Pitch F	D×h×d	Dynamic C KN	Static C ₀ KN	M _p (KN-m) Single Carriage	M _p (KN-m) Double Carriages	M _v (KN-m) Single Carriage	M _v (KN-m) Double Carriages	M _r KN-m	Carriage Kg	Rail Kg/m	
LMG15 H	28	34	58.2	26	26	M4×7	39.5	6	23.5	9	3.3	8	10.6	7	M4×0.7	15	9.5	13	60	7.5×5.3×4.5	11.8	18.9	0.13	0.76	0.13	0.76	0.15	0.19	0.19	1.29
LMG20 H	30	44	75	32	36	M5×8	52.5	6	25	8.5	4.5	7	12.8	12	M6×0.75	20	12	15	60	9.5×8.5×6	20	32	0.30	1.68	0.30	1.68	0.33	0.33	1.92	
LMG20 LH	30	44	88.8	32	50	M5×8	66.3	6	25	8.5	4.5	7	12.7	12	M6×0.75	20	12	15	60	9.5×8.5×6	23.2	39.3	0.44	2.36	0.44	2.36	0.41	0.41	1.92	
LMG25 H	40	48	83.6	35	35	M6×12	58.6	8	33.5	14	5	13.5	16.8	12	M6×0.75	23	12.5	18	60	11×9×7	27.9	42.5	0.44	2.47	0.44	2.47	0.51	0.55	2.67	
LMG25 LH	40	48	102.6	35	50	M6×12	77.6	8	33.5	14	5	13.5	18.8	12	M6×0.75	23	12.5	18	60	11×9×7	34.2	56.6	0.76	3.99	0.76	3.99	0.67	0.72	2.67	
LMG30 H	45	60	98	40	40	M8×12	69.8	8	36.5	11	5	11	20	12	M6×0.75	28	16	23	80	14×12×9	38.8	57.8	0.70	3.88	0.70	3.88	0.83	0.87	4.48	
LMG30 LH	45	60	120.2	40	60	M8×12	92	8	36.5	11	5	11	21.1	12	M6×0.75	28	16	23	80	14×12×9	47.5	77.1	1.21	6.28	1.21	6.28	1.11	1.13	4.48	
LMG35 H	55	70	111.2	50	50	M8×14	80.2	11	45.5	15	7.5	15	21.6	12	M6×0.75	34	18	26	80	14×12×9	51.7	75.5	1.04	5.72	1.04	5.72	1.31	1.44	6.24	
LMG35 LH	55	70	136.6	50	72	M8×14	105.6	11	45.5	15	7.5	15	23.3	12	M6×0.75	34	18	26	80	14×12×9	63.2	100.7	1.81	9.29	1.81	9.29	1.75	1.88	6.24	
LMG45 H	70	86	137.8	60	60	M10×20	102.2	16	59	20	8.5	20	27.6	13.5	PT 1/8	45	20.5	32	105	20×17×14	83.2	118.0	2.03	10.89	2.03	10.89	2.71	2.85	10.25	
LMG45 LH	70	86	169.5	60	80	M10×20	133.9	16	59	20	8.5	20	33.5	13.5	PT 1/8	45	20.5	32	105	20×17×14	101.7	157.3	3.54	17.76	3.54	17.76	3.62	3.70	10.25	

Note : "Double carriages" in static moment rating means two carriages are closely contacting with each other.

13. Dimensions of LMG...V / LV



Model No.	External dimension		Carriage dimension										Rail dimension			Basic load rating				Static moment rating				Weight				
	Height	Width	M	L	B	C	Sx/l	L1	T	K	N	e1	e2	e3	G	Grease nipple	Width	Height	Pitch	Dynamic	Static	Mp (KN-m)	My (KN-m)	Mr (KN-m)	Carriage	Rail		
	M	W	36	48	35	35	M6x9	58.6	8	29.5	10	5	9.5	16.8	12	M6x0.75	23	12.5	18	60	11x9x7	27.9	42.5	0.44	0.44	0.44	2.47	2.67
LMG25 V	36	48	35	48	35	35	M6x9	58.6	8	29.5	10	5	9.5	16.8	12	M6x0.75	23	12.5	18	60	11x9x7	27.9	42.5	0.44	0.44	0.44	2.47	2.67
LMG25 LV	36	48	35	48	35	50	M6x9	77.6	8	29.5	10	5	9.5	18.8	12	M6x0.75	23	12.5	18	60	11x9x7	34.2	56.6	0.76	0.76	0.76	3.99	0.61

Unit : mm

Note : "Double carriages" in static moment rating means two carriages are closely contacting with each other.

15. Comparison Table with Other Brands

Brand	CSK	THK	NSK			Schneeberger	Rexroth	HIWIN	PMI
			LY..EL LY..FL	LH..EL LH..FL	(LA..EL) (LA..FL)				
Model	LMG..C	HSR..A (CA) HSR..B (CB)	LY..EL LY..FL	LH..EL LH..FL	(LA..EL) (LA..FL)	BMA	1651	HGW..CA HGW..CB HGW..CC	MSA..A MSA..E
	LMG..LC	HSR..LA (HA) HSR..LB (HB)	LY..GL LY..HL	LH..GL LH..HL	(LA..GL) (LA..HL)	BMB	1653	HGW..HA HGW..HB HGW..HC	MSA..LA MSA..LE
	LMG..H	HSR..R	LY..AN	LH..AN	(LA..AN)	BMC	1621	HGH..CA	MSA..S
	LMG..LH	HSR..LR	LY..BN	LH..BN	(LA..BN)	BMD	1624	HGH..HA	MSA..LS
	LMG..V	(SHS..V)	(LY..AL)	-	(LA..AL)	-	-	-	-
	LMG..LV	(SHS..LV)	(LY..BL)	-	(LA..BL)	-	-	-	-
	LMG..ST	SR..V	LS..CL	-	-	-	1666	EGH..SA	MSB..TS
	LMG..T	SR..W	LS..AL	-	-	BMF	1622	EGH..CA	MSB..S
	LMG..LT	(SHS..LV)	LY..BL	-	(LA..BL)	BMG	1623	-	(SME..LSB)



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