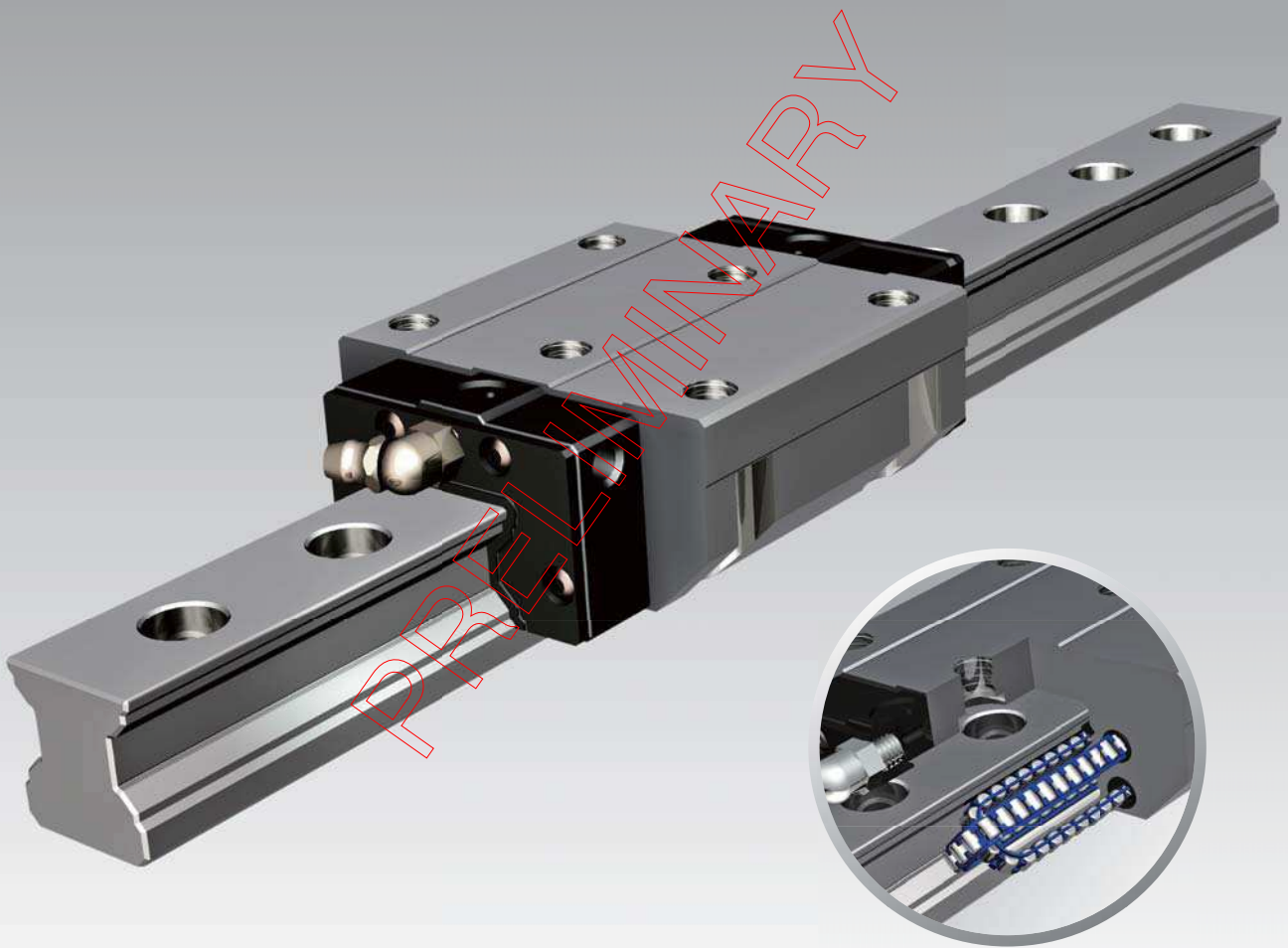




Roller Retainer Type Linear Guideway

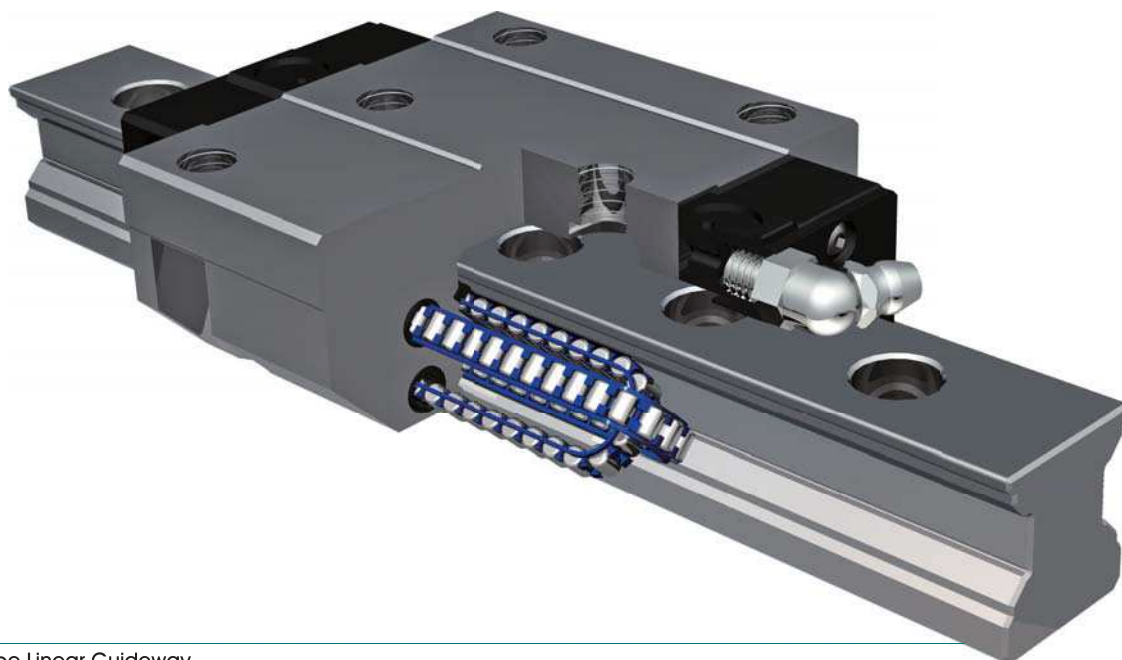
SMR series

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[Dimensions of SMR-E / SMR-LE](#)

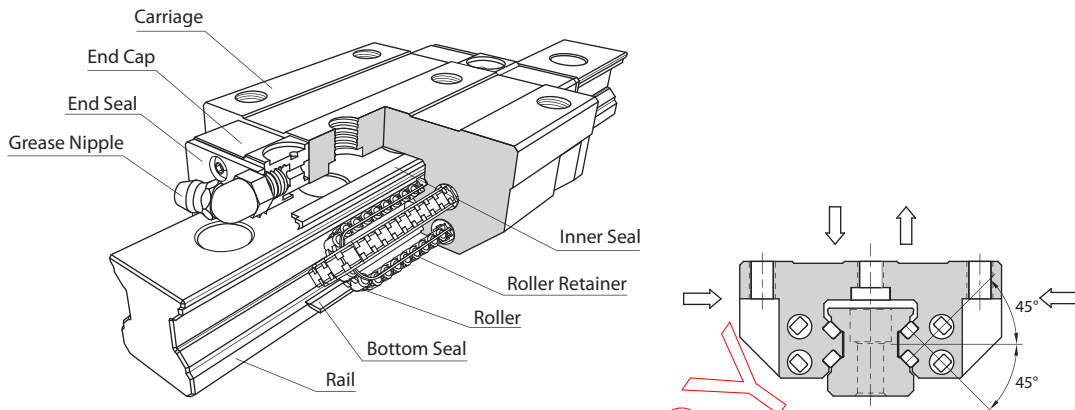
[Dimensions of SMR-S / SMR-LS](#)



Roller Retainer Type Linear Guideway

SMR series

1 Construction

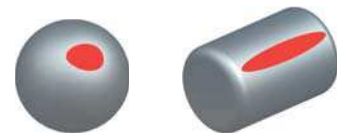


2 Characteristics

The roller retainer type linear guideway, SMR series, equip with rollers instead of the ball, and therefore the SMR series can provide higher rigidity and loading than the normal type with the same size. Besides, the patent of roller retainer design can make the movement smooth and stability, especially suit for the requests of high accuracy, heavy load and high rigidity.

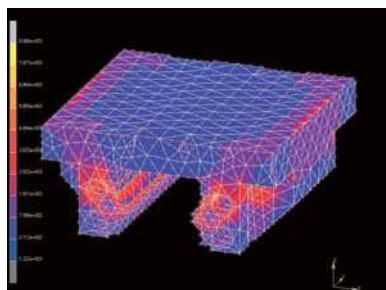
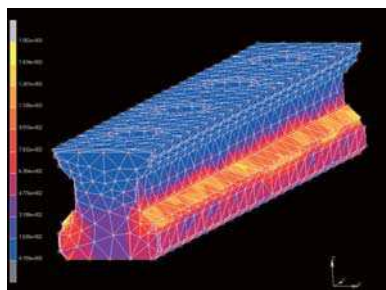
High Rigidity, Ultra Heavy Load

SMR linear guideway through rollers have a line contact with carriage and rail. Relative to the general type linear guideway through balls have a point contact; the SMR type linear guideway can offer lower elastic deformation while bearing the same load. Base on the rollers have the same outer diameter with balls, the roller can bear the heavier load. The excellent characteristics of high rigidity and ultra heavy load can suitable for the high accuracy application that heavy load is processed even more.



The Optimization Design of Four Direction Load

Through the structure stress analysis of finite element method, SMR series have four trains of rollers are designed to a contact angle of 45° and the section design for high rigidity. Except for bearing heavier loads in radial, reversed radial and lateral directions, a sufficient preload can be achieved to increase rigidity, and this makes it suitable for any kind of installation.



Roller Retainer Design, Smooth Movement

The concise and smooth design of circulating system with strengthened synthetic resin accessories and cooperating with the roller retainer, these can avoid interference between rollers and make the rollers more stability during passing in and out the load district. Besides, the roller retainer can keep the roller move in a line and improve the movement most smooth substantially.



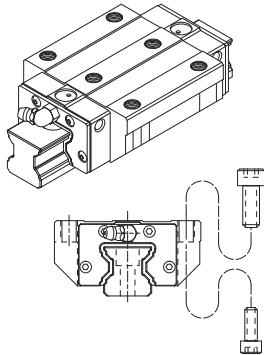
Low Noise, Good Lubricant Effect

The roller retainer design avoids interference between rollers, lowers the operating noise, and can keep the lubricant between the rollers and roller retainer effectively. Moreover, improve the movement smooth and service life of the whole, can meet high accuracy, high reliability and smooth and stability.

3 Carriage Type

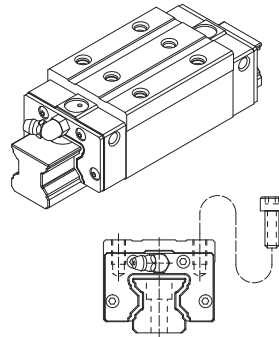
Heavy Load

SMR-E Type



This type offers the installation either from top or bottom side of carriage.

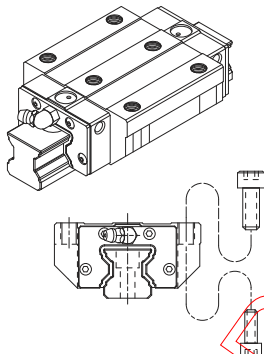
SMR-S Type



Square type with smaller width and can be installed from top side of carriage.

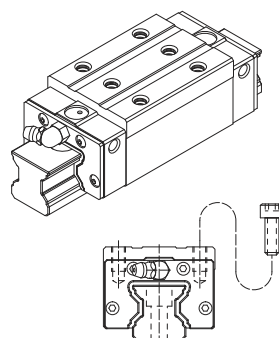
Ultra Heavy Load

SMR-LE Type



All dimensions are same as SMR-E except the length is longer, which makes it more rigid.

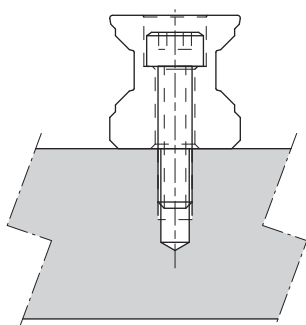
SMR-LS Type



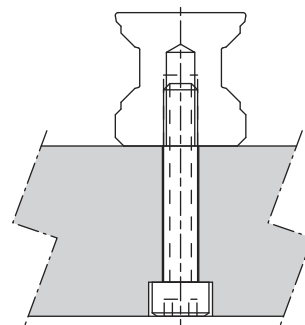
All dimensions are same as SMR-S except the length is longer, which makes it more rigid.

4 Rail Type

Counter-bore(R type)



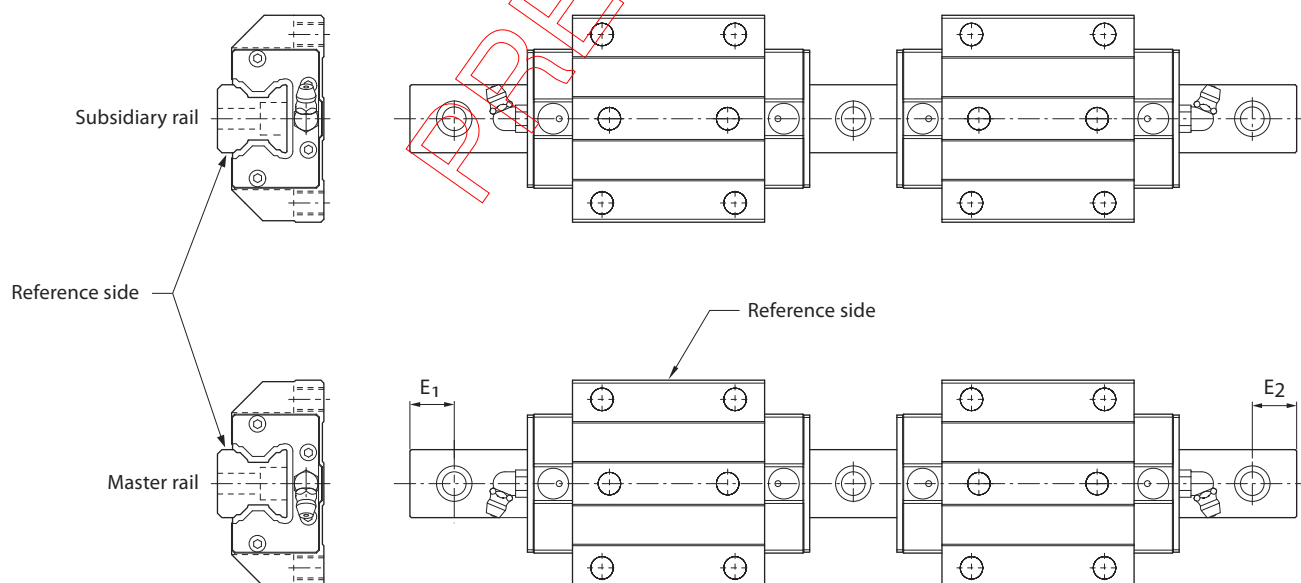
Tapped-Hole(T type)



5 Description of Specification, Non-interchangeable Type

	SMR	25	E	2	SS	F0	A	+R	1000	-20	/20	P	A	/CC	II	
Series : SMR																Number of rails per axis : No symbol, II, III, IV ...
Size : 25, 30, 35, 45, 55, 65																Dust protection option : No symbol, / CC, / MC
Carriage type : (1) Heavy load E : Flange type, mounting either from top or bottom S : Square type (2) Ultra heavy load LE : Flange type, mounting either from top or bottom LS : Square type																Code of special rail : No symbol, A, B ...
Number of carriages per rail : 1, 2, 3 ...																Accuracy grade : H, P, SP, UP
Dust protection option : No symbol, UU, SS, ZZ, DD, KK																Rail hole pitch to the end side (E2, see Fig.1)
Preload : F0 (Medium preload), F1 (Heavy preload), F2 (Ultra Heavy Preload)																Rail hole pitch from start side (E1, see Fig.1)
Code of special carriage : No symbol, A, B ...																Rail length (mm)
																Rail type : R (Counter-bore type), T (Tapped hole type)

Fig.1



6 Accuracy

The accuracy of SMR series is divided into 4 classes, high (H), precision (P), super precision (SP), and ultra precision (UP), as shown in Table 1.

Accuracy Grade

Unit: mm

Model No.	Item	Accuracy Grade			
		High H	Precision P	Super Precision SP	Ultra Precision UP
SMR 25	Tolerance for height H	± 0.04	$\begin{smallmatrix} 0 \\ -0.04 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.01 \end{smallmatrix}$
	Height difference (ΔH)	0.015	0.007	0.005	0.003
	Tolerance for distance W_2	± 0.04	$\begin{smallmatrix} 0 \\ -0.04 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.01 \end{smallmatrix}$
	Difference in distance W_2 (ΔW_2)	0.015	0.007	0.005	0.003
SMR 30	Running parallelism of surface C with surface A	ΔC (see Fig.2)			
	Running parallelism of surface D with surface B	ΔD (see Fig.2)			
SMR 45	Tolerance for height H	± 0.05	$\begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.03 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$
	Height difference (ΔH)	0.015	0.007	0.005	0.003
	Tolerance for distance W_2	± 0.05	$\begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.03 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.01 \end{smallmatrix}$
	Difference in distance W_2 (ΔW_2)	0.02	0.01	0.007	0.005
SMR 55	Running parallelism of surface C with surface A	ΔC (see Fig.2)			
	Running parallelism of surface D with surface B	ΔD (see Fig.2)			
SMR 65	Tolerance for height H	± 0.07	$\begin{smallmatrix} 0 \\ -0.07 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.03 \end{smallmatrix}$
	Height difference (ΔH)	0.02	0.01	0.007	0.005
	Tolerance for distance W_2	± 0.07	$\begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.03 \end{smallmatrix}$
	Difference in distance W_2 (ΔW_2)	0.025	0.015	0.01	0.007
	Running parallelism of surface C with surface A	ΔC (see Fig.2)			
	Running parallelism of surface D with surface B	ΔD (see Fig.2)			

Table 1

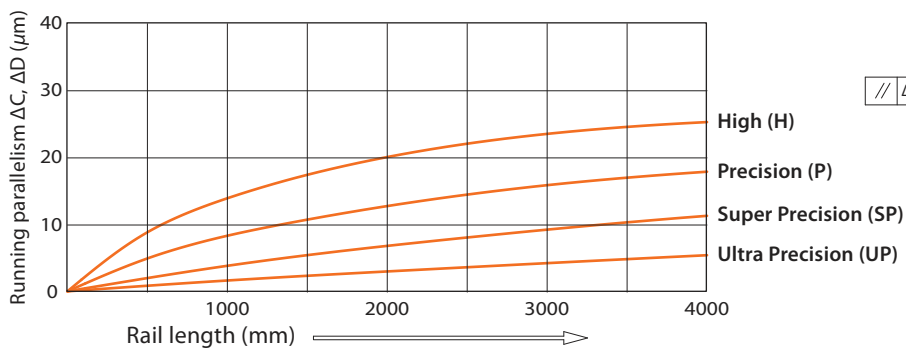
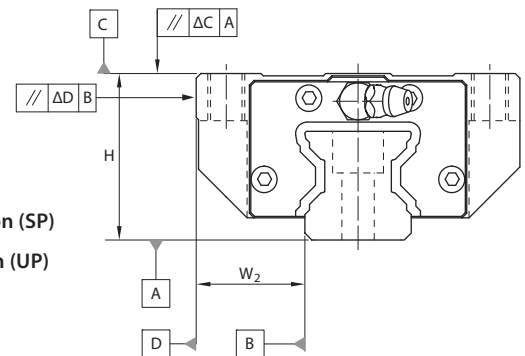


Fig.2 Running Parallelism of Carriage



7 Preload

By increasing preload of SMR series can enhance the rigidity, and the preload is divided into three grade, medium (F0), heavy (F1), ultra heavy (F2), as shown in Table 2.

Preload grade

Preload grade	Symbol	Preload
Medium	F0	0.05C
Heavy	F1	0.08C
Ultra Heavy	F2	0.13C

■ Table 2

8 Dust Proof

The codes for selection of dust protection accessory are shown as Table 3.

The increment to be added to the length of carriage with different applications of dust protection accessory is shown as Table 4.

Code of contamination protection

Code	Contamination Protection
No Symbol	Scraper (both ends)
UU	Bidirectional end seal (both ends)
SS	Bidirectional end seal + Bottom seal + Inner seal
ZZ	SS + Scraper
DD	Double bidirectional end seal + Bottom seal+Inner seal
KK	DD + Scraper
/CC	Cover strip
/MC	Matallic bolt cap

■ Table 3

Types of seal to the increment to the carriage overall length

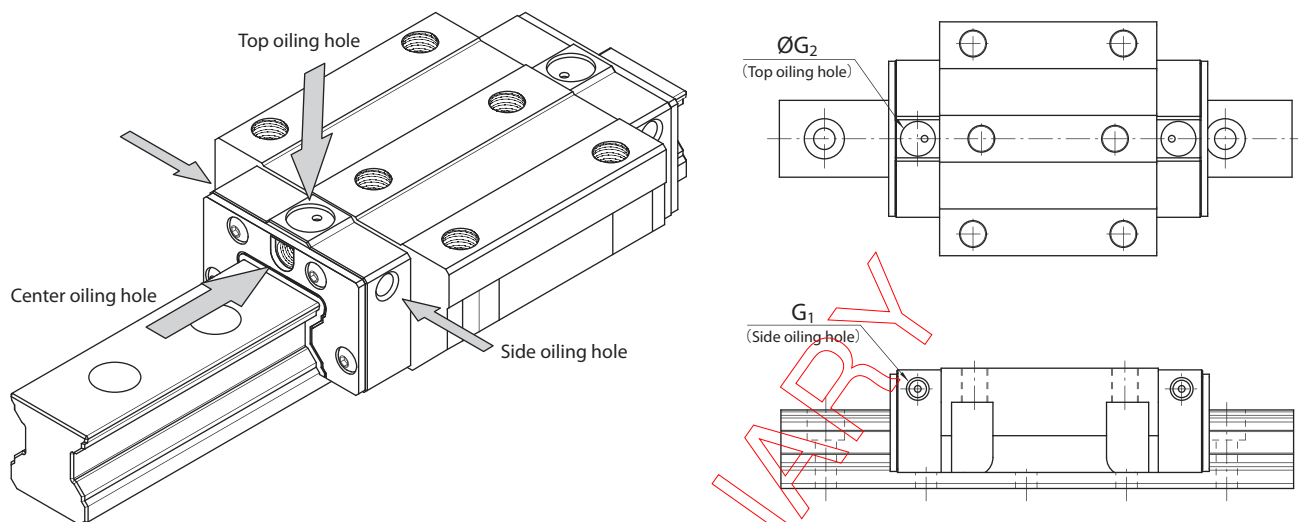
Unit: mm

Model No.	No symbol	UU	SS	ZZ	DD	KK
SMR 25	2	-	-	6	6	12
SMR 30	2	-	-	7	6	13
SMR 35	2	-	-	7	6	13
SMR 45	1.6	-	-	7	6.4	13.4
SMR 55	0.8	-	-	7.8	7.2	15
SMR 65	0.8	-	-	7.8	7.8	15.6

■ Table 4

9 Lubrication

The standard oiling hole of carriage is at the center of both ends. As for side or top application, please specify when ordering. The types and sizes of grease nipple are shown as below:

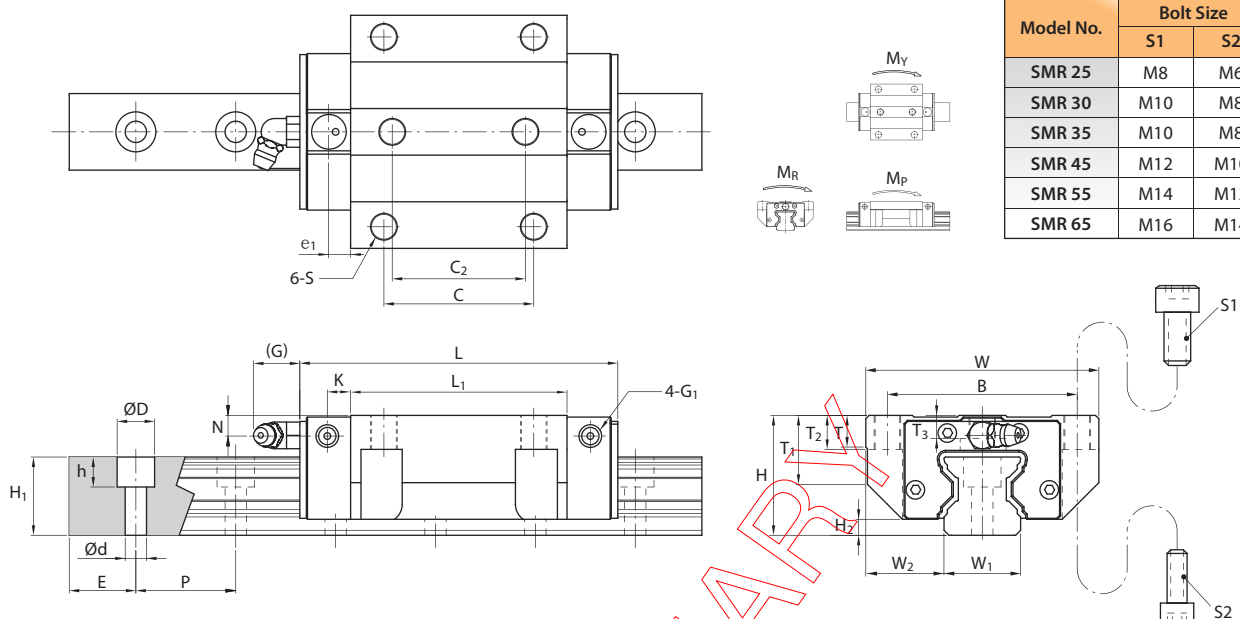


Model No.	Center	Side		Top	
	Nipple	G ₁	Nipple	G ₂	O-ring
SMR 25	G-M6	M6 x 0.75P	G-M6	10.2	P7
SMR 30	G-M6	M6 x 0.75P	G-M6	10.2	P7
SMR 35	G-M6	M6 x 0.75P	G-M6	10.2	P7
SMR 45	G-PT1/8	M6 x 0.75P	G-M6	10.2	P7
SMR 55	G-PT1/8	M6 x 0.75P	G-M6	10.2	P7
SMR 65	G-PT1/8	M6 x 0.75P	G-M6	10.2	P7



10 Dimensions of SMR Series

Dimensions of SMR-E / SMR-LE

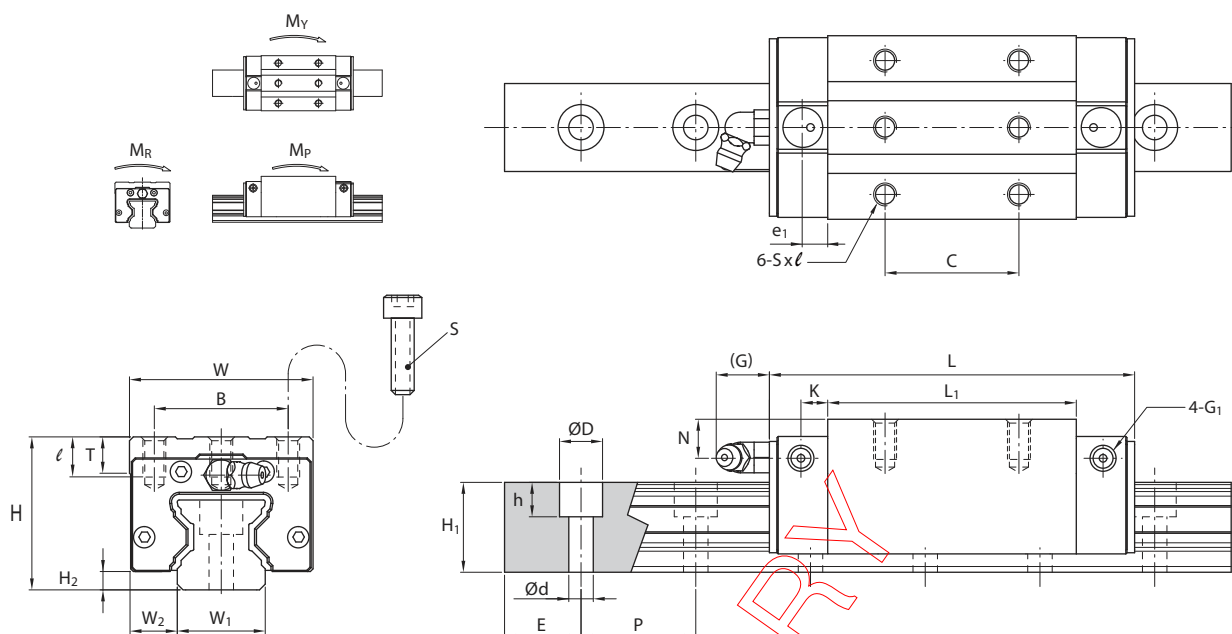


Unit: mm

Model No.	External dimension					Carriage dimension														
	Height H	Width W	Length L	W ₂	H ₂	B	C	C ₂	S	L ₁	T	T ₁	T ₂	T ₃	N	G	K	e ₁	G ₁	Grease Nipple
SMR 25 E	36	70	97.5	23.5	4.8	57	45	40	M8	65.5	9.5	20.2	10	5.8	6	12	6.6	6.5	M6	G-M6
SMR 25 LE			115.5							83.5										
SMR 30 E	42	90	112.1	31	6	72	52	44	M10	75.6	10	21.6	13	6.7	7	12	8	7	M6	G-M6
SMR 30 LE			136							99.5										
SMR 35 E	48	100	125.3	33	6.5	82	62	52	M10	82.3	12	27.5	15	9.5	8	12	8	7	M6	G-M6
SMR 35 LE			154.4							111.4										
SMR 45 E	60	120	153.9	37.5	8.1	100	80	60	M12	106.2	14.5	35.5	15	12.5	10	13.5	10.05	10	M6	G-PT 1/8
SMR 45 LE			189.4							141.7										
SMR 55 E	70	140	185.4	43.5	10	116	95	70	M14	129.5	17.5	41	18	15.5	11	13.5	12	7.95	M6	G-PT 1/8
SMR 55 LE			235.4							179.5										
SMR 65 LE	90	170	302	53.5	12	142	110	82	M16	230	19.5	56	20	26	16.5	13.5	15	15	M6	G-PT 1/8

Model No.	Rail dimension					Basic load rating		Static moment rating			Weight	
	Width W ₁	Height H ₁	Pitch P	E std.	D x h x d	Dynamic C kN	Static C ₀ kN	M _p kN-m	M _y kN-m	M _r kN-m	Carriage (kg)	Rail (kg/m)
SMR 25 E	23	23.5	30	20	11×9×7	27.4	57.4	0.63	0.63	0.66	0.75	3.5
SMR 25 LE						33.1	73.3	1.01	1.01	0.84	0.95	
SMR 30 E	28	27.5	40	20	14×12×9	39.5	82.7	1.01	1.01	1.15	1.4	5
SMR 30 LE						49.4	110.3	1.78	1.78	1.53	1.72	
SMR 35 E	34	30.5	40	20	14×15×9	55.6	117.0	1.63	1.63	1.98	1.95	7
SMR 35 LE						69.6	156.0	2.86	2.86	2.63	2.45	
SMR 45 E	45	37	52.5	22.5	20×17×14	89.3	184.1	3.27	3.27	4.18	3.9	11.2
SMR 45 LE						110.6	242.2	5.58	5.58	5.50	4.5	
SMR 55 E	53	43	60	30	23×19.5×16	127.8	256.5	5.51	5.51	6.96	6	15.6
SMR 55 LE						163.2	351.0	10.16	10.16	9.52	7.9	
SMR 65 LE	63	52	75	35	26×22×18	263.5	583.7	21.43	21.43	18.73	17.6	22.4

Dimensions of SMR-S/SMR-LS



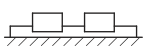
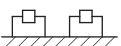
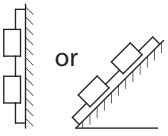
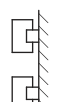
Unit: mm

Model No.	External dimension					Carriage dimension											
	Height H	Width W	Length L	W ₂	H ₂	B	C	S	l	L ₁	T	N	G	K	e ₁	G ₁	Grease Nipple
SMR 25 S	40	48	97.5	12.5	4.8	35	35	M6	10.5	65.5	9.5	10	12	6.6	6.5	M6	G-M6
SMR 25 LS			115.5				50			83.5							
SMR 30 S	45	60	112.1	16	6	40	40	M8	12	75.6	10	10	12	8	7	M6	G-M6
SMR 30 LS			136				60			99.5							
SMR 35 S	55	70	125.3	18	6.5	50	50	M8	14	82.3	12	15	12	8	7	M6	G-M6
SMR 35 LS			154.4				72			111.4							
SMR 45 S	70	86	153.9	20.5	8.1	60	60	M10	19	106.2	17	20	13.5	10.05	10	M6	G-PT 1/8
SMR 45 LS			189.4				80			141.7							
SMR 55 S	80	100	185.4	23.5	10	75	75	M12	19	129.5	18	21	13.5	12	7.95	M6	G-PT 1/8
SMR 55 LS			235.4				95			179.5							
SMR 65 LS	90	126	302	31.5	12	76	120	M16	20	230	19.5	16.5	13.5	15	15	M6	G-PT 1/8

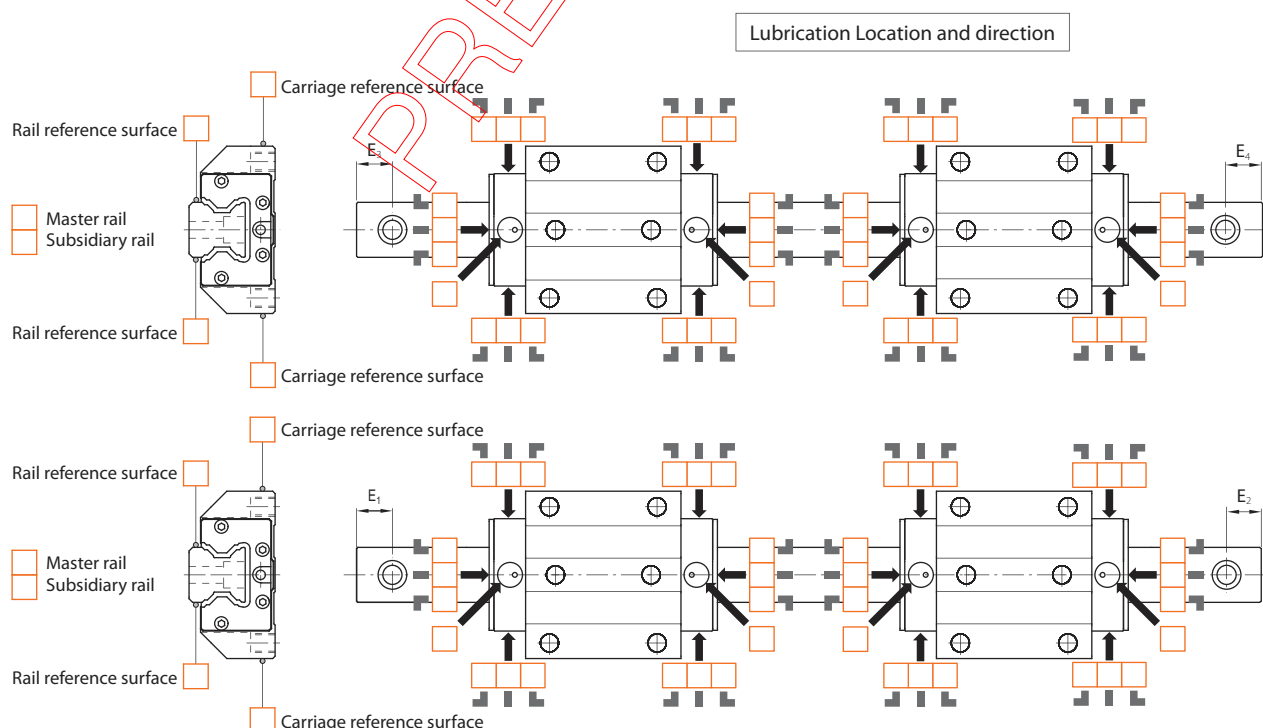
Model No.	Rail dimension					Basic load rating		Static moment rating			Weight	
	Width W ₁	Height H ₁	Pitch P	E std.	D x h x d	Dynamic C kN	Static C ₀ kN	M _p kN-m	M _y kN-m	M _r kN-m	Carriage (kg)	Rail (kg/m)
SMR 25 S	23	23.5	30	20	11×9×7	27.4	57.4	0.63	0.63	0.66	0.65	3.5
SMR 25 LS						33.1	73.3	1.01	1.01	0.84	0.85	
SMR 30 S	28	27.5	40	20	14×12×9	39.5	82.7	1.01	1.01	1.15	1	5
SMR 30 LS						49.4	110.3	1.78	1.78	1.53	1.22	
SMR 35 S	34	30.5	40	20	14×15×9	55.6	117.0	1.63	1.63	1.98	1.65	7
SMR 35 LS						69.6	156.0	2.86	2.86	2.63	2.15	
SMR 45 S	45	37	52.5	22.5	20×17×14	89.3	184.1	3.27	3.27	4.18	3.2	11.2
SMR 45 LS						110.6	242.2	5.58	5.58	5.50	4.1	
SMR 55 S	53	43	60	30	23×19.5×16	127.8	256.5	5.51	5.51	6.96	5.1	15.6
SMR 55 LS						163.2	351.0	10.16	10.16	9.52	7	
SMR 65 LS	63	52	75	35	26×22×18	263.5	583.7	21.43	21.43	18.73	13.3	22.4

AMT Linear Guideway Request Form

Date :

Customer Name :		Address :					
Tel :							
Fax :		Machine Type :					
Contact Person :		Drawing No. :					
Installation Direction	 ☐ H type	 ☐ R type	 ☐ V type	 ☐ K type	 ☐ T type	 ☐ RV type	☐ Others
Carriage type	SMR - ☐ E ☐ LE ☐ S ☐ LS						
Size	☐ 25 ☐ 30 ☐ 35 ☐ 45 ☐ 55 ☐ 65						
No. of carriage	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ Others :						
Dust protection for Carriage	☐ No Symbol ☐ UU ☐ SS ☐ ZZ ☐ DD ☐ KK						
Dust protection for Rail	☐ No Symbol ☐ CC ☐ MC						
Preload grade	☐ F0 ☐ F1 ☐ F2						
Rail type	☐ Counter-bore(R type) ☐ Tapped hole(T type)						
Rail length & Pitch	Length : E1 : E2 : E3 : E4 :						
Accuracy Grade	☐ H ☐ P ☐ SP ☐ UP						
Rail per Axis	☐ 1 ☐ 2 ☐ 3 ☐ Others :						
Lubrication Type	☐ Grease ☐ Oil						
Lubrication Fitting	☐ Grease nipple (Code :) ☐ Oil piping joint (Code :)						
Full Code of Specification							
Required Quantity							

Reference surface & Lubrication Location



* Nonspecified cases followed by **AMT** standards. For other special requirements, please contact us.

The specifications in this catalogue are subject to change without notification.

PRELIMINARY



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