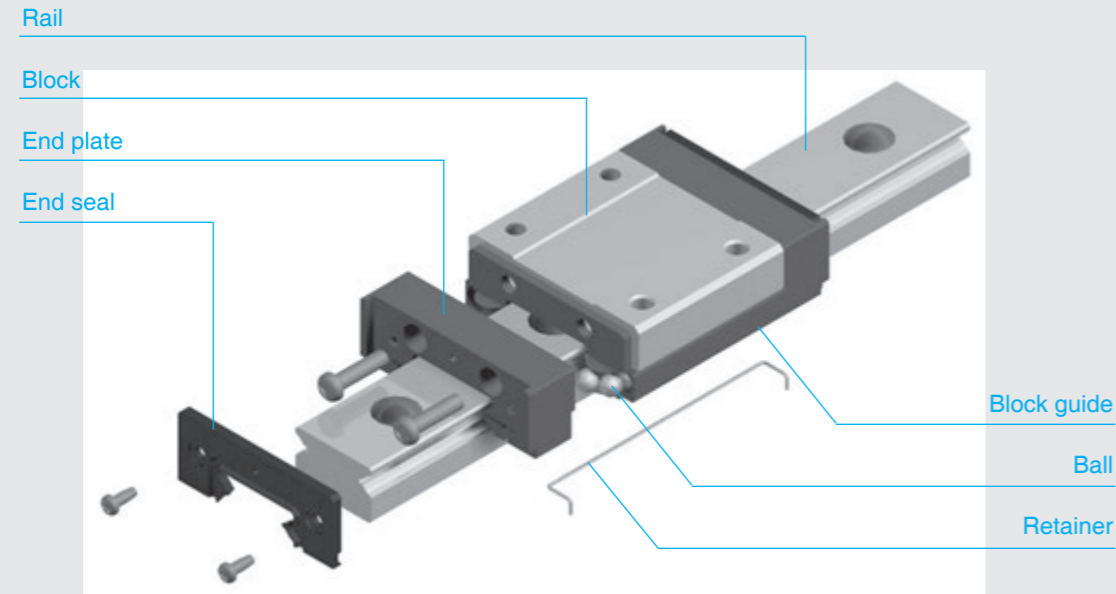


Linear Rail System

Miniature Linear Rail System



[Feature of structure]

SBC Miniature linear rail system utilizes two rows of ball bearings which make four point contact between the rail and block. This design achieves both a slim profile and high rigidity. The special engineered plastic is used for the end-plate allows for long life ball recirculation.

[Ball retention]

To retain the ball bearings inside the block, a wire retainer is used between the block and rail. With this retainer, the block can be carefully removed from the rail without losing ball bearings.

[Low noise]

With a ball return path made from engineered plastic, contact noise between the balls and block wall is removed, therefore achieving low noise.

[Smooth movement]

The steel block, ball returns, and end caps are carefully engineered to act as a single path enabling smooth operation in both horizontal and vertical applications.

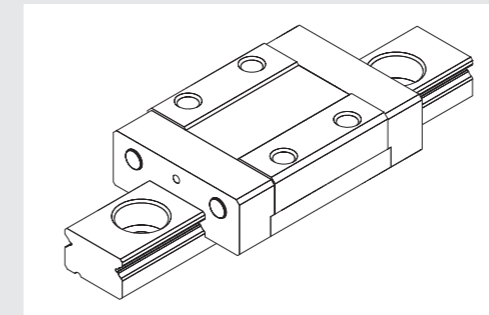
[Excellent corrosion resistance]

Both the rail and block are made from stainless steel for excellent corrosion resistance. This is ideal for semiconductor, life science, LCD, or other clean room production environments.

Linear Rail System

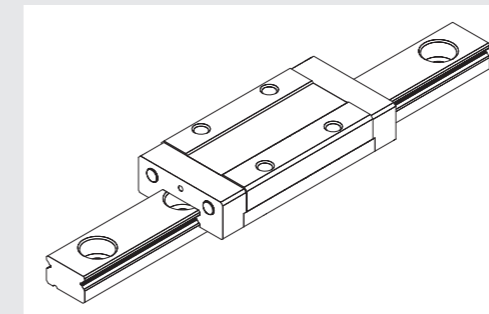
Miniature Linear Rail System

Types and features



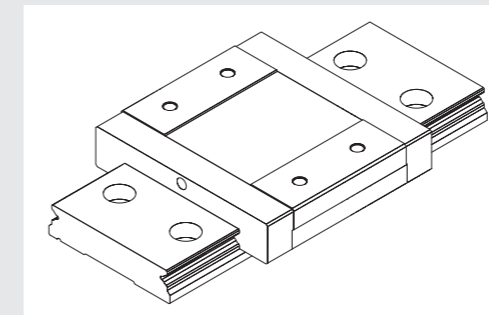
[SBM type]

Standard type of miniature.



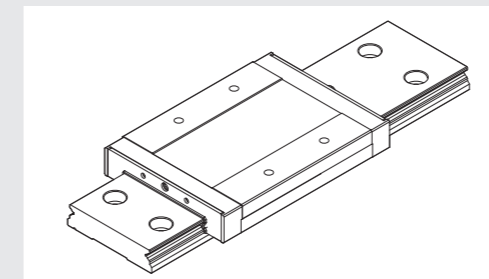
[SBML type]

Block length is modified type to increase load capacity.



[SBMW type]

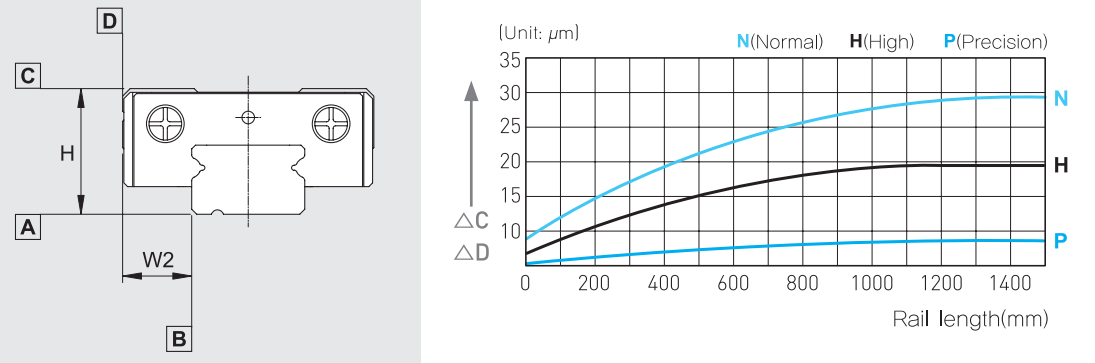
The width and length of linear block and rail are modified to increase load ratings and permissible moments.



[SBMWL type]

It uses the same rail as SBMW type and it has the longest whole length of a block, making it the largest heavy load type among Miniature products.

Accuracy



(Unit : mm)

Item	N	H	P
Tolerance for the height H	±0.04	±0.02	±0.01
Tolerance for the rail-to-block lateral distance W2	±0.04	±0.025	±0.015
Tolerance for the height H difference among blocks	0.03	0.015	0.007
Tolerance for rail-to-block lateral distance W2 distance among blocks	0.03	0.015	0.007
Running parallelism of surface C with surface A		ΔC	
Running parallelism of surface D with surface B		ΔD	

● N : Normal ● H : High ● P : Precision

[Preload]

Reference	Volume of preload
K1	Max. 0.02C
K2	0.04 ~ 0.06C

● C(kN) : Basic dynamic load rating

[Seal resistance]

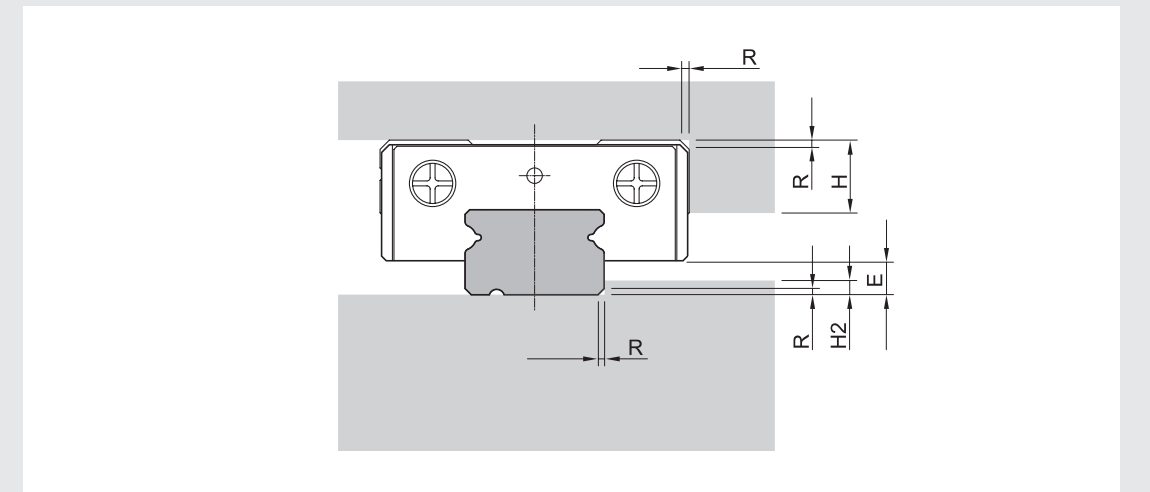
(Unit : N)

Reference	SBM/SBML	SBMW
07	0.08	-
09	0.2	0.8
12	0.59	1.1
15	1.18	1.3

[Grease]

SBM(L), SBMW Uses two types of grease according to working conditions. For details, please see the technical data for grease.

Shoulder height and fillet radius R



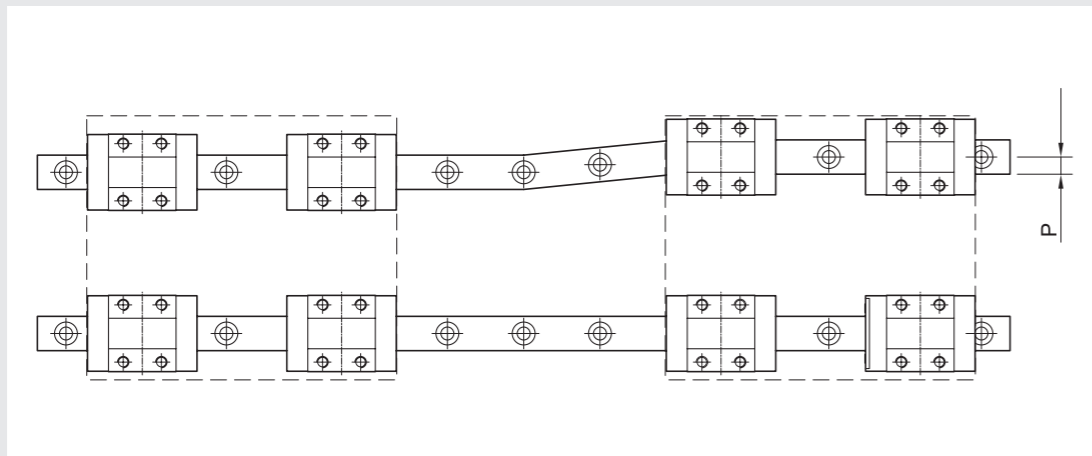
(Unit : mm)

Model number	Fillet radius R	Shoulders height H1	Shoulders height H2	E
SBM07	0.2	3	1.2	1.5
SBM(L)09	0.3	3	1.9	2
SBM(L)12	0.3	4	2	3
SBM(L)15	0.3	5	2.5	4
SBMW(L)09	0.3	3	3.4	3.7
SBMW(L)12	0.3	4	3.7	4
SBMW(L)15	0.3	5	3.4	3.7

Linear Rail System

Miniature Linear Rail System

Permissible tolerance (P) of parallelism



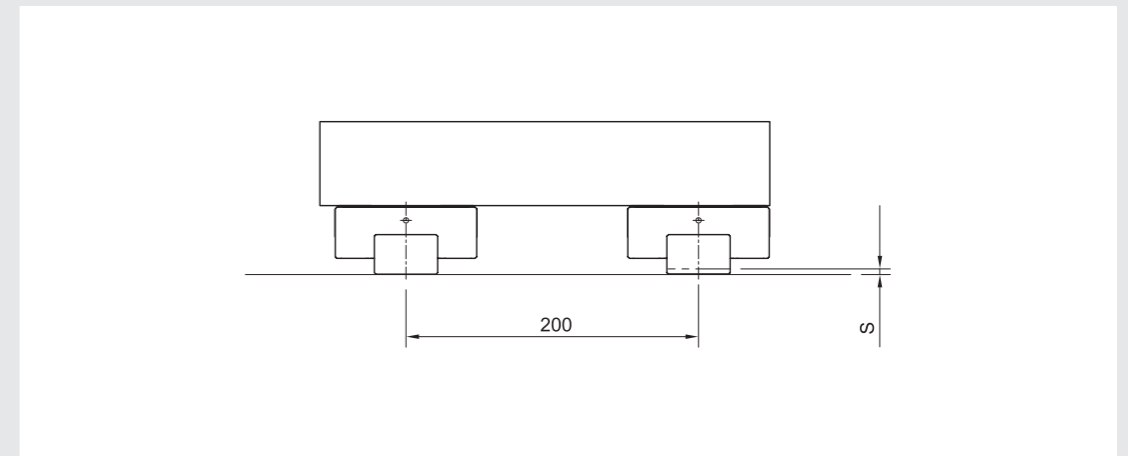
(Unit : mm)

Model size	K1	K2
07	0.003	-
09	0.004	0.003
12	0.009	0.005
15	0.01	0.006

Linear Rail System

Miniature Linear Rail System

Permissible tolerance (S) of two level offset



(Unit : mm)

Model size	K1	K2
07	0.025	-
09	0.035	0.006
12	0.05	0.012
15	0.06	0.02

Linear Rail System

Miniature Linear Rail System

Linear Rail System

Miniature Linear Rail System

[Ordering example for block]

SBM09 - **K1** - **KR**
 [1] [2] [3]

- [1] Model : SBM, SBML, SBMW
- [2] Preload : K1, K2
- [3] Surface treatment : No symbol (standard), KR (Block surface treatment)

[Ordering example for rail]

SBM09 - **600L** - **RR** - **B**
 [1] [2] [3] [4]

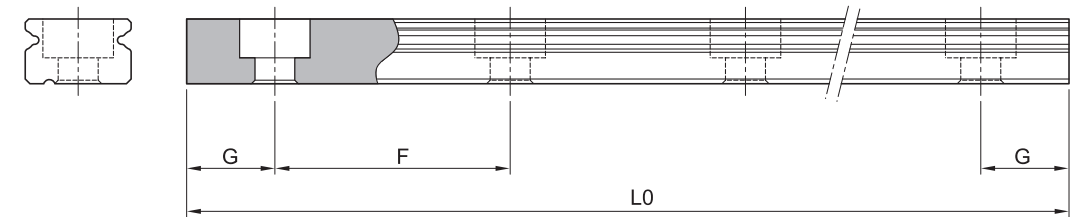
- [1] Model : SBM, SBMW
- [2] Rail length
- [3] Surface treatment : No symbol (standard), RR (Rail surface treatment)
- [4] Through tap hole rail : Standard (No symbol)
- ※ If only rail is ordered, N grade is available.

[Ordering for assembled rail and block]

SBM09 - **2** - **K1** - **600 J2** - **N** - **AR** - **B** - **II**
 [1] [2] [3] [4] [5] [6] [7] [8] [8]

- [1] Model : SBM, SBML, SBMW, SBMWL
- [2] Block quantity on rail
- [3] Preload : K1, K2
- [4] Rail length
- [5] Rail connection symbol : J2 (2PCS of rail), J3 (3PCS of rail), J4 (4PCS of rail)...
- [6] Accuracy : N, H, P
- [7] Surface treatment : No symbol (standard), AR(Block and Rail), RR (Rail only) KR (Block only)
- [8] Through tap hole rail : Standard (No symbol)
- [9] Rail : number of rails per axis, None=I, 2=II...4=IV etc.
- ※ We recommend block and rail assembled to be ordered where high-precision and high-rigidity are required.
- ※ For surface treatment, please mark according to each surface treatment symbol.
- ※ If special G dimension is required, please mark when you place an order.
- ※ Please refer to a next page for standard "G dimension"

Standard and Max length



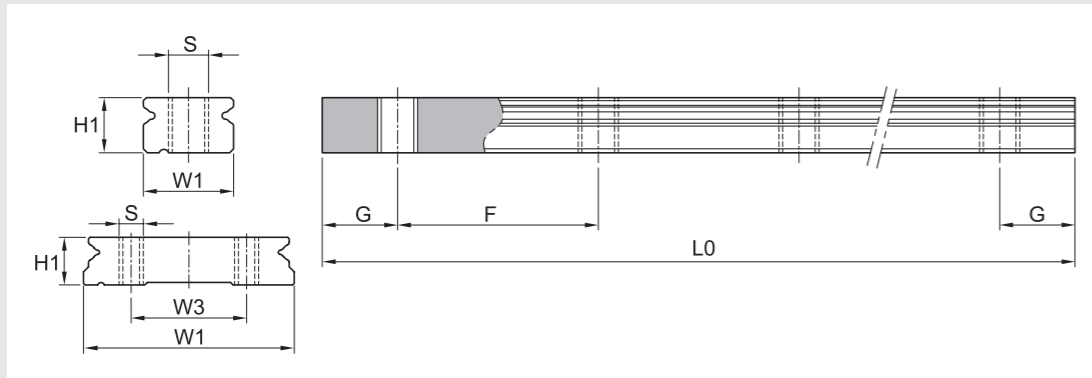
(Unit : mm)

Model number	SBM07	SBM09	SBM12	SBM15	SBMW09	SBMW12	SBMW15
Standard length	40	55	70	70	50	70	110
	55	75	95	110	80	110	150
	70	95	120	150	110	150	190
	85	115	145	190	140	190	230
	100	135	170	230	170	230	270
	115	155	195	270	200	270	350
	130	175	220	310	260	350	430
	160	215	245	350	320	430	510
	190	255	270	390	380	510	590
	220	295	320	430	440	590	670
	250	355	395	470	500	670	750
	280	415	470	590	560	750	830
		495	545	670	620	830	910
		535	620	830	680	910	990
		615	695	910	740	990	1070
		675	770	990	800	1070	1190
		715	870	1070	860	1190	
		735	970	1190	920		
		795	1020		980		
		875	1195		1040		
	955			1100			
	995			1190			
	1035						
	1115						
	1195						
F	15	20	25	40	30	40	40
G	5	7.5	10	15	10	15	15
L0(Max length)	490	1195	1195	1190	1190	1190	1190

* SBM, SBML use same rail.

* If special G dimension is required, please mark when you place an order.

Miniature through tap hole rail

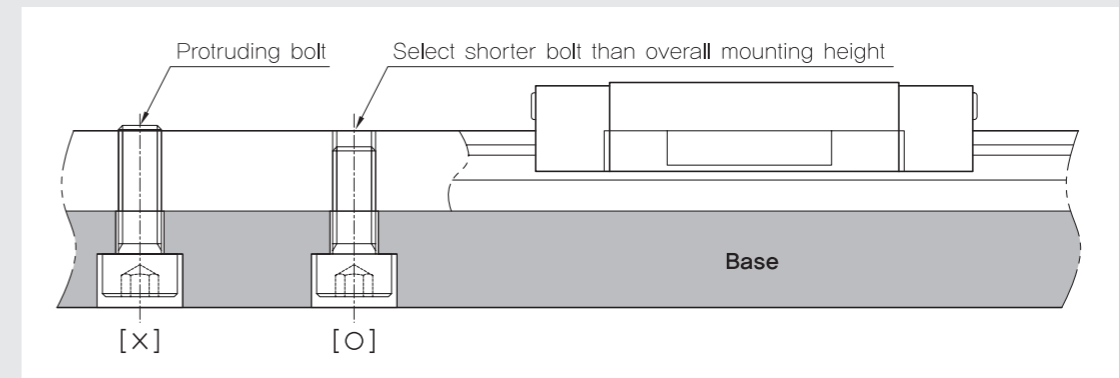


(Unit : mm)

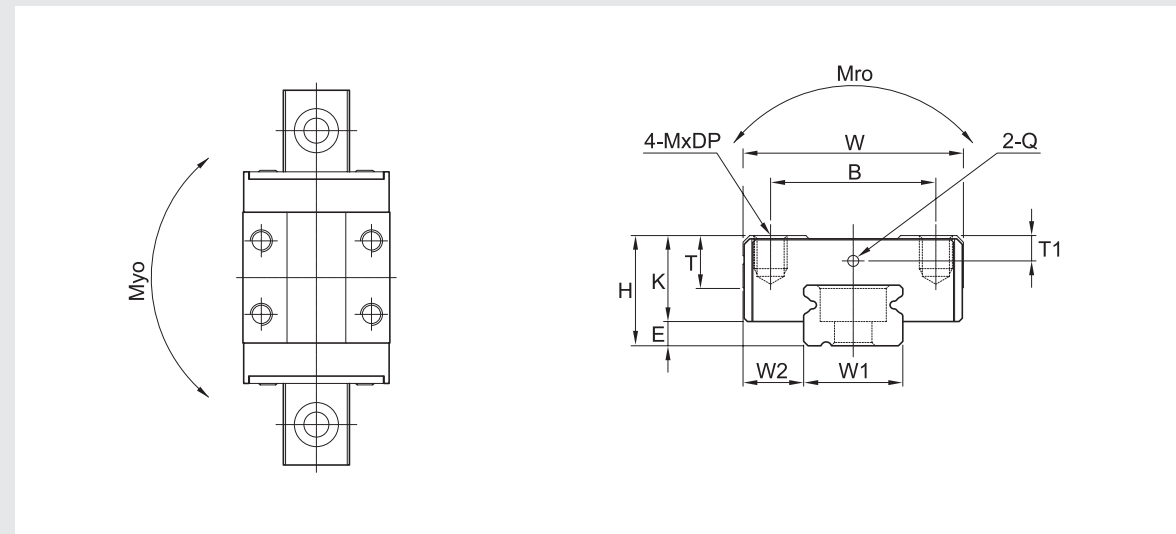
Model	W1	W3	H1	S	G	F	L0 (Max length)	Mass (kg/m)
SBM 07-B	7	-	4.7	M3x0.5P	5	15	490	0.22
SBM 09-B	9	-	5.5	M4x0.7P	7.5	20	1195	0.32
SBM 12-B	12	-	7.5	M4x0.7P	10	25	1195	0.32
SBM 15-B	15	-	9.5	M4x0.7P	15	40	1190	0.59
SBMW 09-B	18	-	7.5	M4x0.7P	10	30	1190	0.99
SBMW 12-B	24	-	8.5	M5x0.8P	15	40	1190	1.42
SBMW 15-B	42	23	9.5	M5x0.8P	15	40	1190	2.93

Caution for mounting miniature through tap hole rail

If the mounting bolt is longer than overall mounting height, the bolt can protrude which can cause interference with the seal or bearing itself. Therefore, make sure the appropriate bolt selection.

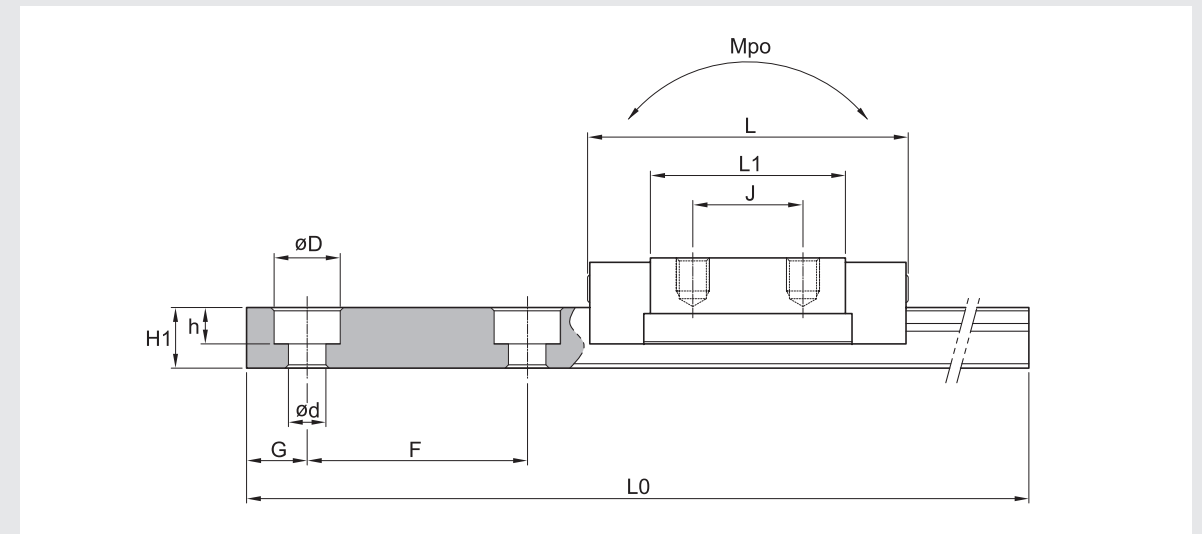


SBM/SBML



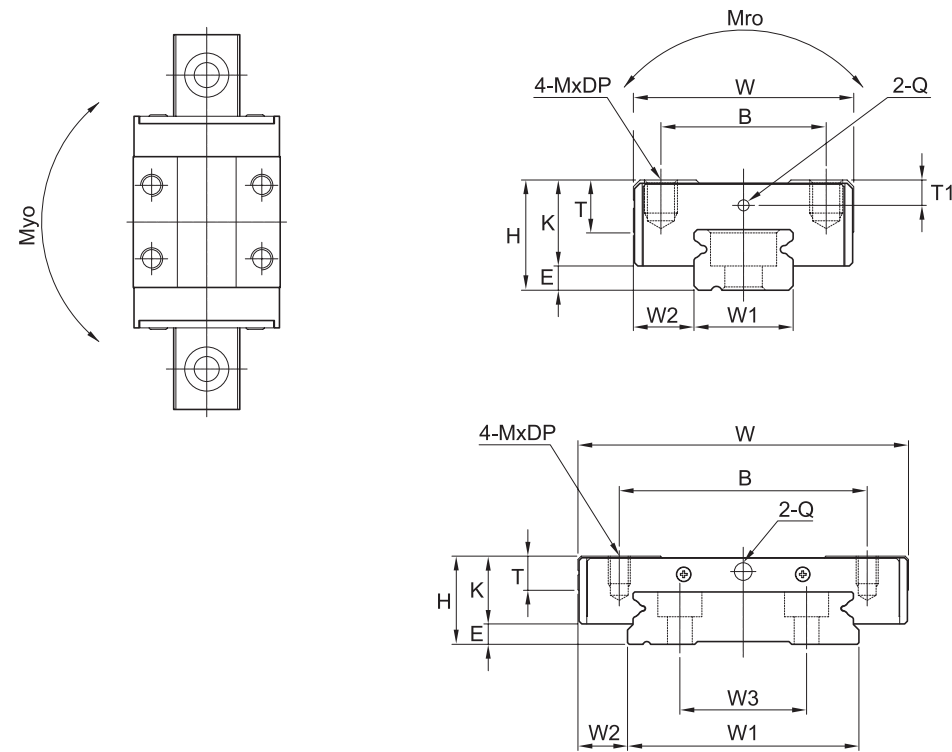
Model	Mounting dimension				Block dimensions								
	H	W	L	E	Mounting tap hole				L1	T	K	Greasing hole	
					B	J	M	DP				T1	Q
SBM 07	8	17	22.9	1.5	12	8	M2	2.5	13.5	3.3	6.5	1.6	Ø1
SBML 07	8	17	32.4	1.5	12	13	M2	2.5	23	3.3	6.5	1.6	Ø1
SBM 09	10	20	30.1	2.0	15	10	M3	3	19.3	4.5	8	2.3	Ø1
SBML 09	10	20	39.6	2.0	15	16	M3	3	28.8	4.5	8	2.3	Ø1
SBM 12	13	27	34.6	3	20	15	M3	3.5	21	5.5	10	2.7	Ø1
SBML 12	13	27	44.3	3	20	20	M3	3.5	30.7	5.5	10	2.7	Ø1
SBM 15	16	32	43	4	25	20	M3	4	25.4	6.5	12	3.1	Ø1
SBML 15	16	32	58.8	4	25	25	M3	4	41.2	6.5	12	3.1	Ø1

① C (Basic dynamic load rating), Co (Basic static load rating)



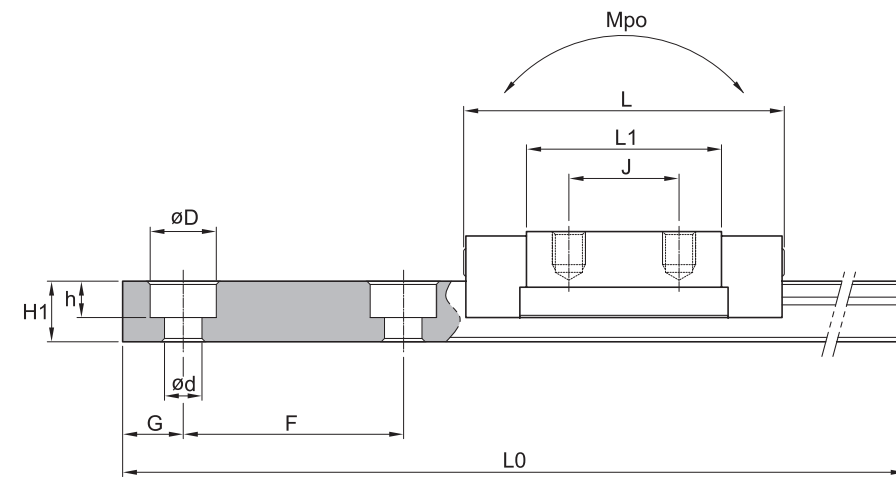
														(Unit : mm)				
Rail dimension										Basic load rating [kN]		Permissible static moment [N·m]			Mass			
W1	W2	H1	F	Bolt hole			G	Max length of rail L0	C	Co	Mro	Mpo	Myo	Block [kg]	Rail [kg/m]			
				d	D	h												
7	5	4.7	15	2.6	4.3	2.3	5	490	0.88	1.37	4.9	2.94	2.94	0.006	0.23			
7	5	4.7	15	2.6	4.3	2.3	5	490	1.59	2.5	8.82	7.84	7.84	0.015	0.23			
9	5.5	5.5	20	4	6	3.3	7.5	1195	1.42	2.9	10.39	5.1	5.1	0.013	0.32			
9	5.5	5.5	20	4	6	3.3	7.5	1195	2.59	3.92	18.33	17.54	14.54	0.023	0.32			
12	7.5	7.5	25	4	6	4.5	10	1195	2.46	3.62	14.7	8.04	8.72	0.029	0.59			
12	7.5	7.5	25	4	6	4.5	10	1195	4.21	6.56	26.66	24.01	26.07	0.043	0.59			
15	8.5	9.5	40	4	6	4.5	15	1190	4.02	5.97	37.24	16.46	17.93	0.052	0.99			
15	8.5	9.5	40	4	6	4.5	15	1190	7.15	10.68	53.02	49.3	53.51	0.079	0.99			

SBMW



Model	Mounting dimension				Block dimensions								
	H	W	L	E	Mounting tap hole				L1	T	K	Greasing hole	
					B	J	M	DP				T1	Q
SBMW 09	12	30	42.3	3.7	21	12	M3	3	27	4.5	8.3	2	Ø1
SBMWL09	12	30	50.3	3.7	23	24	M3	3	35	4.5	8.3	2	Ø1
SBMW 12	14	40	48.4	4	28	15	M3	3.5	30.9	5.5	10	2.4	Ø1
SBMWL 12	14	40	59.5	4	28	28	M3	3.5	42	5.5	10	2.4	Ø1
SBMW 15	16	60	57.5	3.7	45	20	M4	4.5	38.9	6.5	12.3	2.6	Ø2.7
SBMWL 15	16	60	73.4	3.7	45	35	M4	4.5	54.8	6.5	12.3	2.6	Ø2.7

① C (Basic dynamic load rating), Co (Basic static load rating)



(Unit : mm)

Rail dimension										Basic load rating [kN]		Permissible static moment [N·m]			Mass	
W1	W2	H1	W3	F	Bolt hole			G	Max length of rail L0	C	Co	Mro	Mpo	Myo	Block [kg]	Rail [kg/m]
					d	D	h									
18	6	7.5	-	30	4	6	4.5	10	1190	2.45	3.92	36	16.27	16.27	0.03	0.99
18	6	7.5	-	30	4	6	4.5	10	1190	3.52	5.37	48.41	30.38	30.38	0.05	0.99
24	8	8.5	-	40	5	8	4.5	15	1190	4.02	6.08	47.63	17.15	18.62	0.03	1.42
24	8	8.5	-	40	5	8	4.5	15	1190	5.96	9.21	89.18	46.35	52.82	0.1	1.42
42	9	9.5	23	40	5	8	4.5	15	1190	6.66	9.80	136.9	35.28	38.22	0.12	2.93
42	9	9.5	23	40	5	8	4.5	15	1190	9.91	14.9	249.9	35.35	107.8	0.21	2.93