

SLIDE GUIDE Miniature SEB Type

The NB slide guide SEB type is a linear motion bearing in which the ball elements roll along two raceway grooves. This is the smallest and lightest slide guide series offered by Nippon Bearing. The compact design allows for the size and weight of machinery and other equipment to be reduced.

STRUCTURE AND ADVANTAGES

The SEB type slide guide consists of a rail with precisely machined raceway grooves and a block assembly consisting of the main body, return caps and ball elements.

Retained Ball

Because of the ball retainers, the SEBS-B type is able to be removed from the guide rail, simplifying its installation and resulting in lower assembly costs.

All Stainless Steel Type

By using stainless steel for the return caps, the SEBS-BM type is made of all stainless steel components, making it the ideal choice for special environments such as high temperature, clean room, or vacuum applications.

Moment Resistant

A wide block (WB/WA) type, a long block (BY/AY) type, and a wide/long block (WBY/WAY) type are moment resistant slide guide types. The most

suitable type can be selected for any demanding operating condition.

Tapped Hole Rail Type

For the SEB rails, counterbore (standard) and optional tapped hole (N) types are available enabling various installation methods.

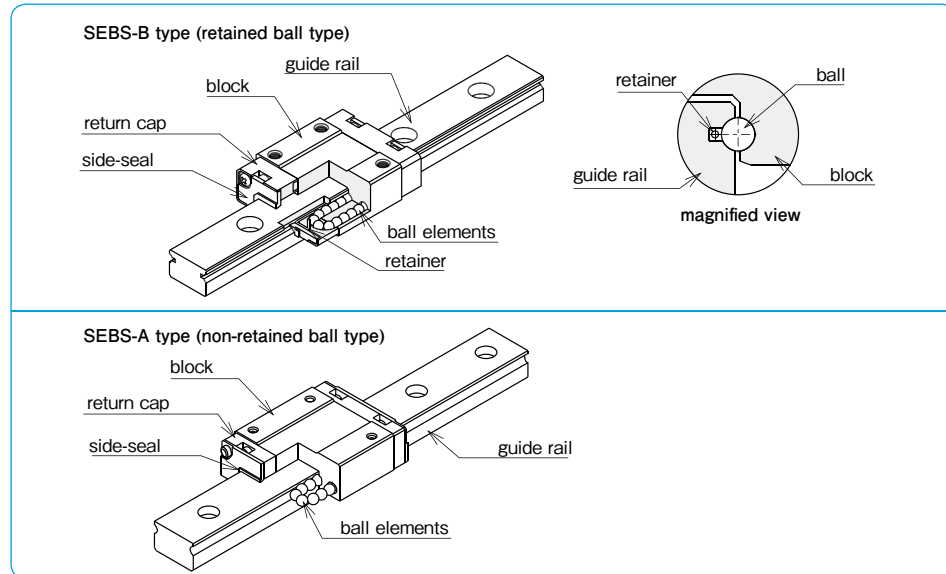
Compact Design

SEB type has a 2-row, 4-point contact structure. This structure minimizes the installation height, which contributes to light-weight and miniaturization of machinery and equipment.

AD Profile

AD profile dissipates guide block deformation caused by installation. (refer to page A-19)

Figure A-38 Structure of SEB type Slide Guide



TYPES

The SEB(S) type slide guides are categorized according to their block shape and the rail installation method.

Table A-5 Type ※All the SEB blocks are made of stainless steel (SEBS marking).

		short block standard type rail(counterbore) N type rail(tapped hole)	standard block standard type rail(counterbore) N type rail(tapped hole)	long block standard type rail(counterbore) N type rail(tapped hole)
retained ball type	all stainless steel	SEBS-BS type SEBS-BS-N type P.A-26~	SEBS-B type SEBS-B-N type P.A-26~	SEBS-BY type SEBS-BY-N type P.A-26~
	wide type	SEBS-BSM type SEBS-BSM-N type P.A-26~	SEBS-BM type SEBS-BM-N type P.A-26~	SEBS-BYM type SEBS-BYM-N type P.A-26~
			SEBS-WBS type SEBS-WBS-N type P.A-30~	SEBS-WB type SEBS-WB-N type P.A-30~
non-retained ball type		SEB-A type SEB-A-N type P.A-34~		SEB-AY type SEB-AY-N type P.A-34~
	wide type	SEB-WA type SEB-WA-N type P.A-38~		SEB-WAY type SEB-WAY-N type P.A-38~

ACCURACY

The SEB(S) slide guides are available in two grades of accuracy: high grade and precision grade (P).

Table A-6 Accuracy unit/mm

accuracy grade	high	precision
accuracy symbol	blank	P
allowable dimensional difference in height H	±0.020	±0.010
paired difference for height H	0.015	0.007
allowable dimensional difference in width W	±0.025	±0.015
paired difference for width W	0.020	0.010
running parallelism of surface C to surface A	refer to figure A-39,40	
running parallelism of surface D to surface B	refer to figure A-39,40	

Figure A-39 Accuracy

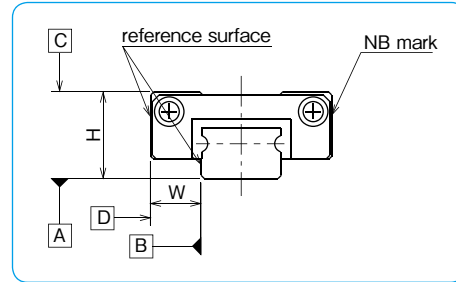
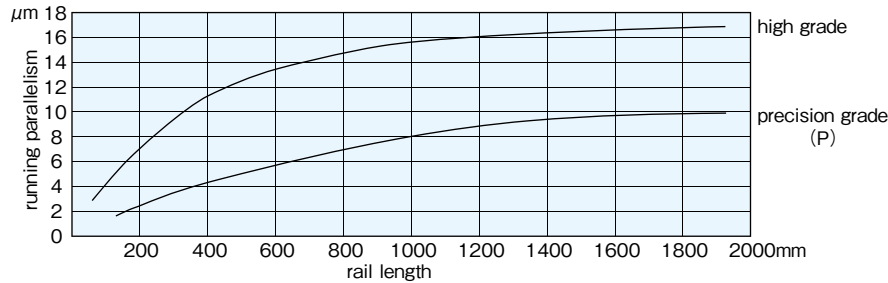


Figure A-40 Motion Accuracy



PRELOAD

SEB(S) slide guides are available with a standard preload (blank), light preload (T1), and a positive-clearance (T0).

Table A-7 Preload Symbol and Radial Clearance unit/μm

size	preload and symbol		
	clearance T0	standard blank	light T1
2	+1~+3	-	-
3			
5			
7	+3~+6	-3~0	-4~-2
9			
12			
15	+4~+8	-3~0	-7~-3
20			
3W			
5W			
7W			
9W	+3~+6	-3~0	-4~-2
12W			
15W			

Table A-8 Operating Conditions and Preload

preload	symbol	operating conditions
clearance	T0	light motion is required. installation errors to be absorbed.
standard	blank	minute vibration is applied. accurate motion is required. moment is applied in a given direction.
light	T1	light vibration is applied. light torsional load is applied. moment is applied.

LOAD RATING

The load rating for SEB(S) slide guides depends on the direction of load.

Table A-9 Load Rating

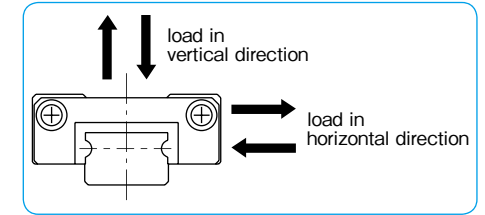
		retained ball type	non-retained ball type
basic dynamic load rating	vertical	1.00×C	1.00×C
	horizontal	0.89×C	1.13×C
basic static load rating	vertical	1.00×C ₀	1.00×C ₀
	horizontal	0.84×C ₀	1.19×C ₀

EQUIVALENT LOAD

For a guide to which vertical load and horizontal load are applied at the same time, calculate its static equivalent load using the following equation.

$$P = P_a + X \cdot P_s$$

Figure A-41 Direction of Load



P: equivalent load P_a: vertical load P_s: horizontal load
X: 0.84 for SEB-A type; 1.19 for SEBS-B type

RAIL LENGTH

Slide guides with most commonly used lengths are available as standard. For slide guides with a non-standard length, unless otherwise specified, the distance from one end of the rail to the first hole center (N) will be within the ranges listed in Tables A-10 and A-11, satisfying the following equation.

$$L = M \cdot P + 2N$$

L: length (mm) M: number of pitches P: hole pitch (mm)
N: distance from the end of the rail to the first hole center (mm)

Table A-10 N Dimension (standard type) unit/mm

size	N	
	and over	less than
2	3	7
3		8
5		10.5
7	4	14
9		16.5
12		24
15	6	36
20		

Figure A-42 Rail

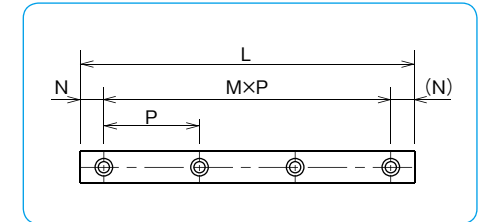


Table A-11 N Dimension (wide type) unit/mm

size	N	
	and over	less than
3W	3	10.5
5W		14
7W	4	19
9W		25
12W	5	36
15W		

MOUNTING

Mounting Surface Profile

Slide guides are mounted by pushing the reference surface of the rail and the block against the shoulder provided on the mounting surface. An undercut or a radius corner should be provided at the corner of the shoulder to prevent interference. The recommended shoulder height values on the mounting reference surface are shown in Table A-12. (Table A-13 for corner radius)

Figure A-43 Mounting Surface Profile-1

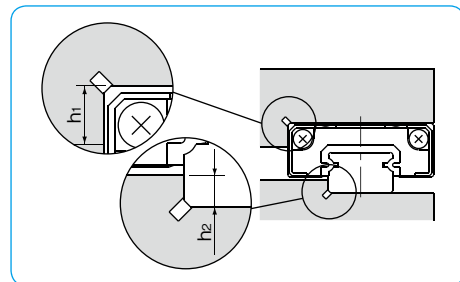


Figure A-44 Mounting Surface Profile-2

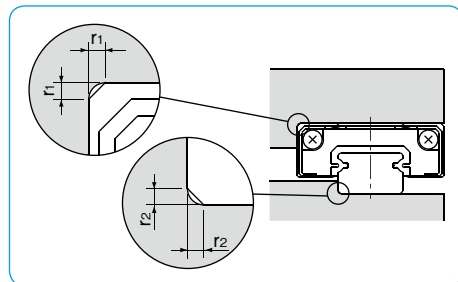


Table A-12 Shoulder Height on the Mounting Reference Surface unit/mm

size	shoulder height on the block side h ₁	shoulder height on the rail side h ₂
2	1	0.5
3	1.2	0.8
5	2	1
7	2.5	
9	3	1.5
12	4	2
15	5	3.5
20		5
3W	1.5	0.8
5W	2	1
7W	3	1.5
9W		2.5
12W	4	
15W	5	

Table A-13 Maximum Corner Radius Values unit/mm

size	block mounting part r ₁	rail mounting part r ₂
2	0.1	0.1
3	0.15	
5	0.3	0.3
7		
9		
12		
15	0.5	
20		
3W	0.15	0.1
5W	0.3	0.3
7W		
9W		
12W		
15W		

Recommended Torque Values

The screws to fasten the rail should be tightened to an equal torque using a torque wrench in order to secure the motion accuracy. The recommended torque values are given in Table A-14. Please adjust the torque depending on the operating conditions.

Table A-14 Recommended Torque unit/N·m

size	M1	M1.4	M1.6	M2	M2.6	M3	M4	M5	M6
recommended torque	0.03	0.10	0.15	0.3	0.65	1.0	2.3	4.7	8.0

(for stainless steel screw A2-70)

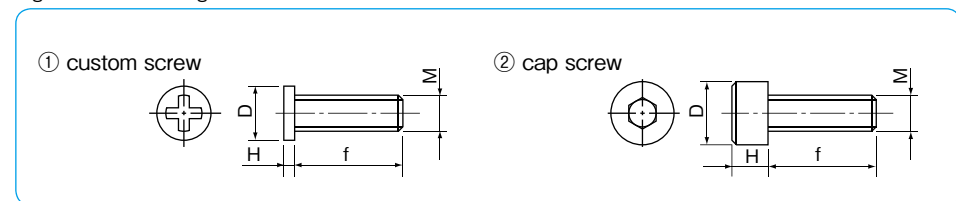
MOUNTING SCREW

Extremely small custom screws are available from NB.

Table A-15 Mounting Screw (stainless steel) unit/mm

type	shape	size	D mm	H mm	pitch mm	f mm
custom screw	Figure A-45①	M1	1.8	0.45	0.25	3, 4, 5
		M1.4	2.5	0.8	0.3	2.5, 3, 4
		M1.6	2.3	0.5	0.35	4, 5, 6
		M2	3	0.6	0.4	6
cap screw	Figure A-45②	M2	3.8	2	0.4	4, 5, 6, 8, 10
		M2.6	4.5	2.6	0.45	4, 5, 6, 8, 10

Figure A-45 Mounting Screw



LUBRICATION

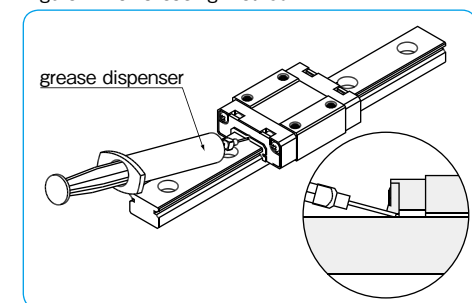
A high grade lithium soap based grease is applied to the NB slide guides prior to shipment for immediate use.

Please relubricate with a similar type of grease periodically depending on the operating conditions. For use in clean rooms or vacuum environments, NB slide guides without grease are available upon request. Please contact NB for customer specified grease types.

A special syringe lubricant dispenser (refer to Figure A-46) is available from NB as an option. In particular, the SEBS-B retained ball type has a special structure that allows the user to replenish lubricant easily (refer to page Eng-42), as the magnified view of Figure A-46 shows. Please refer to page Eng-39 for details on the low dust generation grease.

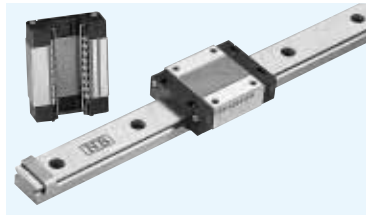


Figure A-46 Greasing Method



SEBS-BS/B/BY TYPE SEBS-BSM/BM/BYM TYPE

— Retained Ball Type —



part number structure

example **SEBS 7B Y M UU 2 T1 -289 N P/W2**

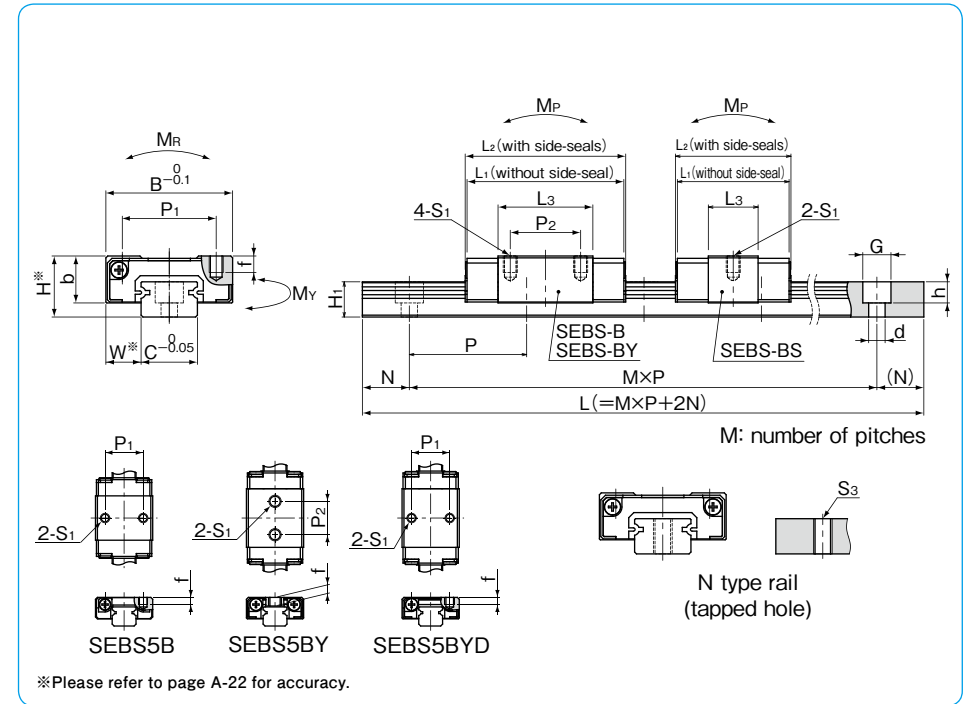
- SEBS: anti-corrosion
- size
- block
- S: short
- blank: standard
- Y: long
- return cap
- blank: resin
- M: stainless steel
- seal
- blank: without side-seal
- UU: with side-seals
- number of blocks attached to one rail
- preload symbol
- TO: clearance
- blank: standard
- T1: light
- symbol for number of axes*
 - blank: single axis
 - W2: 2 parallel axes
 - W3: 3 parallel axes
- accuracy grade
- blank: high
- P: precision
- rail mounting hole
- blank: counterbore
- N: tapped hole
- total length of rail

* The symbol for the number of axes does not mean the number of rails ordered.

part number		assembly dimensions		block dimensions								
resin return cap	stainless return cap	H	W	B	L1	L2	P1	P2	S1	f	L3	b
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
SEBS 5B	SEBS 5BM	6	3.5	12	16.5	16.9	8	—	M2	1.5	9.3	4.5
SEBS 5BY	SEBS 5BYM				19.5	19.9	—	7	M2.6	1.8	12.3	
SEBS 5BYD	SEBS 5BYDM				8	—	M2	1.5	—	—		
SEBS 7BS	SEBS 7BSM	8	5	17	18.2	19	—	—	—	—	8.8	6.5
SEBS 7B	SEBS 7BM				22.2	23	12	8	M2	2.5	12.8	
SEBS 7BY	SEBS 7BYM				31.7	32.5	—	13	—	—	22.3	
SEBS 9BS	SEBS 9BSM	10	5.5	20	20.5	21.3	—	—	—	—	10.1	7.8
SEBS 9B	SEBS 9BM				30	30.8	15	10	M3	3	19.6	
SEBS 9BY	SEBS 9BYM				39.5	40.3	—	16	—	—	29.1	

part number	standard rail length L mm															
SEBS 5B	40	55	70	85	100	115	130	145	160							
SEBS 7B	40	55	70	85	100	115	130	145	160	175	190	205	220	235	250	265
SEBS 9B	55	75	95	115	135	155	175	195	215	235	255	275	295	315	335	355

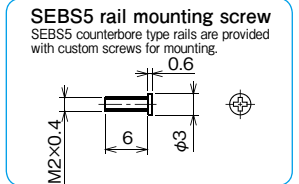
Rails exceeding the maximum specified length may be fabricated if joints are used. Please contact NB for assistance.



guide rail dimensions						basic load rating		allowable static moment			mass		guide rail	block size
H1	C	d × G × h	S3	N	P	dynamic C	static Co	Mp	My	Mr	block g resin return cap	block g stainless return cap	g/100mm	block size
mm	mm	mm	mm	mm	mm	kN	kN	N · m	N · m	N · m				
4	5	2.4 × 3.5 × 0.8	M2.6	5	15	0.52	0.75	1.13	0.95	1.96	3	4	13	5B
						0.64	1.00	1.94	1.63	2.62	4	5		
4.7	7	2.4 × 4.2 × 2.3	M3	5	15	0.92	1.05	1.57	1.32	3.86	7	10	21	7B
						1.28	1.69	3.66	3.07	6.18	9	12		
						1.90	2.95	10.4	8.74	10.8	15	18		
5.5	9	3.5 × 6 × 3.5	M4	7.5	20	1.05	1.26	2.17	1.82	5.90	11	15	31	9B
						1.70	2.53	7.78	6.53	11.8	18	22		
						2.26	3.80	16.8	14.1	17.7	27	31		

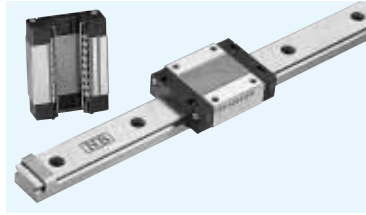
Mp2 and My2 are allowable static moments when two blocks are used in close contact. 1kN ≒ 102kgf 1N · m ≒ 0.102kgf · m

		maximum length mm	
		counterbore	tapped hole (N type)
		600	300
280	295	310	700
375	395	415	1,300



SEBS-BS/B/BY TYPE SEBS-BSM/BM/BYM TYPE

— Retained Ball Type —



part number structure

example **SEBS 15B Y M UU 2 T1 - 589 N P/W2**

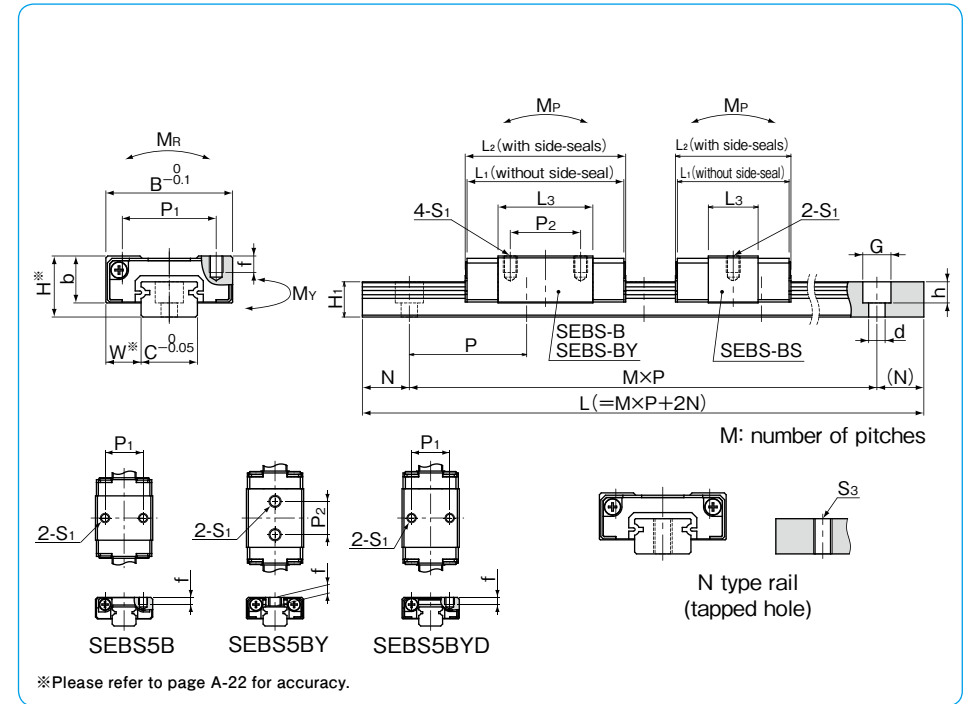
SEBS: anti-corrosion	size	block	return cap	seal	number of blocks attached to one rail	preload symbol	total length of rail
S: short	blank: standard	blank: resin	blank: without side-seal	blank: without side-seal	TO: clearance	blank: counterbore	blank: high
Y: long	M: stainless steel	UU: with side-seals	UU: with side-seals	UU: with side-seals	blank: standard	blank: standard	P: precision
symbol for number of axes*	blank: single axis	W2: 2 parallel axes	W3: 3 parallel axes	W3: 3 parallel axes	blank: standard	blank: standard	P: precision
accuracy grade	blank: high	blank: high	blank: high	blank: high	blank: high	blank: high	P: precision
rail mounting hole	blank: counterbore	blank: counterbore	blank: counterbore	blank: counterbore	blank: counterbore	blank: counterbore	P: precision
	N: tapped hole	N: tapped hole	N: tapped hole	N: tapped hole	N: tapped hole	N: tapped hole	P: precision

* The symbol for the number of axes does not mean the number of rails ordered.

part number		assembly dimensions		block dimensions								
resin	stainless	H	W	B	L1	L2	P1	P2	S1	f	L3	b
return cap	return cap	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
SEBS12BS	SEBS12BSM	13	7.5	27	24.2	24.6	20	—	M3	3.5	10.6	10
SEBS12B	SEBS12BM				33.8	34.2		15			20.2	
SEBS12BY	SEBS12BYM				45.7	46.1		20			32.1	
SEBS15BS	SEBS15BSM	16	8.5	32	30	30.4	25	—	M3	4	15	12
SEBS15B	SEBS15BM				42.6	43		20			27.6	
SEBS15BY	SEBS15BYM				58.6	59		25			43.6	
SEBS20B	SEBS20BM	25	13	46	65.9	65.9	38	38	M4	6	44.7	17.5
SEBS20BY	SEBS20BYM				85.7	85.7					64.5	

part number	standard rail length L mm															
SEBS12B	70	95	120	145	170	195	220	245	270	295	320	345	370	395	420	445
SEBS15B	70	110	150	190	230	270	310	350	390	430	470	510	550	590	630	670
SEBS20B	220	280	340	400	460	520	580	640	700	760	820	880	940	1,000		

Rails exceeding the maximum specified length may be fabricated if joints are used. Please contact NB for assistance.



*Please refer to page A-22 for accuracy.

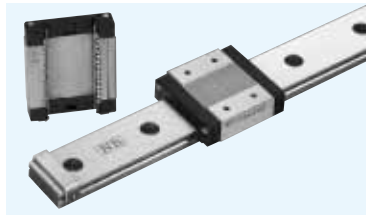
guide rail dimensions							basic load rating			allowable static moment			mass		guide rail	block size
H1	C	d × G × h		S3	N	P	dynamic C	static Co	MP	My	MR	block g resin return cap	block g stainless return cap	g/100mm		
mm	mm	mm		mm	mm	mm	kN	kN	N · m	N · m	N · m					
7.5	12	3.5 × 6 × 4.5		M4	10	25	1.90	1.91	3.63	3.04	11.9	21	30	59	12BS	
							3.09	3.82	12.4	10.4	23.9	35	44			12B
							4.34	6.21	81.3	68.2	38.8	53	62			12BY
9.5	15	3.5 × 6 × 4.5		M5	15	40	3.49	3.38	8.56	7.18	26.2	40	53	97	15BS	
							5.65	6.76	67.5	56.6	52.4	64	77			15B
							7.93	10.9	29.2	24.5	85.1	98	110			15BY
15	20	6 × 9.5 × 8.5		M6	20	60	11.4	14.5	103	87.0	149	228	266	205	20B	
							14.8	21.2	591	496	217	323	360			20BY

MP2 and My2 are allowable static moments when two blocks are used in close contact. 1kN ≒ 102kgf 1N · m ≒ 0.102kgf · m

		maximum length mm	
		counterbore	tapped hole (N type)
470	495	1,300	1,000

SEBS-WBS/WB/WBY TYPE

– Retained Ball · Wide Type –



part number structure

example **SEBS 7WB Y UU 2 T1 - 289 N P / W2**

SEBS: anti-corrosion

size

block
S: short
blank: standard
Y: long

seal
blank: without side-seal
UU: with side-seals

number of blocks attached to one rail

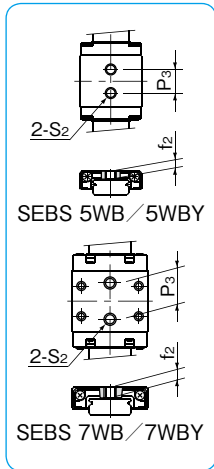
preload symbol
TO: clearance
blank: standard
T1: light

symbol for number of axes*
blank: single axis
W2: 2 parallel axes
W3: 3 parallel axes

accuracy grade
blank: high
P: precision

rail mounting hole
blank: counterbore
N: tapped hole

total length of rail

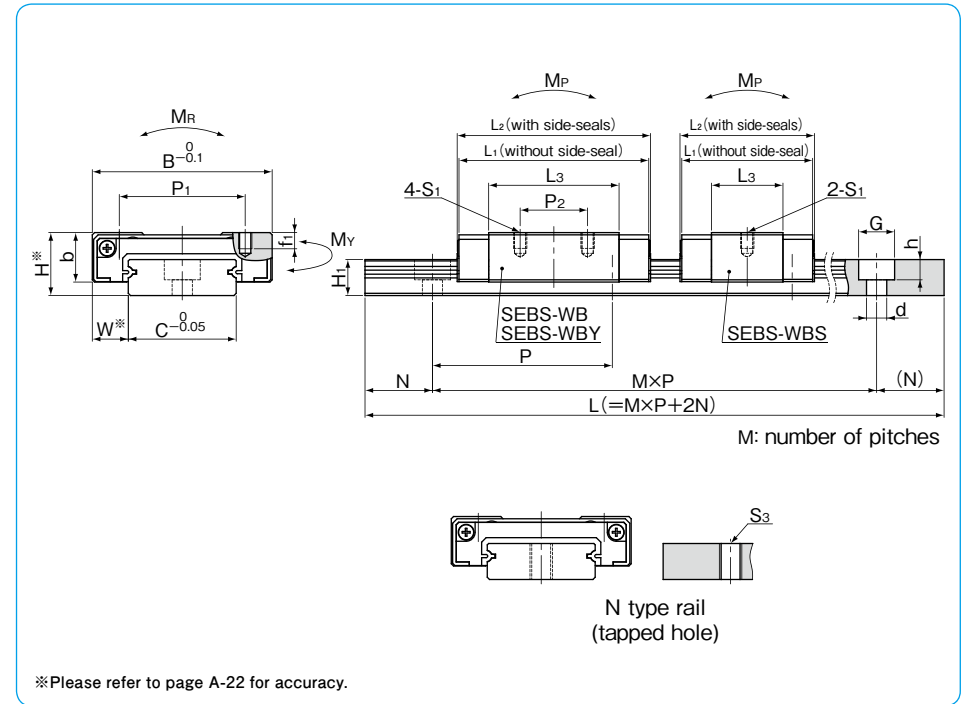


* The symbol for the number of axes does not mean the number of rails ordered.

part number	assembly dimensions			block dimensions											
	H	W	B	L ₁	L ₂	P ₁	P ₂	S ₁	f ₁	L ₃	P ₃	S ₂	f ₂	b	
	mm	mm	mm	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	
SEBS 5WB	6.5	3.5	17	21.5	21.9	—	—	—	—	14.3	6.5	M3	2.3	5	
SEBS 5WBY				27.5	27.9					20.3	11				
SEBS 7WBS	9	5.5	25	21.1	21.9	19	10	M3	2.8	10.7	—	M4	3.5	7	
SEBS 7WB				30.6	31.4					20.2	12				
SEBS 7WBY				39.3	40.1					28.9	18				
SEBS 9WBS	12	6	30	24.2	25	21	—	M3	3	13	—	—	—	9	
SEBS 9WB				37.5	38.3					26.3					—
SEBS 9WBY				49.5	50.3					23					24

part number	standard rail length														
	L mm														
SEBS 5WB	50	70	90	110	130	150	170	190							
SEBS 7WB	50	80	110	140	170	200	230	260	290	320	350	380	410	440	470
SEBS 9WB	50	80	110	140	170	200	230	260	290	320	350	380	410	440	470

Rails exceeding the maximum specified length may be fabricated if joints are used. Please contact NB for assistance.
 The minimum standard rail can not be used for SEBS 9 WBY.



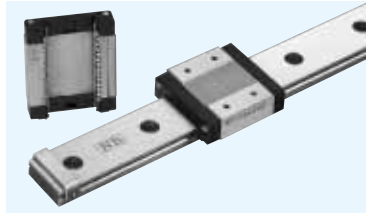
guide rail dimensions							basic load rating		allowable static moment			mass		block size
H ₁	C	B ₁	d × G × h	S ₃	N	P	dynamic C	static C ₀	M _{P2}	M _{Y2}	M _R	block g	guide rail g/100mm	
mm	mm	mm	mm		mm	mm	kN	kN	N · m	N · m	N · m			
4	10	—	3 × 5.5 × 3	M3	5	20	0.71	1.17	2.60	2.18	5.99	7	26	
							0.91	1.68	5.16	4.33	8.56			10
5.2	14	—	3.5 × 6 × 3.2	M4	10	30	1.05	1.26	2.17	1.82	9.07	12	51	
							1.71	2.53	7.78	6.53	18.1			20
							2.26	3.80	16.8	14.1	27.2			28
7.5	18	—	3.5 × 6 × 4.5	M4	10	30	1.73	2.01	4.35	3.65	18.6	21	96	
							2.96	4.36	18.1	15.2	40.4			37
							3.87	6.38	37.4	31.4	59.0			52

M_{P2} and M_{Y2} are allowable static moments when two blocks are used in close contact. 1kN ≃ 102kgf 1N · m ≃ 0.102kgf · m

		maximum length mm	
		counterbore	tapped hole (N type)
		600	500
		1,000	700
500	530	1,300	1,000

SEBS-WBS/WB/WBY TYPE

– Retained Ball · Wide Type –



part number structure

example **SEBS 15WB Y UU 2 T1 -539 N P /W2**

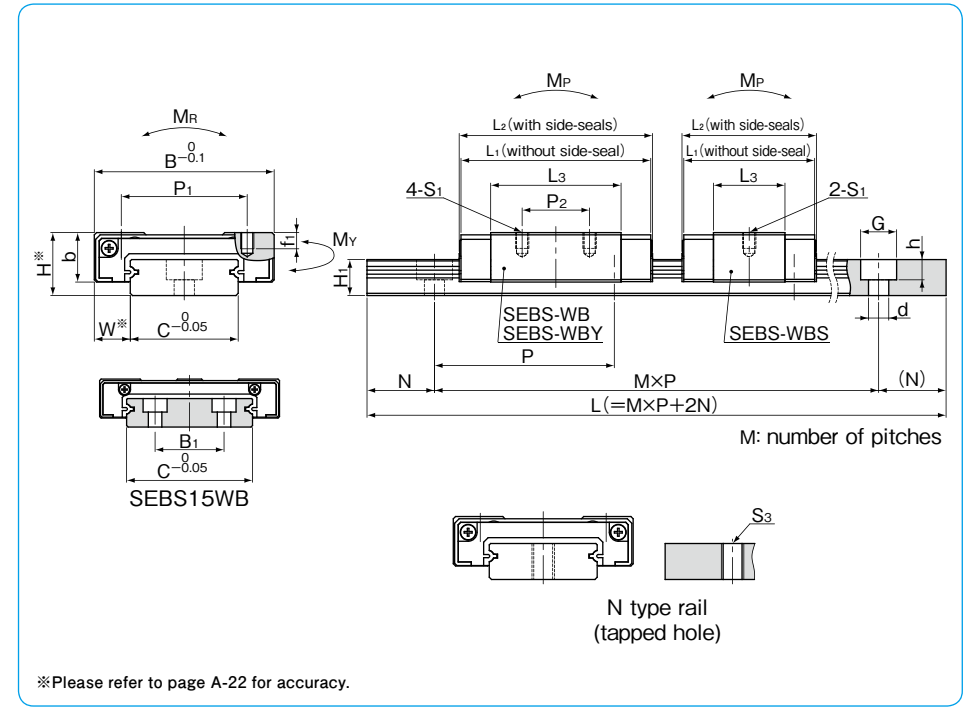
- SEBS**: anti-corrosion
- size**
- block**
S: short
blank: standard
Y: long
- seal**
blank: without side-seal
UU: with side-seals
- number of blocks attached to one rail**
- preload symbol**
TO: clearance
blank: standard
T1: light
- symbol for number of axes***
blank: single axis
W2: 2 parallel axes
W3: 3 parallel axes
- accuracy grade**
blank: high
P: precision
- rail mounting hole**
blank: counterbore
N: tapped hole
- total length of rail**

* The symbol for the number of axes does not mean the number of rails ordered.

part number	assembly dimensions			block dimensions										
	H	W	B	L ₁	L ₂	P ₁	P ₂	S ₁	f ₁	L ₃	P ₃	S ₂	f ₂	b
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
SEBS12WBS				29.7	30.1		—			15.9				
SEBS12WB	14	8	40	42.8	43.2	28	15	M3	3.5	29	—	—	—	11
SEBS12WBY				58.3	58.7		28			44.5				
SEBS15WBS				39.4	39.8		—			24				
SEBS15WB	16	9	60	54.2	54.6	45	20	M4	4.5	38.8	—	—	—	13
SEBS15WBY				73.3	73.7		35			57.9				

part number	standard rail length														
	L mm														
SEBS12WB	70	110	150	190	230	270	310	350	390	430	470	510	550	590	630
SEBS15WB	70	110	150	190	230	270	310	350	390	430	470	510	550	590	630

Rails exceeding the maximum specified length may be fabricated if joints are used. Please contact NB for assistance.
 The minimum standard rail can not be used for SEBS 15 WBY.

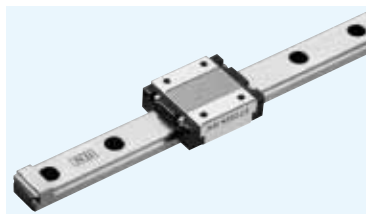


guide rail dimensions							basic load rating			allowable static moment			mass		block size		
H ₁	C	B ₁	d × G × h	S ₃	N	P	dynamic C	static Co	M _P	M _Y	M _R	block	guide rail				
mm	mm	mm	mm		mm	mm	kN	kN	N · m	N · m	N · m	g	g/100mm				
8	24	—	4.5 × 8 × 4.5	M5	15	40	2.53	2.86	7.38	6.19	35.1	43	137				
							4.10	5.73	26.4	22.1	70.2	71					
							5.45	8.60	150	126	105	106					
9.5	42	23					4.5 × 8 × 4.5	M5	15	40	5.15	5.91	22.9	19.2	125	98	286
											7.49	10.1	62.2	52.2	215	148	
											9.95	15.2	134	113	323	216	

M_{P2} and M_{Y2} are allowable static moments when two blocks are used in close contact. 1kN ≒ 102kgf 1N · m ≒ 0.102kgf · m

		maximum length mm
		counterbore (N type)
670	710	1,000
670	710 750 790 830 870	1,300

SEB-A/AY TYPE



part number structure

example **SEBS 7A Y UU 2 T1 - 289 N P / W2**

specification
SEB: standard
SEBS: anti-corrosion

size

block
blank: standard
Y: long

seal
blank: without side-seal
UU: with side-seals

number of blocks attached to one rail

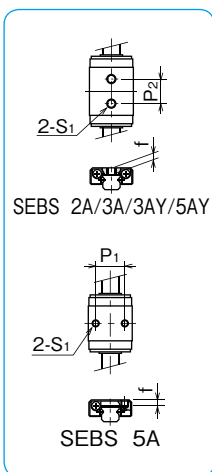
preload symbol
TO: clearance
blank: standard
T1: light

symbol for number of axes*
blank: single axis
W2: 2 parallel axes
W3: 3 parallel axes

accuracy grade
blank: high
P: precision

rail mounting hole
blank: counterbore
N: tapped hole

total length of rail

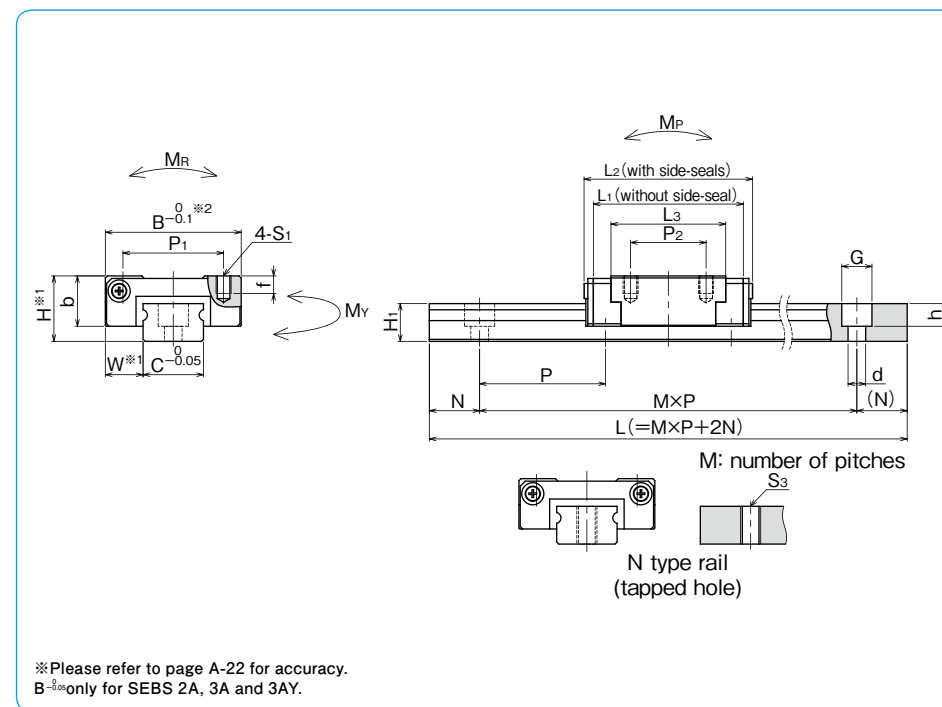


* The symbol for the number of axes does not mean the number of rails ordered.

part number		assembly dimensions		block dimensions								
standard	anti-corrosion	H	W	B	L1	L2	P1	P2	S1	f	L3	b
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
—	SEBS 2A	3.2	2	6	12.9	14.3	—	4	M1.4	1.05	9.3	2.5
—	SEBS 3A	4	2.5	8	10.5	11.8	—	3.5	M1.6	1.3	6.5	3
	SEBS 3AY				14.5	15.8	—	5.5	M2		10.5	
—	SEBS 5A	6	3.5	12	15.6	17	8	—	M2	1.5	9.8	4.5
	SEBS 5AY				19.2	20.6	—	7	M2.6	1.8	13.4	
—	SEBS 7A	8	5	17	21.9	24	12	8	M2	2.5	15.1	6.5
	SEBS 7AY				31	33		13			24.6	

part number		standard rail length L														
standard	anti-corrosion	mm														
—	SEBS 2A	32	40	56	80	104										
—	SEBS 3A	30	40	60	80	100										
—	SEBS 5A	40	55	70	85	100	115	130	145	160						
—	SEBS 7A	40	55	70	85	100	115	130	145	160	175	190	205	220	235	250

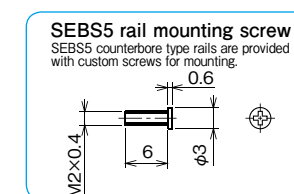
Joint rails are used when the required length exceeds the maximum standard length listed in the dimension tables. Please contact NB for details. Only N type rail is available for SEBS 2A and SEBS 3A.



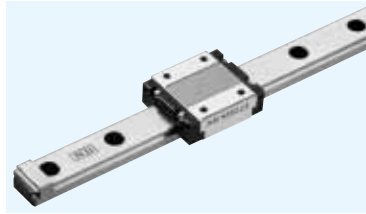
guide rail dimensions						basic load rating		allowable static moment			mass		block size
H1	C	d×G×h	S3	N	P	dynamic C	static Co	Mp	My	Mr	block	guide rail	
mm	mm	mm		mm	mm	kN	kN	N·m	N·m	N·m	g	g/100mm	
2	2	—	M1	4	8	0.21	0.38	0.53 2.77	0.64 3.30	0.41	0.8	2.8	2A
2.6	3	—	M1.6	5	10	0.25	0.36	0.39 2.42	0.46 2.88	0.57	1	5	3A
						0.35	0.58	0.97 5.18	1.16 6.18				0.93
4	5	2.4×3.5×1	M2.6	5	15	0.59	0.81	1.32 8.05	1.58 9.60	2.11	4	13	5A
						0.74	1.11	2.39 13.2	2.86 15.7				2.90
4.7	7	2.4×4.2×2.3	M3	5	15	1.08	1.41	3.07 18.9	3.66 22.6	5.18	11	21	7A
						1.59	2.48	8.74 45.1	10.4 53.8				9.07

Mp and My2 are allowable static moments when two blocks are used in close contact. 1kN≒102kgf 1N·m≒0.102kgf·m

		maximum counterbore		length mm	
		standard	anti-corrosion	standard	anti-corrosion
		—	—	—	150
		—	—	—	150
		—	600	—	300
265	280 295 310	—	1,000	—	700



SEB-A/AY TYPE



part number structure

example **SEBS 15A Y UU 2 T1 -539 N P /W2**

specification SEB: standard SEBS: anti-corrosion	size	block blank: standard Y: long	seal blank: without side-seal UU: with side-seals	number of blocks attached to one rail	preload symbol TO: clearance blank: standard T1: light	symbol for number of axes* blank: single axis W2: 2 parallel axes W3: 3 parallel axes	accuracy grade blank: high P: precision	rail mounting hole blank: counterbore N: tapped hole	total length of rail
--	------	-------------------------------------	---	---------------------------------------	---	--	---	--	----------------------

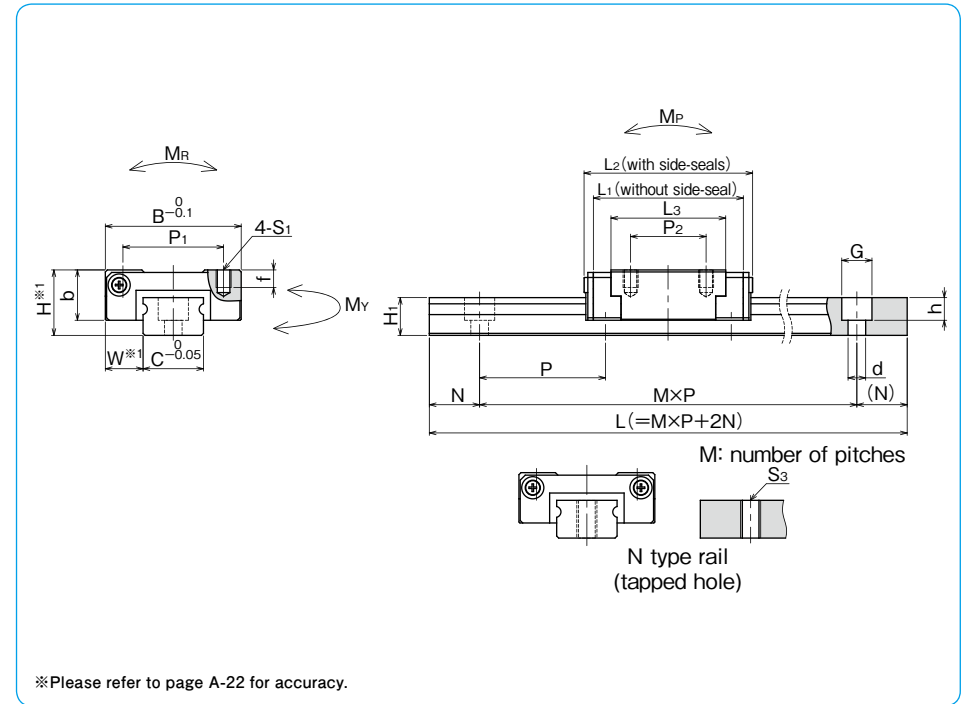
* The symbol for the number of axes does not mean the number of rails ordered.

part number		assembly dimensions		block dimensions								
standard	anti-corrosion	H	W	B	L ₁	L ₂	P ₁	P ₂	S ₁	f	L ₃	b
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
SEB 9A	SEBS 9A	10	5.5	20	28.1	29.5	15	10	M3	3	20.4	7.8
SEB 9AY	SEBS 9AY				38.1	40		16			30.4	
SEB 12A	SEBS 12A	13	7.5	27	30	33.5	20	15		3.5	22.8	10
SEB 12AY	SEBS 12AY				42	45.5		20			34.7	
SEB 15A	SEBS 15A	16	8.5	32	38.5	42	25	20		4	29.5	12
SEB 15AY	SEBS 15AY				54.5	58		25			45.4	
SEB 20A	SEBS 20A	25	13	46	55.7	61	38	38	M4	6	45.7	17.8
SEB 20AY	SEBS 20AY				79.5	85		38			69.5	

All the SEB blocks are made of stainless steel (SEBS marking).

part number		standard rail length														
standard	anti-corrosion	L mm														
SEB 9A	SEBS 9A	55	75	95	115	135	155	175	195	215	235	255	275	295	315	335
SEB 12A	SEBS 12A	70	95	120	145	170	195	220	245	270	295	320	345	370	395	420
SEB 15A	SEBS 15A	70	110	150	190	230	270	310	350	390	430	470	510	550	590	630
SEB 20A	SEBS 20A	220	280	340	400	460	520	580	640	700	760	820	880	940	1,000	

Joint rails are used when the required length exceeds the maximum standard length listed in the dimension tables.



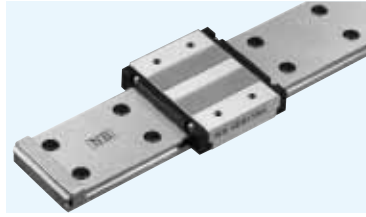
guide rail dimensions				basic load rating		allowable static moment			mass		block size			
H ₁	C	d×G×h	S ₃	N	P	dynamic C	static C ₀	M _P	M _Y	M _R	block	guide rail	block size	
mm	mm	mm	mm	mm	mm	kN	kN	N·m	N·m	N·m	g	g/100mm		
5.5	9	3.5×6×3.5	M4	7.5	20	1.92	2.53	7.64	9.11	11.5	19	30	9A	
						2.62	3.94	10.4	12.4	17.9	28	9AY		
7.5	12	3.5×6×4.5		10	25	2.60	3.20	10.4	12.4	20.0	37	60	12A	
						3.65	5.21	10.4	12.4	32.6	55	12AY		
9.5	15	3.5×6×4.5		M5	15	40	4.74	5.67	24.5	29.2	43.9	68	100	15A
							6.65	9.22	24.5	29.2	71.4	101	15AY	
15	20	6×9.5×8.5	M6	20	60	8.99	11.1	72.7	86.7	114	226	209	20A	
						12.4	17.8	72.7	86.7	182	338	20AY		

M_{P2} and M_{Y2} are allowable static moments when two blocks are used in close contact. 1kN≒102kgf 1N·m≒0.102kgf·m

		maximum length mm	
		counterbore	tapped hole (N type)
standard	anti-corrosion	standard	anti-corrosion
355	375	500	500
395	415	1,300	1,000
435	455		
475	495	1,900	1,900
670			

SEB-WA/WAY TYPE

— Wide block —



part number structure

example **SEBS 9WA Y UU 2 T1 - 289 N P / W2**

specification
SEB: standard
SEBS: anti-corrosion

size

block
blank: standard
Y: long

seal
blank: without side-seal
UU: with side-seals

number of blocks attached to one rail

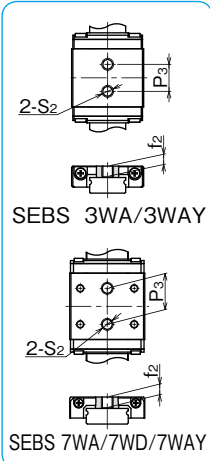
preload symbol
TO: clearance
blank: standard
T1: light

symbol for number of axes**
blank: single axis
W2: 2 parallel axes
W3: 3 parallel axes

accuracy grade
blank: high
P: precision

rail mounting hole
blank: counterbore
N: tapped hole

total length of rail



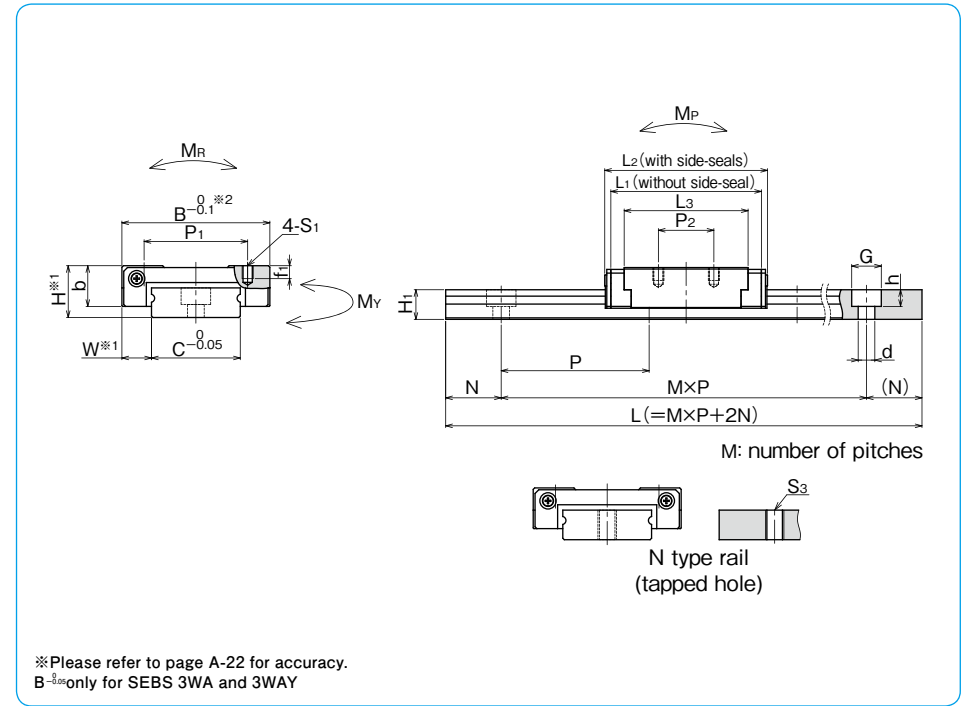
* The symbol for the number of axes does not mean the number of rails ordered.

part number		assembly dimensions		block dimensions											
standard	anti-corrosion	H	W	B	L1	L2	P1	P2	S1	f1	L3	P3	S2	f2	b
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
—	SEBS 3WA	4.5	3	12	14.2	15	—	—	—	—	9.7	4.5	M2	1.7	3.5
	SEBS 3WAY				19	19.8									
—	SEBS 7WA	9	5.5	25	30.1	32	18	12	M2.6	2.5	22.1	12	M4	3.5	7
	SEBS 7WD				19	10	M3	2.8							
	SEBS 7WAY				39.6	41	19	31.6	18						
SEB 9WA	SEBS 9WA	12	6	30	35.9	38	21	12	M2.6	3	28.4	—	—	—	9
SEB 9WD	SEBS 9WD				2.8										
SEB 9WAY	SEBS 9WAY				48	50	23	24	M3	3	40.4				

All the SEB blocks are made of stainless steel (SEBS marking).

part number		standard rail length														
standard	anti-corrosion	L														
mm	mm	mm														
—	SEBS 3WA	40	55	70	85	100										
—	SEBS 7WA	50	80	110	140	170	200	230	260	290	320	350	380	410	440	470
SEB 9WA	SEBS 9WA	50	80	110	140	170	200	230	260	290	320	350	380	410	440	470

Joint rails are used when the required length exceeds the maximum standard length listed in the dimension tables. Please contact NB for details. SEB9WAY block lengths exceed the minimum standard rail length.

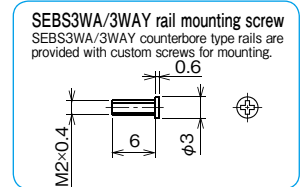


* Please refer to page A-22 for accuracy.
 B⁻³ only for SEBS 3WA and 3WAY

guide rail dimensions							basic load rating		allowable static moment			mass		block size
H1	C	B1	d x G x h	S3	N	P	dynamic C	static Co	Mp	My	Mr	block g	guide rail g/100mm	block size
mm	mm	mm	mm	mm	mm	mm	kN	kN	N · m	N · m	N · m	g	g/100mm	
2.6	6	—	2.4 x 4 x 1.5	M3	5	15	0.33	0.54	0.83	0.99	1.67	3	10	3WA
							0.44	0.81	1.81	2.15	2.51			
5.2	14	—	3.5 x 6 x 3.2	M4	10	30	1.43	2.12	6.53	7.78	15.2	21	51	7WA
							38.2	45.6	6.53	7.78				
							1.90	3.19	14.1	16.8	22.8	30	7WAY	
7.5	18	—	3.5 x 6 x 4.5	M4	10	30	2.49	3.66	15.2	18.1	33.9	38	96	9WA
							77.6	92.5	15.2	18.1				
							3.25	5.35	31.4	37.4	49.5	55	9WAY	

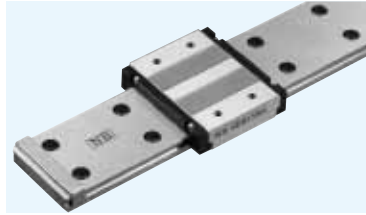
Mp2 and My2 are allowable static moments when two blocks are used in close contact. 1kN = 102kgf 1N · m = 0.102kgf · m

		maximum length mm			
		counterbore		tapped hole (N type)	
		standard	anti-corrosion	standard	anti-corrosion
—	—	—	500	—	150
—	—	—	1,000	—	700
500	530	1,900	1,300	1,900	1,000



SEB-WA/WAY TYPE

— Wide block —



part number structure

example **SEBS 15WA Y UU 2 T1 - 539 N P / W2**

specification SEB: standard SEBS: anti-corrosion	size	block blank: standard Y: long	seal blank: without side-seal UU: with side-seals	number of blocks attached to one rail	preload symbol TO: clearance blank: standard T1: light	symbol for number of axes** blank: single axis W2: 2 parallel axes W3: 3 parallel axes	accuracy grade blank: high P: precision	rail mounting hole blank: counterbore N: tapped hole	total length of rail
--	------	-------------------------------------	---	---------------------------------------	---	---	---	--	----------------------

※ The symbol for the number of axes does not mean the number of rails ordered.

part number		assembly dimensions		block dimensions											
standard	anti-corrosion	H	W	B	L ₁	L ₂	P ₁	P ₂	S ₁	f ₁	L ₃	P ₃	S ₂	f ₂	b
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
SEB12WA	SEBS12WA	14	8	40	40.7	44	28	15	M3	3.5	33.5	—	—	—	11
SEB12WAY	SEBS12WAY				55	58.5		28			47.8				
SEB15WA	SEBS15WA	16	9	60	51.2	55	45	20	M4	4.5	42	—	—	—	13
SEB15WAY	SEBS15WAY				70.5	74		35			61.1				

All the SEB blocks are made of stainless steel (SEBS marking).

part number		standard rail length L														
standard	anti-corrosion	mm														
SEB12WA	SEBS12WA	70	110	150	190	230	270	310	350	390	430	470	510	550	590	630
SEB15WA	SEBS15WA	70	110	150	190	230	270	310	350	390	430	470	510	550	590	630

Joint rails are used when the required length exceeds the maximum standard length listed in the dimension tables. Please contact NB for details. SEB15WAY block lengths exceed the minimum standard rail length.

Technical diagrams of SEB 15WA slide guide showing dimensions and forces. Includes side view, top view, and detail views of the rail and block.

Labels in diagrams: M_R , M_P , M_y , L_2 (with side-seals), L_1 (without side-seal), L_3 , P_1 , P_2 , G , d , N , P , $M \times P$, $L (=M \times P + 2N)$, $W \times 1$, C , B , $4-S_1$, H , D , C , B_1 , C , S_3 .

M: number of pitches

N type rail (tapped hole)

※Please refer to page A-22 for accuracy.

guide rail dimensions							basic load rating			allowable static moment			mass		block size	
H ₁	C	B ₁	d × G × h	S ₃	N	P	dynamic C	static C ₀	M _P	M _y	M _R	block g	guide rail g/100mm			
mm	mm	mm	mm	mm	mm	mm	kN	kN	N · m	N · m	N · m	g	g/100mm			
8	24	—	4.5 × 8 × 4.5	M5	15	40	3.64	5.21	25.7	30.7	63.8	77	138			
							4.75	7.62	53.2	63.4	93.3			109		
9.5	42	23					113	134	271	6.29	8.51	52.2	62.2	180	154	294
										8.35	12.7	113	134	271		

M_{P2} and M_{y2} are allowable static moments when two blocks are used in close contact. 1kN ≒ 102kgf 1N · m ≒ 0.102kgf · m

part number		maximum length mm			
standard	anti-corrosion	counterbore	tapped hole (N type)	standard	anti-corrosion
670	710	1,900	1,300	1,900	1,000
670	710	750	790	830	870