SLIDE GUIDE SGW Type

The NB slide guide SGW type is a linear motion bearing utilizing the rolling motion of ball elements along four rows of raceway grooves. Its low height and wide profile makes it suitable for single-rail applications.

STRUCTURE AND ADVANTAGES

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

High Load Capacity and Long Life

The raceway grooves are machined to a radius close to that of the ball elements. The larger contact area resulting in a high load capacity and a long travel life.

High Allowable Moment

Its wide profile enables it to sustain high moment loads, making it suitable for single-rail applications.

Omni-Directional Load Capacity

The ball elements are positioned at 45° contact angle so that the load capacity is equal in four directions (above, below, right and left).

Smooth Motion

The large number of effective ball elements produce a smooth rolling motion.

Anti-Corrosion Specification

The rail and block assembly can be treated with low temperature black chrome treatment to increase the corrosion resistance. This treatment is standardized with the symbol "LB", and suitable for use in clean room applications.

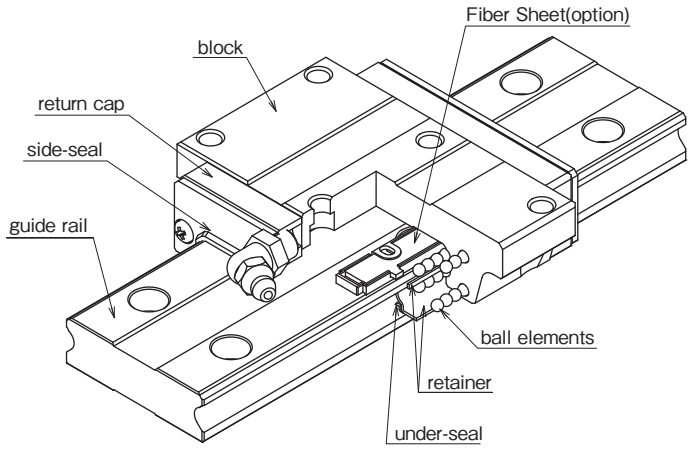
Dust Prevention

Side-seals are provided as standard. To improve the dust prevention characteristics, under-seals and rail mounting caps are also available.

Extension of Relubrication Period by Fiber Sheet

A lubricant-containing Fiber Sheet incorporated in the block supplies appropriate amount of lubricant to the raceway grooves, which significantly extends the lubricant replenishment interval. (refer to page A-18)

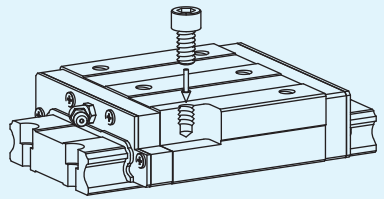
Figure A-61 Structure of SGW type Slide Guide



BLOCK TYPES

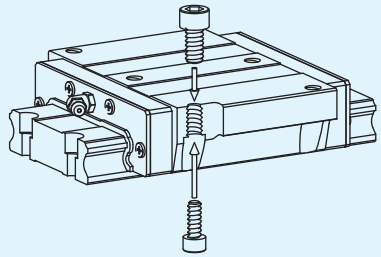
Two SGW block types are available depending on the mounting space and desired mounting method.

SGW-TF type P.A-64



high-rigidity wide type

SGW-TE type P.A-66



high-rigidity wide flange type

ACCURACY

Three accuracy grades are available: standard grade (blank), high grade (H), and precision grade (P).

Table A-24 Accuracy unit : mm

part number	SGW17,21			SGW27,35		
accuracy grade	standard	high	precision	standard	high	precision
accuracy symbol	blank	H	P	blank	H	P
allowable dimensional tolerance for height H	±0.1	±0.03	−0.03~0	±0.1	±0.04	−0.04~0
paired difference for height H	0.02	0.01	0.006	0.02	0.015	0.007
allowable dimensional tolerance for width W	±0.1	±0.03	−0.03~0	±0.1	±0.04	−0.04~0
paired difference for width W	0.02	0.01	0.006	0.03	0.015	0.007
Running parallelism of surface C to surface A Running parallelism of surface D to surface B	refer to Figure A-55,56					

Figure A-55 Motion Accuracy

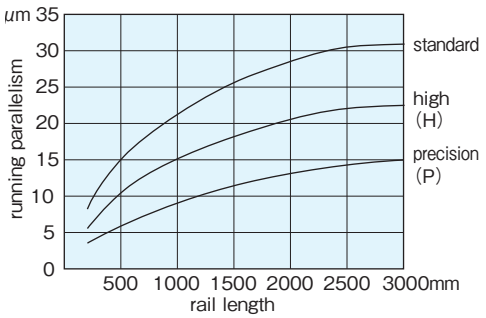
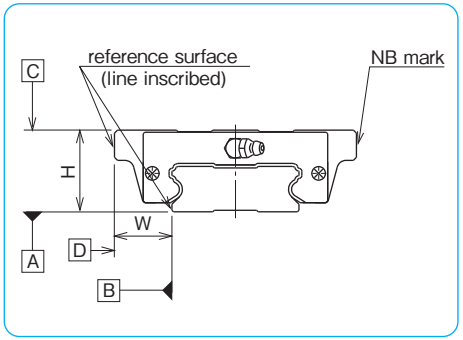


Figure A-56 Accuracy



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PRELOAD

Three levels of preload are available for SGW slide guides: standard (blank), light (T1), and medium (T2).

Table A-25 Preload symbol and Radial Clearance unit : μm

preload	standard	light	medium※
symbol	blank	T1	T2
SGW17	−3～+2	− 7～−3	−
SGW21	−4～+2	− 8～−4	−
SGW27	−5～+2	−11～−5	−
SGW35	−8～+4	−18～−8	−28～−18

Table A-26 Operating Conditions and Preload

preload	symbol	operating conditions
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.
medium※	T2	shock and vibration are applied. over-hang load is applied. torsional load is applied.

※ Frictional resistance may be affected by preload.

RAIL LENGTH

NB offers a variety of commonly used rails as standard rail lengths (described in each dimension table). Other than the standard rail length can also be offered.
In this case, if the N・(N) dimension is different from the value in each dimension table, please indicate as shown in the example. Please inquire us about changing the P dimension.
Please refer to the table values for the manufacturing range of N・(N) dimensions.
Although the rail length can be offered out of the recommended range, please be careful not to interfere with the mounting hole or affect the assembly accuracy.

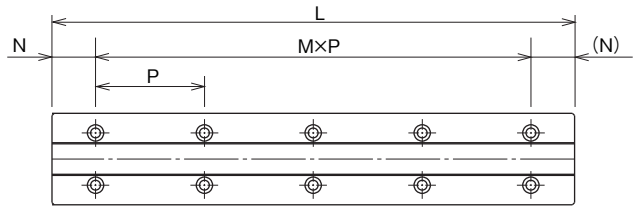
Table A-27 N Dimension unit : mm

part number	N and over	N less than
SGW17	8	28
SGW21		33
SGW27		38
SGW35	12	52

Part number structure (Indicate after the overall rail length or rail mounting hole symbol)

SGW 17 TF 1 T1 -320 (N=20) [N・(N) =20]
SGW 35 TE B 2 -700 (N=25/35) P [N=25, (N) =35]

Figure A-57 Rail



MOUNTING

Slide guides are generally mounted by pushing the reference surface of the rail and block against the shoulder of the mounting surface. To avoid interference between the shoulder and the corner of the rail or block, the recommended dimensions are listed in Table A-29.
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-28. Please adjust the torque depending on the operating conditions.

Figure A-58 Mounting Reference Surface Profile

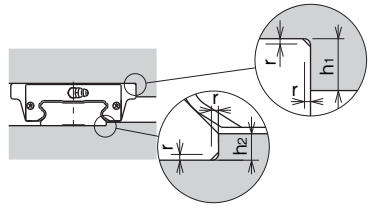


Table A-28 Recommended Torque unit : N・m

size	M4	M6
recommended torque	3.2	11.2

(for alloy steel screw)

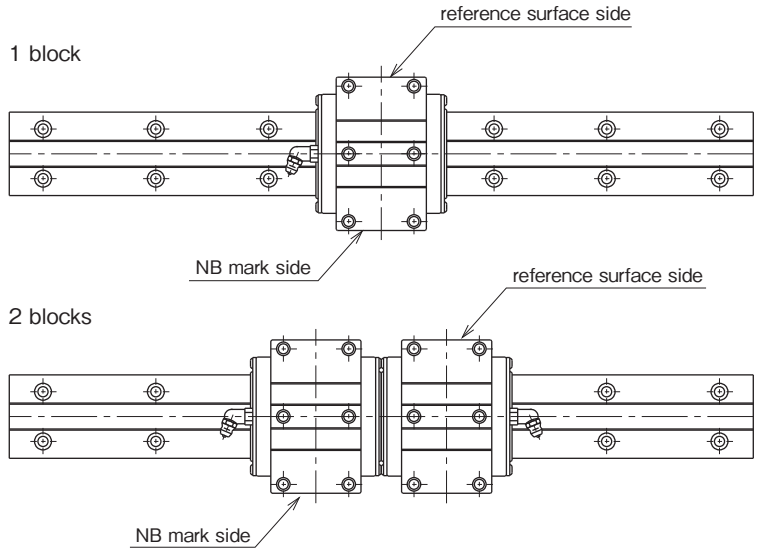
Table A-29 Shoulder Height and Radius Dimensions unit : mm

part number	h1	h2	rmax.
SGW17	4	2	0.4
SGW21	5	2.5	
SGW27			
SGW35		3.5	0.8

GREASE FITTING

A grease fitting is attached to the return cap of SGW type guide block for lubrication purposes. Unless otherwise specified, the orientation of the grease fitting is as shown in Figure A-66. When more than 2 blocks are used on one rail, please specify the grease fitting orientation.

Figure A-59 Grease Fitting Orientation



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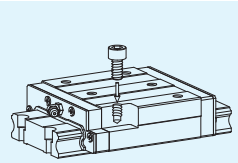
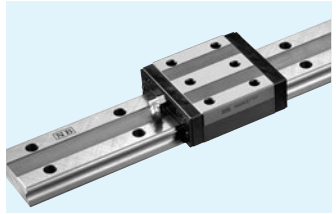
SGW-TF TYPE

— High Rigidity Wide Type —





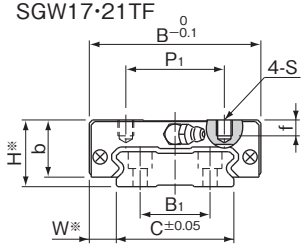
part number structure

example **SGW 21 TF B 2 T1 - 530 P / W2 FS LB F - KGLA**

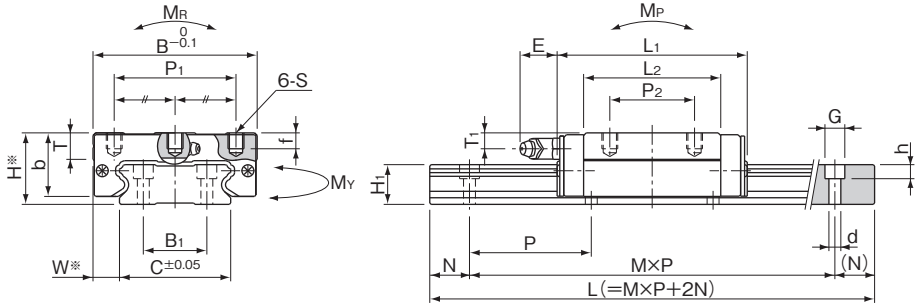
- SGW type
- size
- TF typeblock
- seal (refer to page A-14)
  blank: with side-seals
  B: with side-seals + under-seals
- number of blocks attached to one rail
- preload symbol (refer to page A-62)
  blank: standard
  T1: light
  T2: medium
- total length of rail
- accuracy grade (refer to page A-61)
  blank: standard
  H: high
  P: precision
- symbol for number of axes※
  blank: single axis
  W2: 2 parallel axes
  W3: 3 parallel axes
- with Fiber Sheet (refer to page A-18)
- with low temperature black chrome treatment
- with rail mounting hole caps(refer to page A-17)
- symbol for grease
  (refer to page Eng-40～)
  blank: standard grease
  KGLA: lithium-based grease
  KGU: urea-based grease
  KGF: anti-fretting grease

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

SGW17･21TF



SGW27･35TF



※Please refer to page A-61 for accuracy.

M: number of pitches

part number	assembly dimensions H mm	W mm	block dimensions B mm	L1 mm	L2 mm	P1 mm	P2 mm	S	f mm	T mm	b mm	E mm	T1 mm	grease fitting
SGW17TF	17	8.5	50	51	33.6	29	15	M4	4	—	14.5	2.5	4	pressed fitting
SGW21TF	21	8.5	54	58	40	31	19	M5	5	—	18	12	4.5	B-M6F
SGW27TF	27	10	62	71.8	51.8	46	32	M6	6	10	24		6	
SGW35TF	35	15.5	100	106.6	77.6	76	50	M8	8	14	31		8	

part number	guide rail dimensions H1 mm	C mm	B1 mm	d×G×h mm	N mm	P mm	basic load rating dynamic C kN	static Co kN	allowable static moment MP MP2 N・m	MY MY2 N・m	MR N・m	mass block kg	guide rail kg/m	block size
SGW17TF	9	33	18	4.5×7.5×5.3	15	40	4.82	8.56	42.8 261	42.8 261	160	0.13	2.05	**17**
SGW21TF	11	37	22			50	7.01	12.1	72.3 418	72.3 418	253	0.20	2.84	**21**
SGW27TF	15	42	24		20	60	12.9	21.5	171 931	171 931	496	0.38	4.43	**27**
SGW35TF	19	69	40	7×11×9		80	30.6	48.5	578 3,100	578 3,100	1,850	1.16	9.32	**35**

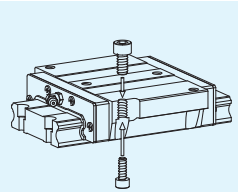
MP2 and MY2 are allowable static moments when two blocks are used in close contact. 1kN≒102kgf 1N・m≒0.102kgf・m

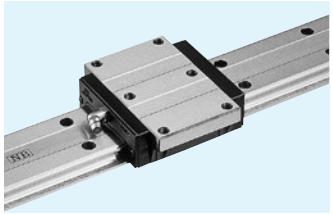
part number	standard rail length L mm											maximum length mm
SGW17	110	150	190	230	270	310	350	390	430	510	590	670	750	830	950	1,070	1,190	1,310	2,000
SGW21	130	180	230	280	330	380	430	480	530	630	730	830	930	1,030	1,180	1,330	1,480		2,000
SGW27	160	220	280	340	400	460	520	640	760	880	1,000	1,180	1,360	1,540	1,720	1,900			3,000
SGW35	280	360	440	520	600	680	760	920	1,080	1,240	1,400	1,640	1,880	2,120					3,000

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

SGW-TE TYPE

— High Rigidity Wide Type —





part number structure

example **SGW 21 TE B 2 T1 - 530 P / W2 FS LB F - KGLA**

- SGW type
- size
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- seal (refer to page A-14)
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  W3: 3 parallel axes
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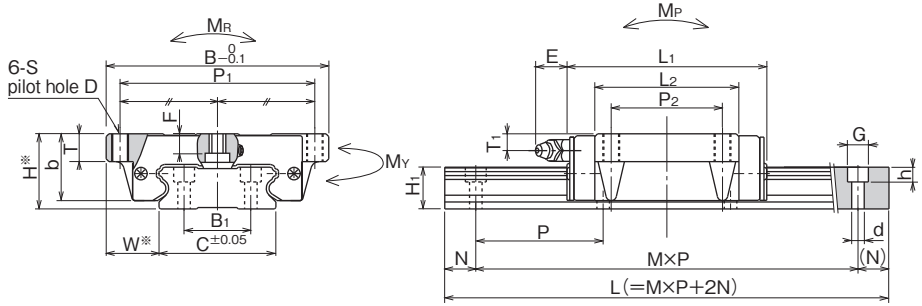

M: number of pitches

※Please refer to page A-61 for accuracy.

part number	assembly dimensions H mm	W mm	block dimensions B mm	L1 mm	L2 mm	P1 mm	P2 mm	S	D mm	F mm	T mm	b mm	E mm	T1 mm	grease fitting
SGW17TE	17	13.5	60	51	33.6	53	26	M4	3.3	3.2	6	14.5	2.5	4	pressed fitting
SGW21TE	21	15.5	68	58	40	60	29	M5	4.4	3.7	8	18	12	4.5	B-M6F
SGW27TE	27	19	80	71.8	51.8	70	40	M6	5.3	6	10	24		6	
SGW35TE	35	25.5	120	106.6	77.6	107	60	M8	6.8	8	14	31		8	

part number	guide rail dimensions H1 mm	C mm	B1 mm	d×G×h mm	N mm	P mm	basic load rating dynamic C kN	static Co kN	allowable static moment MP MP2 N・m	MY MY2 N・m	MR N・m	mass block kg	guide rail kg/m	block size
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SGW27TE	15	42	24		20	60	12.9	21.5	171 931	171 931	496	0.46	4.43	**27**
SGW35TE	19	69	40	7×11×9		80	30.6	48.5	578 3,100	578 3,100	1,850	1.35	9.32	**35**

MP2 and MY2 are allowable static moments when two blocks are used in close contact. 1kN≒102kgf 1N・m≒0.102kgf・m

part number	standard rail length L mm											maximum length mm
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SGW21	130	180	230	280	330	380	430	480	530	630	730	830	930	1,030	1,180	1,330	1,480		2,000
SGW27	160	220	280	340	400	460	520	640	760	880	1,000	1,180	1,360	1,540	1,720	1,900			3,000
SGW35	280	360	440	520	600	680	760	920	1,080	1,240	1,400	1,640	1,880	2,120					3,000

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