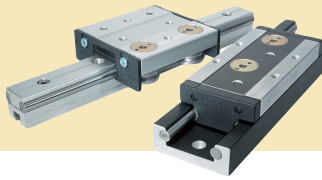
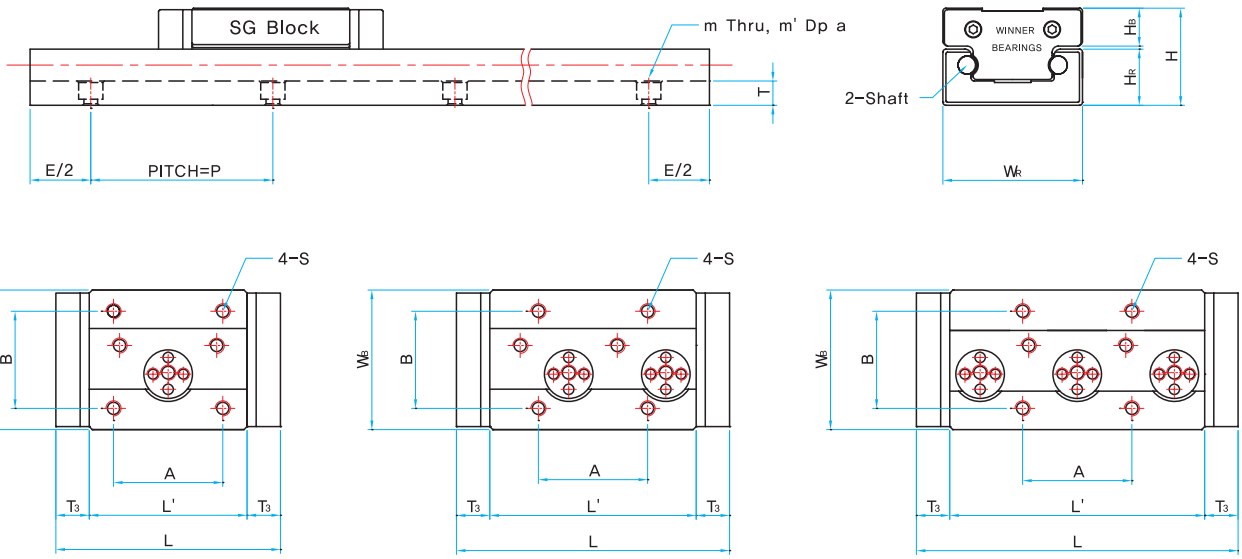
SG TYPE

Type		Whole system		Speed Guide Rail								
SGR	SGB	W	H	W_R	H_R	T	Shaft	P	m	m'	a	Weight (g/m)
10	3	28	23	28	14	4.5	Ø5	60	Ø3.4	Ø6	3.3	1,051
	4											
	5											
15	3	46	32	46	18.5	8	Ø6	120	Ø4.5	Ø8	6	1,784
	4											
	5											
15N	3	44	32	38	18.5	8	Ø6	120	Ø4.5	Ø8	6	1,651
	4											
	5											
20	3	60	36	60	22.5	9	Ø8	120	Ø5.5	Ø9.5	6	2,744
	4											
	5											
20N	3	47	36	47	22.5	9	Ø8	120	Ø5.5	Ø9.5	6	2,427
	4											
	5											
25	3	70	44	69	26	10	Ø10	120	Ø6.6	Ø11	7	3,873
	4											
	5											
35	3	100	55	90	35	12	Ø12	160	Ø9	Ø14	8.5	6,442
	4											
	5											

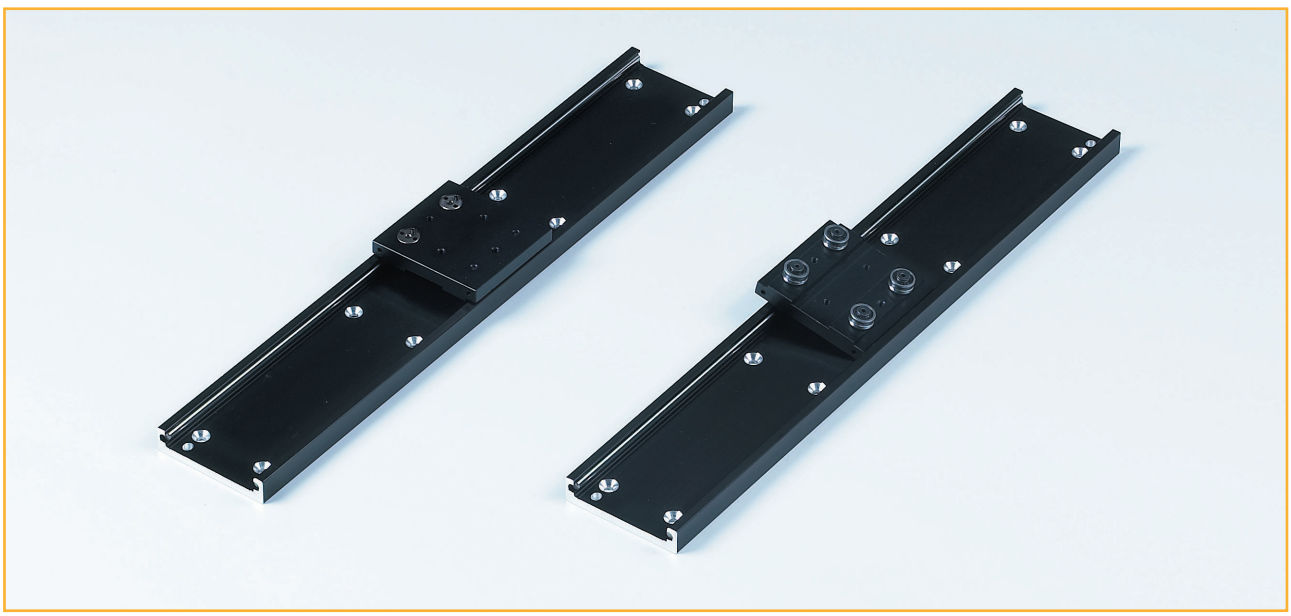
Dimension table

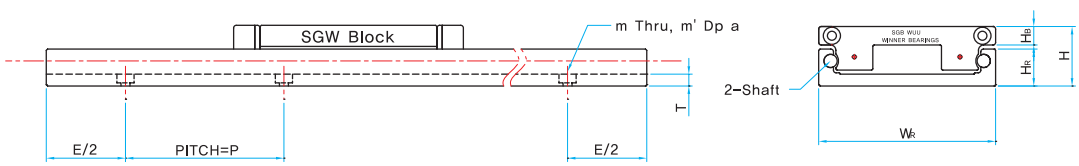


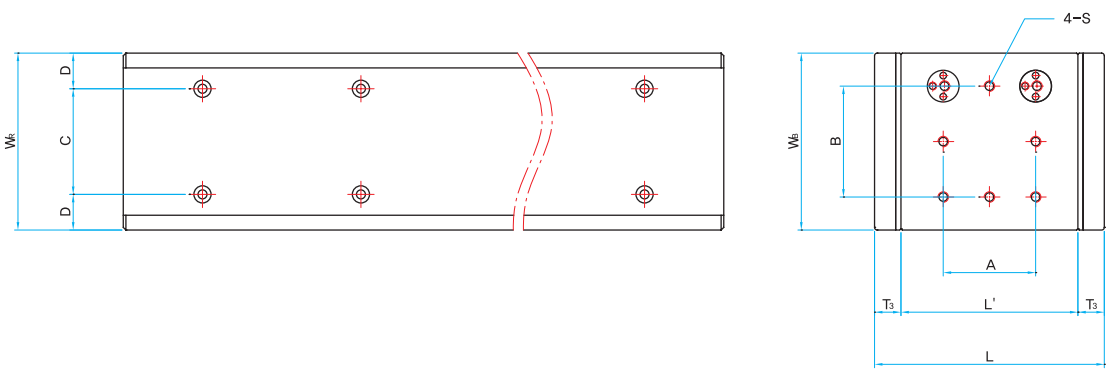


Type		Speed Guide Block										
SGR	SGB	W_B	H_B	L	L'	T_3	A	B	S	Bearing q'ty	Eccentric position	Weight (g/ea)
10	3	28	8	68	47	10.5	18	21	M4	3	2	52
	4			84	63					4	2 4	70
	5			99	78					5	1 3 5	87
15	3	46	12	74	52	11	36	32	M5	3	2	110
	4			90	68					4	2 4	145
	5			106	84					5	1 3 5	185
15N	3	44	12	82	60	11	26	26	M5	3	2	105
	4			102	80					4	2 4	140
	5			122	100					5	2 4 5	170
20	3	60	12	94	72	11	40	50	M6	3	2	210
	4			116	94					4	2 4	280
	5			138	116					5	2 4 5	350
20N	3	47	12	102	80	11	30	38	M6	3	2	195
	4			128	106					4	2 4	265
	5			154	132					5	2 4 5	325
25	3	70	16.5	122	100	11	45	57	M8	3	2	460
	4			155	133					4	2 4	615
	5			188	166					5	2 4 5	775
35	3	100	18	162	140	11	62	82	M10	3	2	1100
	4			207	185					4	2 4	1450
	5			252	230					5	2 4 5	1835

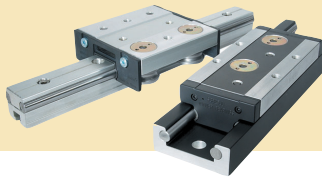
SG WIDE TYPE



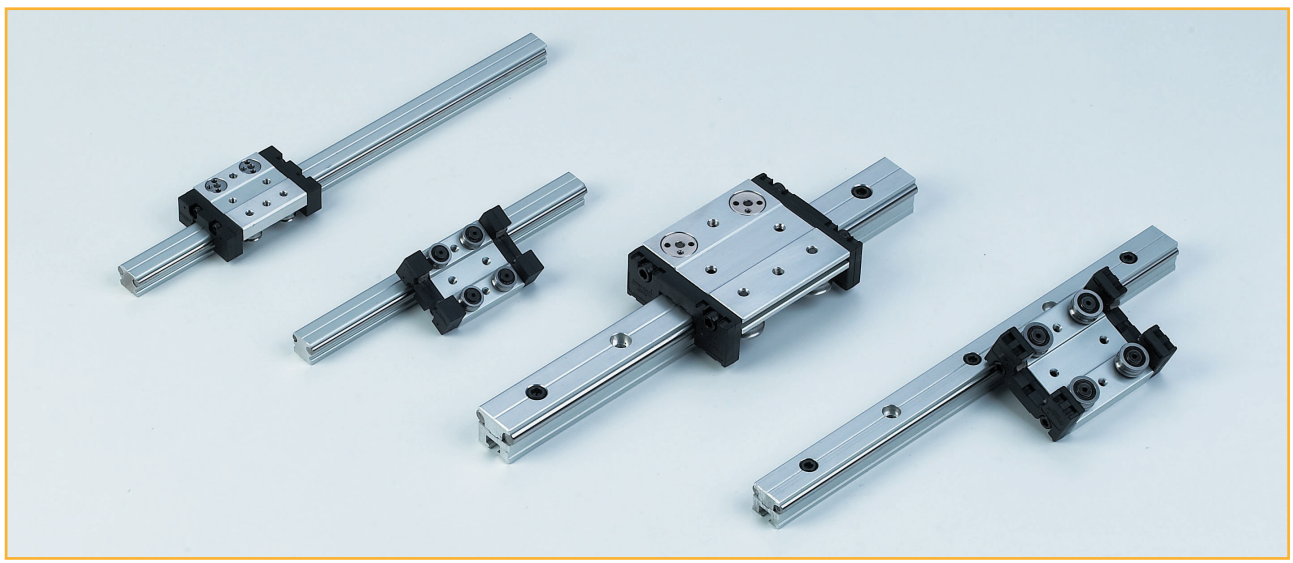


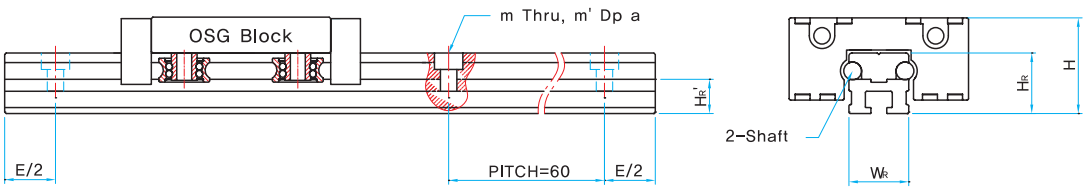


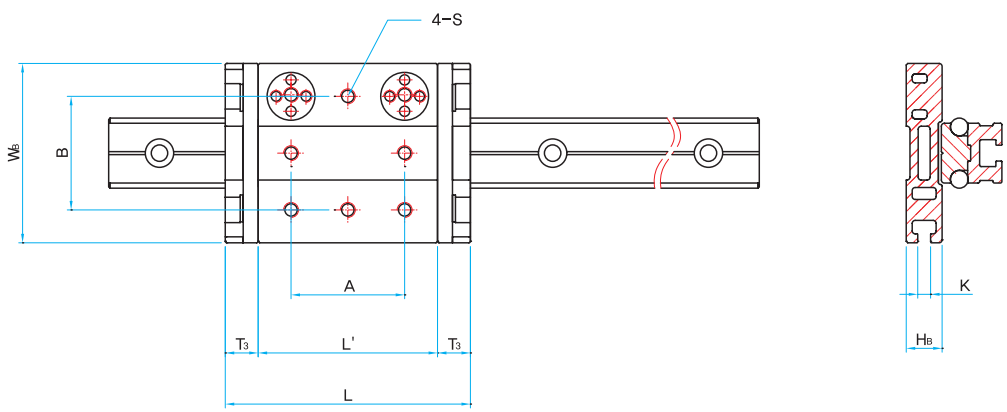
Type	Whole system		Speed Guide Wide Rail											Speed Guide Wide Block								
SGW	W	H	W_R	H_R	T	C	D	Shaft	P	m	m'	a	Weight (g/m)	W_B	H_B	L	L'	T_3	A	B	S	Weight (g/ea)
10	67	23	67	14	4.5	40	13.5	Ø5	60	Ø3.4	Ø6.5	3.3	1,051	67	8	87	67	10	35	42	M4	70
15	88	32	88	18.5	8	48	20	Ø6	120	Ø4.5	Ø8	4.5	1,784	88	12	102	80	11	50	52	M5	120
20	100	36	100	22.5	9	60	20	Ø8	120	Ø5.5	Ø9.5	5.5	2,744	100	12	112	90	11	60	56	M6	240
25	120	44	120	26	10	70	25	Ø10	120	Ø6.6	Ø11	6.5	3,873	120	16.5	122	100	11	60	60	M8	520



OSG TYPE



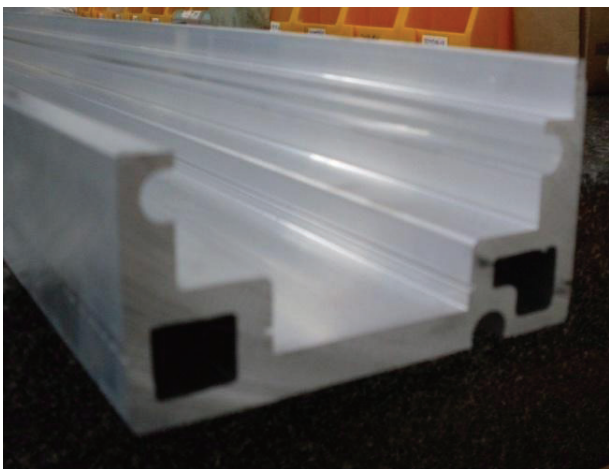


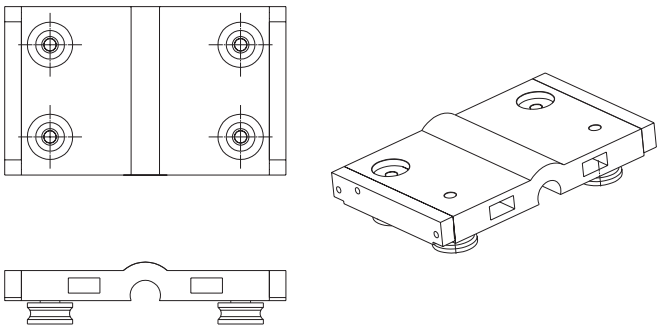


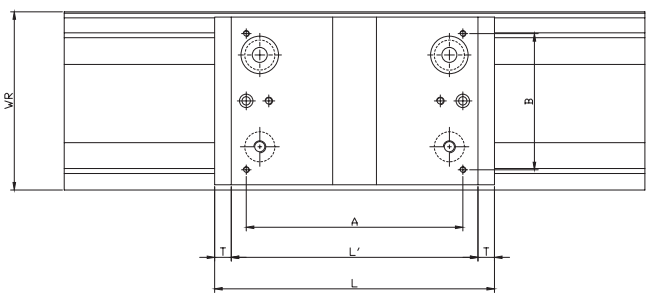
Type	Whole system		Out-side Speed Guide Rail									Out-side Speed Guide Block									
OSG	W_B	H	W_R	H_R	H_R'	Shaft	P	m	m'	a	Weight (g/m)	W_B	H_B	K	L	L'	T_3	A	B	S	Weight (g/ea)
20	60	32	20	20.25	11.45	Ø6	60	Ø5.5	Ø9.5	5.5	1,230	60	12	4.3	82	60	11	38	38	M5	120
25	80	37	25	24.75	13.93	Ø8	60	Ø6.6	Ø11	6.5	2,015	80	12	4.2	102	80	11	51	51	M6	240
30	100	46	30	30.3	16.18	Ø10	60	Ø6.6	Ø11	6.5	2,987	100	16.5	5.2	122	100	11	61	61	M8	520
40	130	55	40	36.2	18.7	Ø12	60	Ø9	Ø14	9	5,216	130	18	6.2	152	130	11	84	84	M12	1130

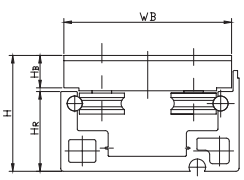
PSG TYPE

● PSG Block Outline Drawing

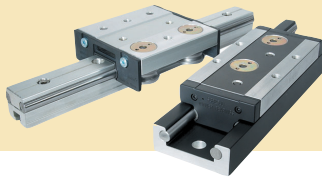




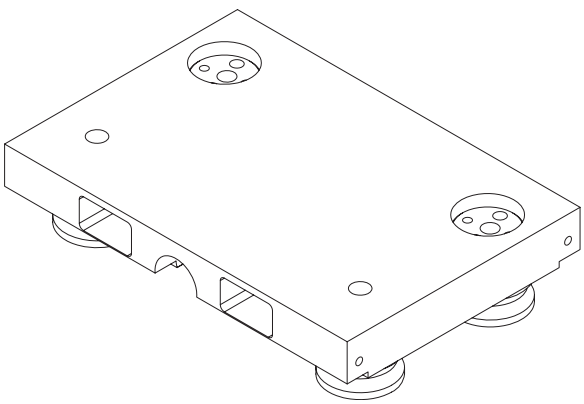


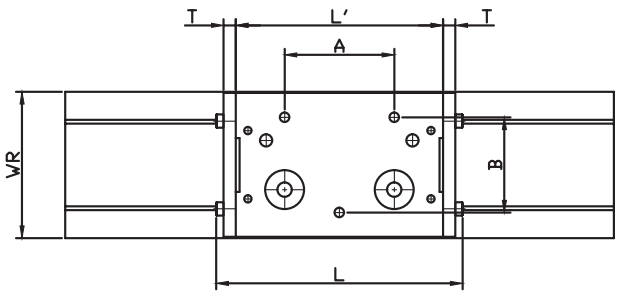


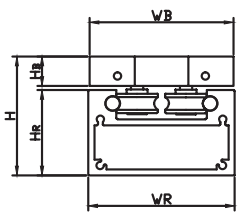
TYPE	W	H	WR	WB	HR	HB	A	B	L'	L	T	Shaft
PSG	118.5	77	118.5	111.5	53	21.5	44	90.5	164	186	11	ø10



LSG TYPE







TYPE	W	H	WR	WB	HR	HB	A	B	L'	L	T	Shaft
LSG-5	67	41.5	67	67	32.5	8	35	42	67	87	10	ø5
LSG-6	60	48.7	60	59	35	12	45	39	85	101	5	ø6
LSG-8	100	62.5	100	100	49	12	60	56	90	112	11	ø8
LSG-10	120	72.5	120	120	54.5	16.5	60	60	100	122	11	ø10

Speed Guide® Accessories

Speed Guide®'s accessories are Winner's know-how's result from two year's continuous effort. All accessories are precision machined,hardened and corrosion-resisting. Since Winner bearings have enough stock, Winner are ready to prompt delivery.

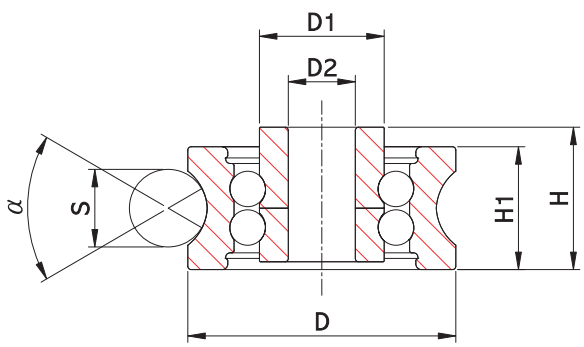
Speed Guide®'s Double-low bearing

1) Double angular contacting deep-groove bearing' s application table

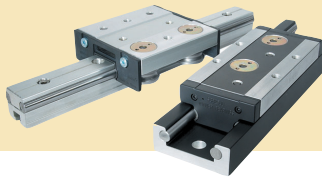
Bearing ID	4mm	5mm	6mm	8mm	12mm
SGB	10	15N, 15	20N, 20	25	35
OSGB	15	20	25	30	40

How to order: SG-BR(A) No 5, 8pcs

- no-recording : standard bearing
- Bearing Number : same with general bearing Number
- (A) : radent treatment for clean room

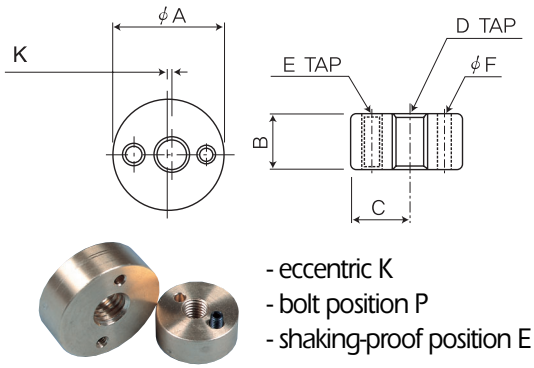


Bearing I.D	H	H1	ϕ S	ϕ D	ϕ D2	α	Basic static load (N)			
							⇨ ⇦		⇩	
							Cy(N)	Cyo	Cz	Czo
4mm	7	6	5	13	4	gothic arch	330	600	80	130
5mm	9.75	8	6	17	5	gothic arch	890	1610	200	340
6mm	12.75	11	8	24	6	gothic arch	2280	4100	550	1080
8mm	15.5	14	10	30	8	gothic arch	3500	6000	850	1700
12mm	22	19	12	42	12	gothic arch	5200	9800	1910	4190



Speed Guide® eccentric nut

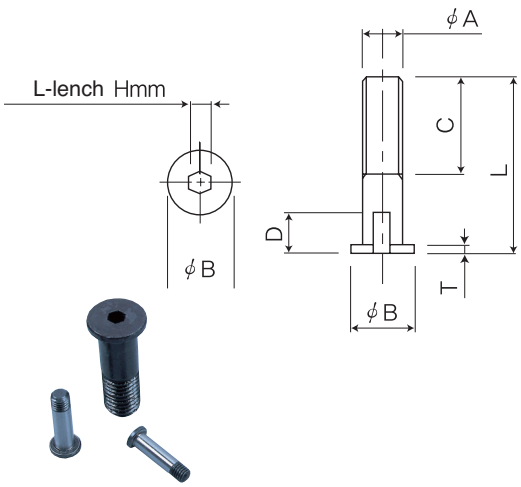
TYPE	A	B	C	D	E	F	K
SG-10/OSG15	12	6	6.5	M4	M3	2.5	0.5
SG-15,15N/OSG-20	16	8	8.5	M5	M4	3.4	0.5
SG-20,20N/OSG-25	20	8	10.5	M6	M4	3.4	0.5
SG-25/OSG-30	25	11	13.5	M8	M4	3.4	1
SG-35/OSG-40	35	12	18.5	M12	M4	3.4	1



- eccentric K
- bolt position P
- shaking-proof position E

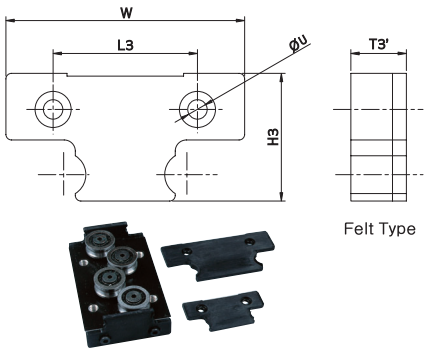
Speed Guide® Bolt for bearing

TYPE	A	B	C	D	H	T	L
SG-10/OSG-15concentric	4	7	8	3	2.02	1	17
SG-10/OSG-15eccentric	4	7	8	3	2.02	1	17
SG-15,15N/OSG-20concentric	5	8	12	5	2.5	1	21.75
SG-15,15N/OSG-20eccentric	5	8	5	5	2.5	1	21.75
SG-20,20N/OSG-25concentric	6	10	12.05	5	3	1.2	24.75
SG-20,20N/OSG-25eccentric	6	10	5	5	3	1.2	24.75
SG-25/OSG-30concentric	8	13.2	16.6	5	4	1.5	32
SG-25/OSG-30eccentric	8	13.2	8	5	4	1.5	32
SG-35/OSG-40concentric	12	18	18.1	7	5	2	40
SG-35/OSG-40eccentric	12	18	9	7	5	2	40

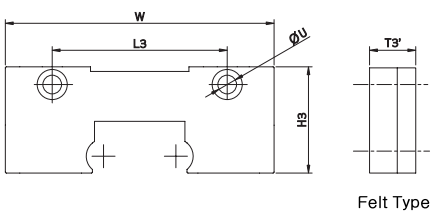


Speed Guide® Rubber-plate for seal

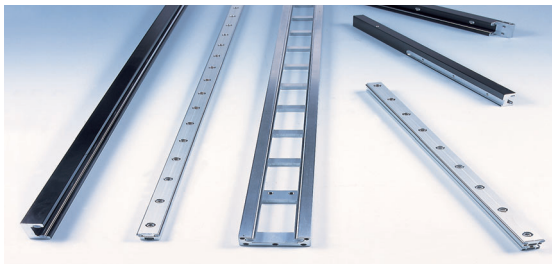
TYPE	W	L3	H3	T3'
SG-10UU	28	18.5	17.1	10.5
SG-15UU	45	26	23	11
SG-15NUU	43	26	23	11
SG-20UU	59	38.38	25.5	11
SG-20NUU	46	25.38	25.5	11
SG-25UU	69	40.23	32.5	11
SG-35UU	99	48.5	41.5	11



TYPE	W	H3	L3	ϕU	T3'
OSG-15UU	44	18.5	17.2	3.4	11
OSG-20UU	59	22	38	5.5	11
OSG-25UU	79	24.5	51	6.5	11
OSG-30UU	99	31.5	61	6.5	11
OSG-40UU	129	40	84	6.5	11



Speed Guide® Rail



1) Standard length and others' length of Speed Guide

Type		Standard length	Standard length of Aluminum base	minimum length
SG	10,15N, 15	4000mm	4000mm	60mm
	20N, 20			80mm
	25, 35			140mm
OSG	15, 20			70mm
	25			90mm
	30, 40			150mm

☞When you need over standard length, it will be machined by special order to connect the ends of shaft.

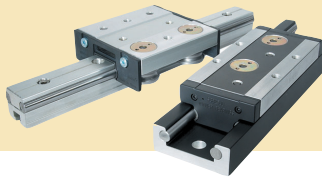
2) Speed Guide Rail that corrosion-resisting shaft is pressed into with straightness.

Users can order Speed Guide for corrosion-resisting in a low price immediately. Rusts in Guides cut down the life and damage the machine's quality. Speed Guide's rail has elegant exterior and no-scar by anodizing, so it raises the machine's quality and shows maximum ability in clean room.

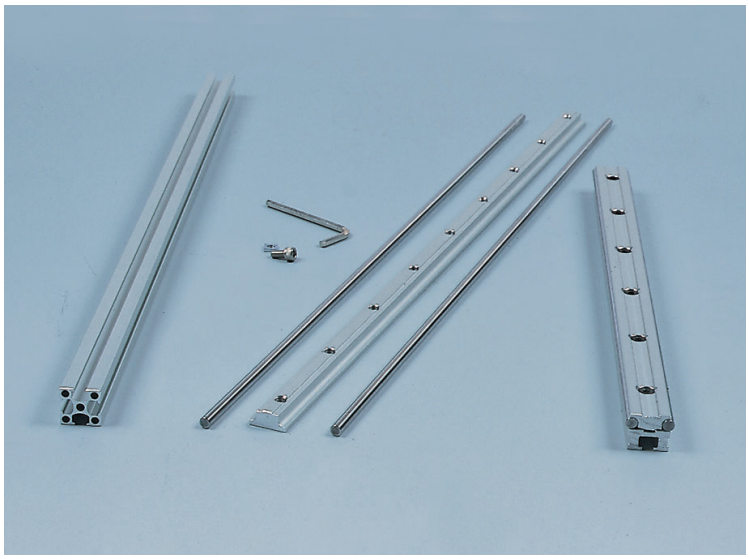
Rail shaft	standard hardened shaft	High-carbon chrom plating bearing steel	stainless shaft
material	STB-2(SUJ-2)	STB-2(SUJ-2)	SUS 440C
H_RC(heat treatment hardness)	62±2	64±2	60±2
The others	Winner can offer the others material depends on user' asking		

3) Screw processing for lateral installation of Speed Guide

One of Speed Guide's powerful feature is to use for high load bearing's cross direction load and possible for lateral assembling of rail strong for slack. It shows powerful applications for high speed system such as linear moter system.



4) Opened-Type Speed Guide Rail (OSGR)

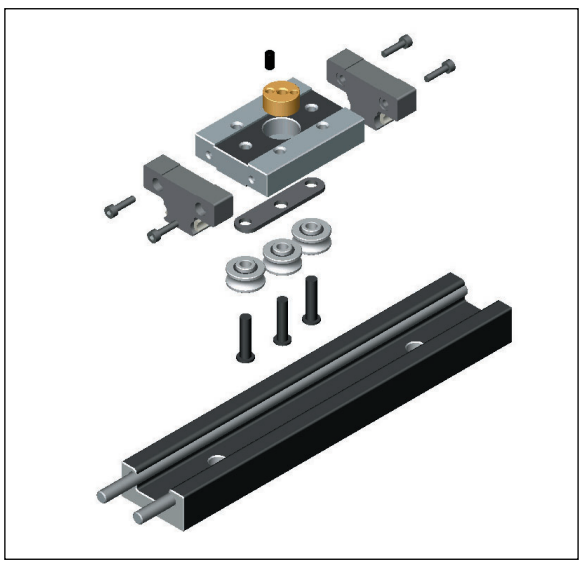


OSGR is the best system for machine asked light weight. As we guarantee shaft's straightness, aluminum base's modifications when processing shaft instering can be minimized and the precision is raised with maximum and moment load abillity is optimized.

Limitless length, running precision (±0.015mm) without accumulation, light weight, low priced wear-resistance rail, big Mx direction's moment load, and easy for assembling rails, are po werful applications for OSGR

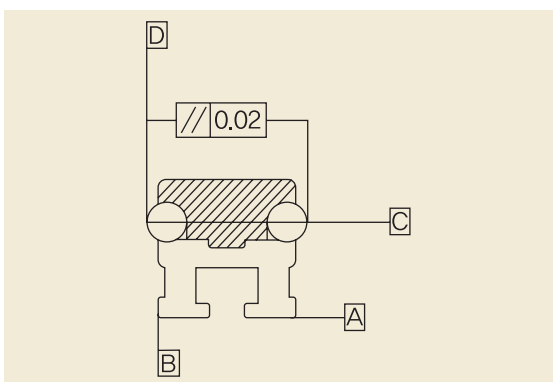
Speed Guide® precision

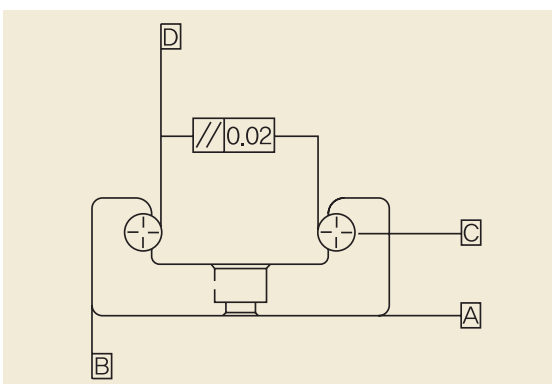
Since the alumium base is straightened through precision extrusion, the dimension precision less ±10 ㎛/4000mm is guaranteed. In case of being asked the running precision, as making the base-face flat, you can gain ±0.02mm running precision .



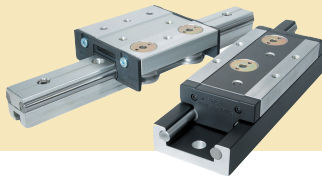
Since Speed Guide Block is a clearance adjustment type. It can be adjust radial clearance to 0㎛ from all side of direction X,Y,Z. It useful for automatic machine being asked repetition direction precision.

The dimension precision of rail



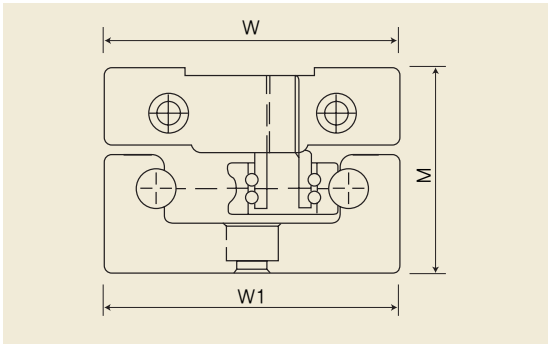


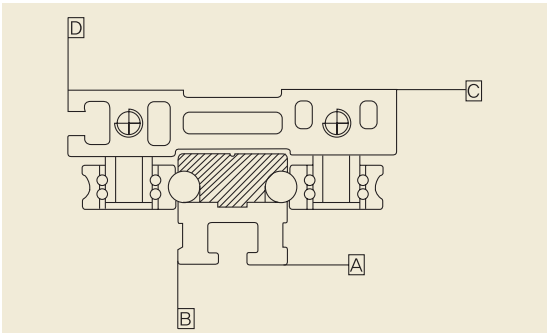
The auto shaft-inserting machine is developed by Winner Bearings' know-how
So even though heat-treated shaft is pressed into the rail, the machine makes that rail dimension precision raises within ±0.01mm.



Speed Guide® running precision

Speed Guide®'s precision doesn't have effect on the system length. Since the shaking of bearing is less ±3 ㎛, the running precision guarantees according to rail length without accumulation .



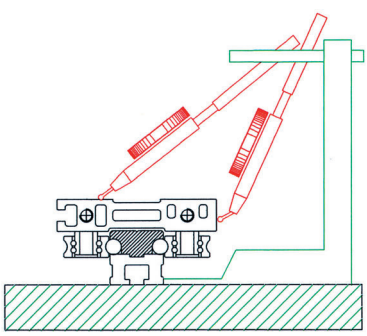


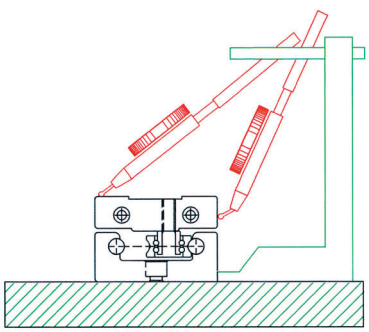
unit:mm

Precision condition	SG	OSG
block C's running straightness about "A"	±0.02	±0.015
block D's running straightness about "B"	±0.015	±0.02
dimension allowed difference for SG' all height M	±0.15	±0.1
mutual difference about each block for height M	±0.03	±0.025
dimension allowed difference for SG' all width W	±0.15	±0.1
mutual difference about each block for width W	±0.03	±0.03

▶The precision was applicated for whole Guide Rail length.
*It isn' t included bottom precision .
*In case of rail assemble, keep the regular tork.

How to measure the running precision





The operation situation of *Speed Guide*®

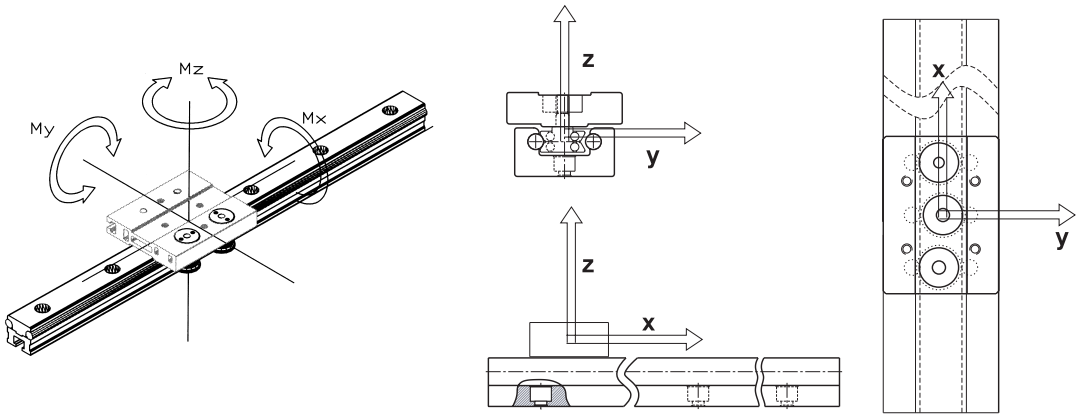
Maximum driving speed	Maximum acceleration	Running allowable temperature
10m/sec	50㎨	-20℃~80℃

Speed Guide® load transmission ability

SG and OSG is designed to keep the moment of all-axis and the load of all direction.
The load transmission ability in catalogue is safe workingload including safe static load cause, and several driving condition.

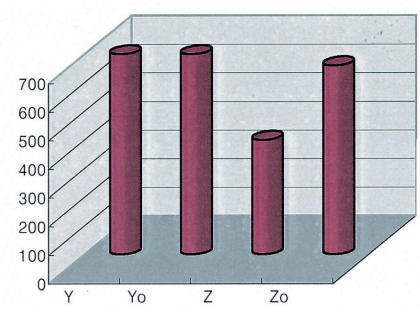
Coordinate axes

Working directions of the load and moment on this cataiogue depend on below drawings.

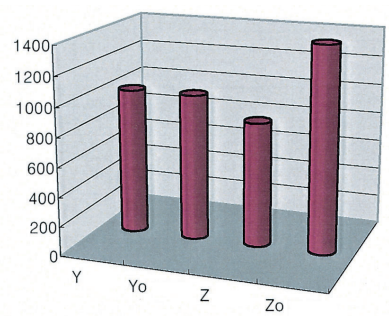


Speed Guide® load and moment comparative table(OSG)

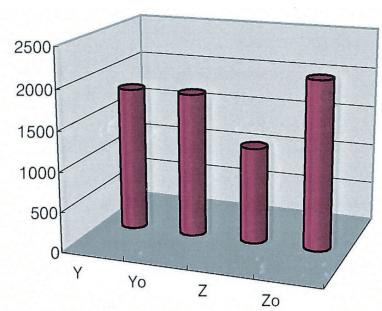
OSGB 20(N)



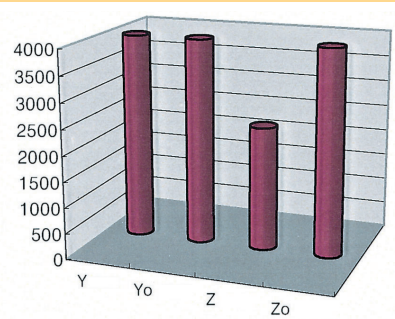
OSGB 25(N)

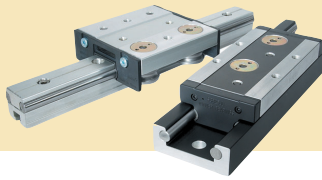


OSGB 30(N)

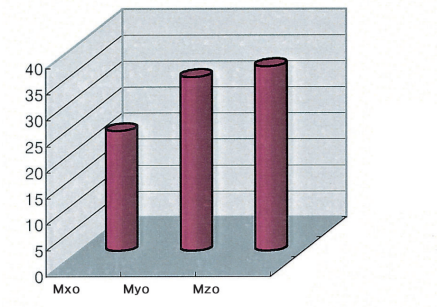


OSGB 40(N)

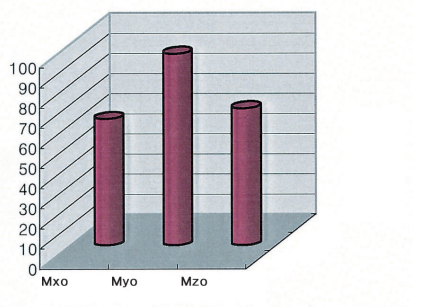




OSGB 20(N-m)



OSGB 25(N-m)



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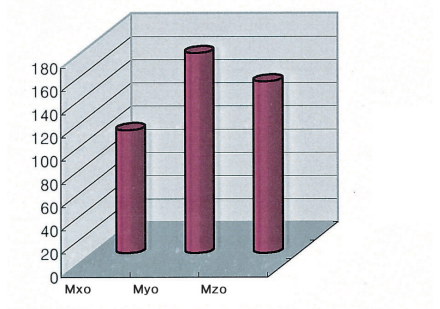

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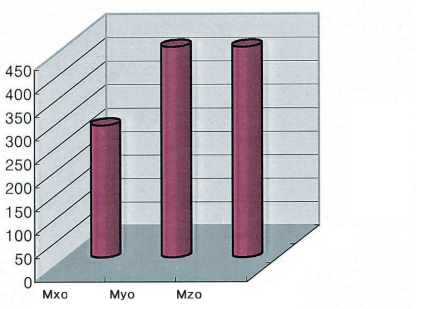
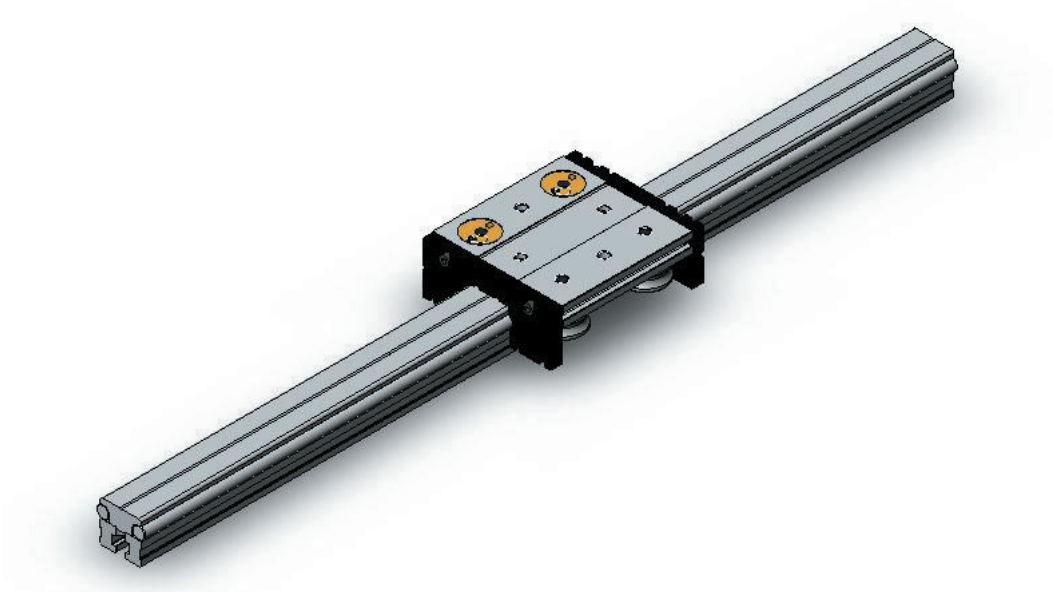
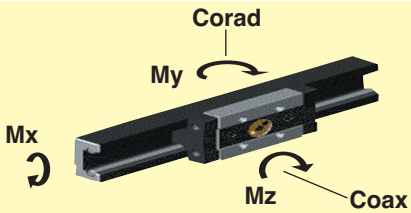
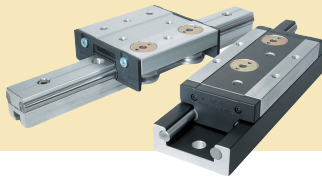




The load and the moment for basic safe working condion for

Type \ Load						
			Basic static safe working load(N)	Basic dynamic safe working load(N)	Basic static safe working load(N)	Basic dynamic safe working load(N)
	Load direction		Corad	Crad	Coax	Cax
SGB	10	3	432	240	250	230
		4	623	343	350	322
		5	864	480	490	450
	15N	3	890	490	490	460
		4	1,210	700	924	660
		5	1,400	980	1,288	920
	15	3	890	490	490	460
		4	1,210	700	924	660
		5	1,400	980	1,288	920
	20N	3	1,610	820	980	700
		4	1,930	1,400	1,560	1,000
		5	2,120	1,960	2,230	1,400
	20	3	1,610	820	980	700
		4	1,930	1400	1,560	1,000
		5	2,120	1,960	2,230	1,400
	25	3	2,800	1,470	1,764	1,260
		4	3,180	2,100	2,520	1,800
		5	3,420	2,940	3,528	2,520
	35	3	3,990	2,800	3,332	2,380
		4	4,890	4,000	4,760	3,400
		5	5,320	5,600	6,664	4,760
OSGB	20		1,210	700	924	660
	25		1,930	1,400	1,560	1,000
	30		3,180	2,100	2,520	1,800
	40		4,890	4,000	4,760	3,400



Speed Guide® 's life calculation

Type \ Load			Corad / My / Mx / Mz / Coax		
			Dynamic allowed moment(Nm)		
SGB	Load direction		Mx	My	Mz
	10	3	2.6	2.8	5.0
		4	6.4	6.8	7.1
		5	9.0	18.0	19.1
	15N	3	10.2	9.2	9.8
		4	14.5	13.2	14
		5	20.3	37	39
	15	3	13.8	7.4	7.8
		4	19.8	21.1	22.4
		5	27.7	44.3	47
	20N	3	29.4	25.4	18.2
		4	42	72.8	52
		5	58.8	152.8	109.2
	20	3	42.1	21.5	15.4
		4	60.2	61.6	44
		5	84.2	129	92.4
	25	3	67.62	48.51	41.58
		4	96.6	138.6	118.8
		5	135.24	291.06	249.48
	35	3	159.6	126	126
		4	228	360	360
		5	319.2	758	756
OSGB	20		23.03	33.41	35.47
	25		62.76	95.2	68
	30		105.98	172.54	147.89
	40		280.64	448	448

Speed Guide®'s Construction analysis

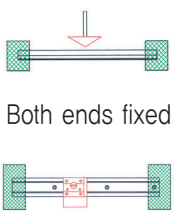
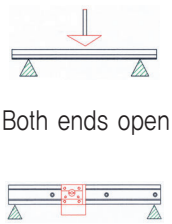
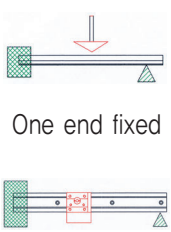
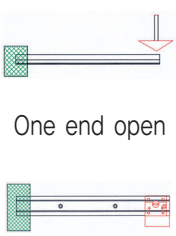
1) Speed Guide® Rail SGR's slack calculation

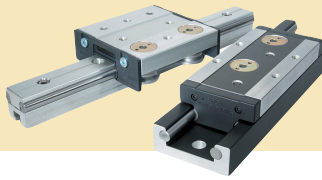
Strong points of SGR are to use as machine costruction in itself and to install on aluminium profile without additional machining. There can be a lot of applications and cost saving effects when SGR is used for lateral or when rails are installed with SGB on its bottom. To use efficiently these strong functions, we show you as following information.

2) Safe load and slack per unit length(L=1000mm)

Safety factor S=3 (S=rail's yield strength)

(unit=kgf)

Fixing way	Type	Standard installation		Side installation	
		Safe load(kgf)	Slack(mm)	Safe load(kgf)	Slack(mm)
 Both ends fixed	SGB-15N	50	8.8	164.6	1.5
	SGB-15	46.1	11.9	219.9	1.3
	SGB-20N	81.7	7.6	293.7	1.2
	SGB-20	148	10.5	444	1
	SGB-25	145.2	8.7	702.3	0.8
	SGB-35	360.6	6.1	1621.7	0.6
	OSGB-20	39.2	2.7	37.3	3
	OSGB-25	70.2	2.1	69	2.3
	OSGB-30	120.7	1.9	108.3	2.2
	OSGB-40	243.8	1.5	247.8	1.6
 Both ends open	SGB-15N	25	17.5	82.3	3
	SGB-15	23.1	23.8	109.9	2.5
	SGB-20N	40.9	15.3	146.8	2.5
	SGB-20	74	21	222	1.9
	SGB-25	72.6	17.4	351.2	1.7
	SGB-35	180.3	12.2	810.9	1.3
	OSGB-20	14.7	4.1	104	4.5
	OSGB-25	35.1	4.3	34.5	4.6
	OSGB-30	60.3	3.9	54.2	4.4
	OSGB-40	121.9	3	123.9	3.1
 One end fixed	SGB-15N	33.3	0.6	109.8	1.8
	SGB-15	30.7	0.3	146.6	1.5
	SGB-20N	54.5	0.4	195.8	1.5
	SGB-20	98.7	0.4	296	1.2
	SGB-25	96.8	0.2	468.2	1
	SGB-35	240.4	0.2	1081.2	0.8
	OSGB-20	26.2	3.2	24.9	3.1
	OSGB-25	46.8	2.6	46	2.5
	OSGB-30	80.4	2.3	72.2	2.1
	OSGB-40	162.5	1.8	165.2	1.8
 One end open	SGB-15N	6.2	70.1	20.6	12.2
	SGB-15	5.8	95.1	27.5	10
	SGB-20N	10.2	61.1	36.7	9.9
	SGB-20	18.5	84.2	55.5	7.7
	SGB-25	18.2	69.5	87.8	6.7
	SGB-35	45.1	48.6	202.7	5.1
	OSGB-20	4.9	21.7	4.7	24.1
	OSGB-25	8.8	17.1	8.6	18.6
	OSGB-30	15.1	15.5	13.5	17.7
	OSGB-40	30.5	11.9	31	12.5



●The use of load table for *Speed Guide*® (kgf, 1m/s standard)

Type			The upper surface use of block (Cax)		The side use of block (Crad)		Rail (CRail)
			Load life (kgf)	Distance load (kgf)	Load life (kgf)	Distance load (kgf)	Distance load (kgf)
SGB	10	3	3.0	4.5	3.0	4.5	15.0
		4	3.5	5.0	3.5	5.0	
		5	5.0	7.0	5.0	7.0	
	15N	3	5.0	7.0	5.0	7.5	30.0
		4	7.0	10.0	7.0	10.5	
		5	9.5	13.5	9.5	14.5	
	15	3	5.0	7.0	5.0	7.5	
		4	7.0	10.0	7.0	10.5	
		5	9.5	13.5	9.5	14.5	
	20N	3	8.0	11.0	8.0	12.0	45.0
		4	14.0	15.0	14.0	20.5	
		5	19.5	20.5	19.5	29.0	
	20	3	8.0	11.0	8.0	12.0	
		4	14.0	15.0	14.0	20.5	
		5	19.5	20.5	19.5	29.0	
	25	3	14.5	19.5	14.5	22.0	80.0
		4	21.0	26.5	21.0	33.0	
		5	29.0	37.0	29.0	48.0	
	35	3	27.5	35.5	27.5	41.5	150.0
		4	39.5	50.5	39.5	59.5	
		5	55.5	71.0	55.5	83.0	
OSGB	20=SG15		6.5	7.0	7.0	10.5	30.0
	25=SG20		10.0	14.0	14.0	20.5	45.0
	30=SG25		18.0	21.0	21.0	33.0	80.0
	40=SG35		33.5	39.5	39.5	59.5	150.0

※ Load life : Working load satisfying 6,000hr
Distance load : Working load satisfying 6,000km

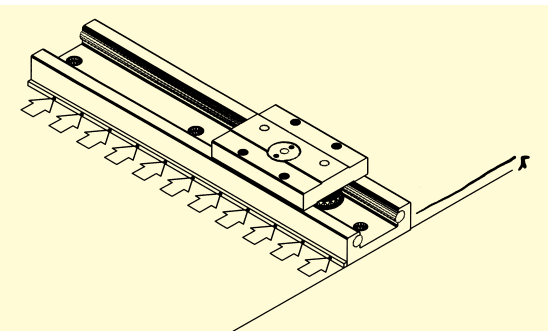
Speed Guide® installation

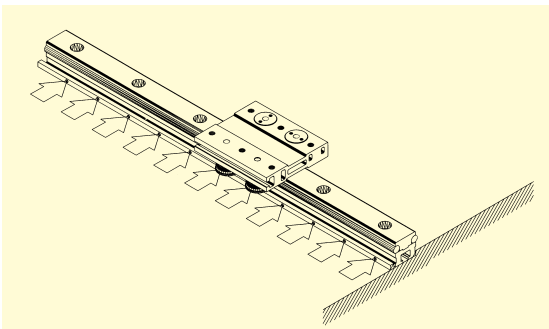
Speed Guide guarantees the precision driving over entire rail without the accumulation of tolerance. Since beairng's Gothic Arch groove and shaft have two point contact, in case that users don't need the precision running,as a merit of automatic self-aligning construction, ground flat working doesn't need specially.

You have to mind below factors to install speed guide.

☞ **The running precision** ☞ **The running situation** ☞ **The load and moment** ☞ **The running speed**

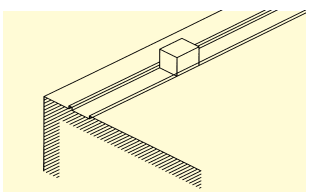
1) Speed Guide rail (O)SGR's precision assemble



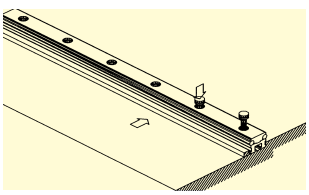


When SGB installation, the side having less bearingis is basic face.

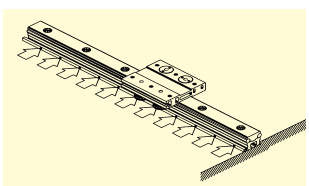
① Remove the contamination



② After attaching the rail in installation basic face, joint attaching bolt

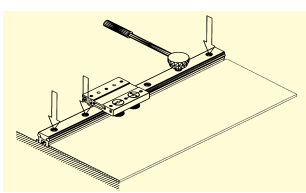


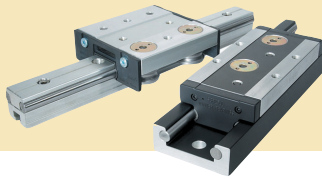
③ While jointing the push bolt, guarantee side straightness



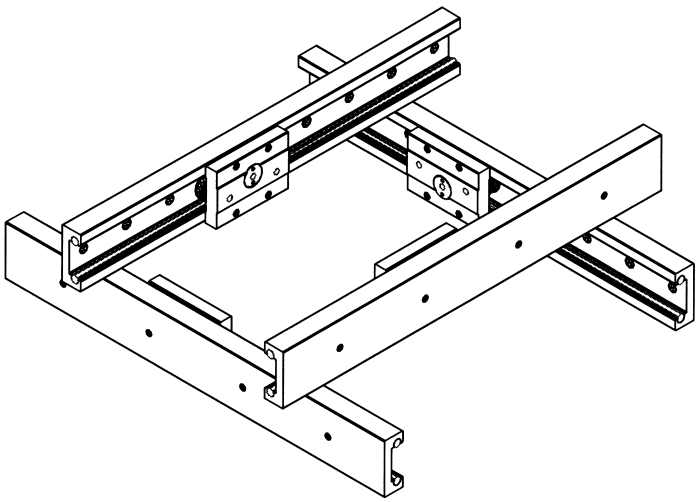
④ Tighten rail in turn by joining tork on the basis of below joint tork
on next page

⑤ After assembling basic rail, insert SGB
(After considering the load and moment, decide the block's direction)



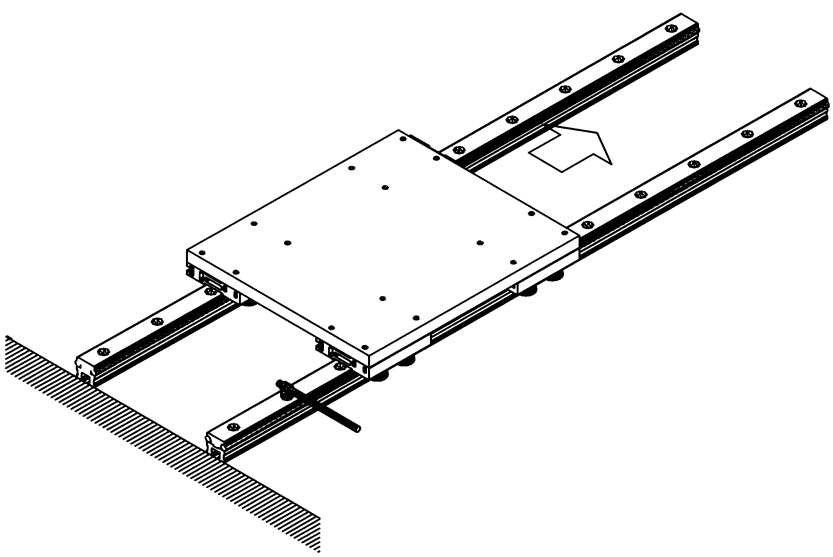


☞Generally, the side located in eccentric nut is basic face and when SGR assembling on bottom, the basic face have to be inside and when assembled in lateral, the block's basic have to be upperside.



☞For fluctuating rail's exact installation, we recommend following methods

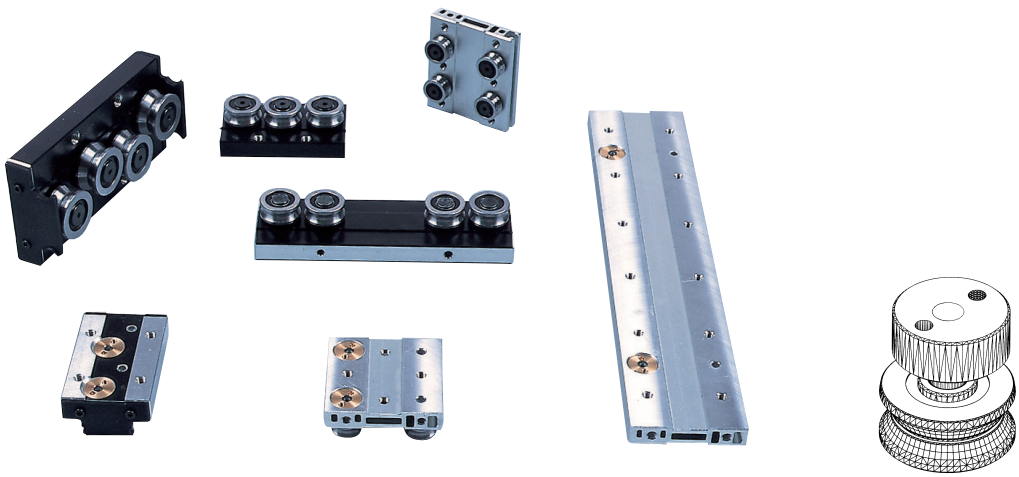
⑥ Temporary- connect tables on SGB 2pcs of basic rail and on SGB 2pcs of fluctuating rail
⑦ Tighten two bolts on temperary-connect table. One is on (O)SGB of basic rail the other is on (O)SGB) of fluituating rail
⑧ While checking joint resistance, joint assembling bolt in fluctuating rail one by one
⑨ Joint last temporary-connect bolt in table into diagonal direction

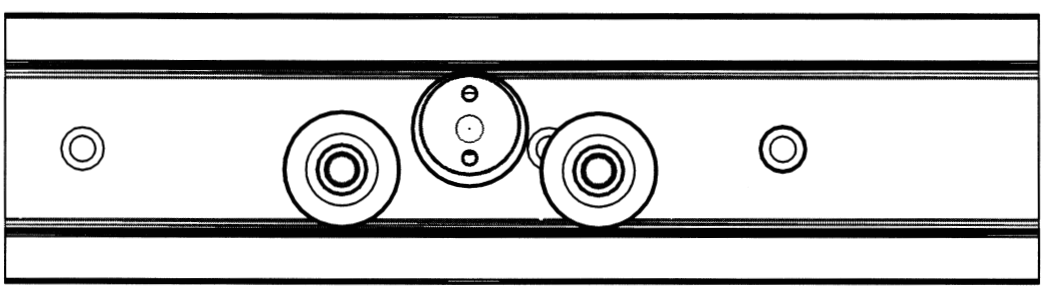


Bolt/Nut	M4	M5	M6	M8	M10	M12
Tork(Nm)	2.7	5.5	9.5	23	46	80

2) Block's clearance adjustment.

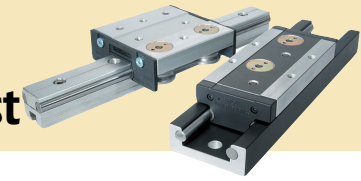
Speed Guide's block, SGB or OSGB, is designed to stand double-row deep groove bearing's centrifugal and axial load. The eccentric nut raises the (O)SGB's load and life by precision repetition without clearance and is designed to esay for clearance adjustment.





All the Speed Guide realized ZERO clearance in order to keep the precision running.
Two bearings are fixed in one side of shaft and, as the last one (in case of SGB 3 1pcs , in case of SGB4 2pcs, in case of SGB5 3pcs) is eccentric nut, entire bearings do rolling motion by regular contact pressure. Accordingly, when eccentric adjustment isn't right for block, the life will be reduced because of deflection load.

☞Suitable eccentric adjustment guarantees long-life



Speed Guide® Clearance adjust

☞Speed Guide is shipped in standard goods assembled the No.1 & 3 bearings, as a fix-axis.

① Insert Eccentric nuts in nut holes on block

- when it is hard to insert, it can be inserted if you use bearing bolt to push a eccontric nut in nutholes of block

② After temporary-joint the bearing bolt in eccentric nut and inserting SGB in SGR, temporary-joint the eccentric adjust position .

③Take out SGB which is adjusted temporariiy from SGR

④In situation that eccentric temporary-adjustment, joint the eccentric nut and bearing bolt by joint tork in the catalogue.

⑤Insert SGB in SGR

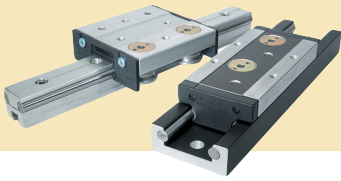
⑥In case of pre-load, turn the eccentric nut into clock opposite side over 90 °

⑦In situation fixing the eccentric adjust position, joint the eccentric nut and bearing bolt againby joint tork in catalogue

⑧Insert SGB in SGR

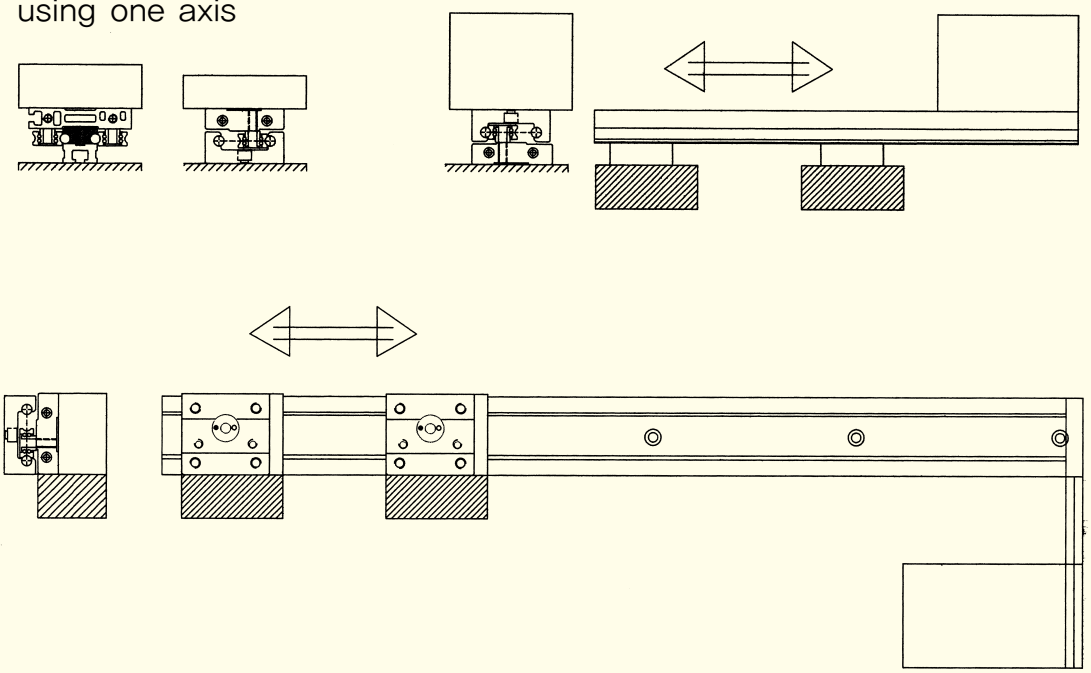
⑨Adjust the pre-load with turning the eccentric nuts into clock direction In case of turning pre-load excessively, return No 6 In case of SGB having over four bearings, after adjust according to No 6 order, adjsut No 5 bearing's clearance according to same method

⑩ After pre-load adjust, check rolling motion in shaft face Eccentric nut's hole indicate the pre-load and in case of block having four bearings, what the eccentric nut keeps the regular direction means same pre-load,and it is good for life and load.

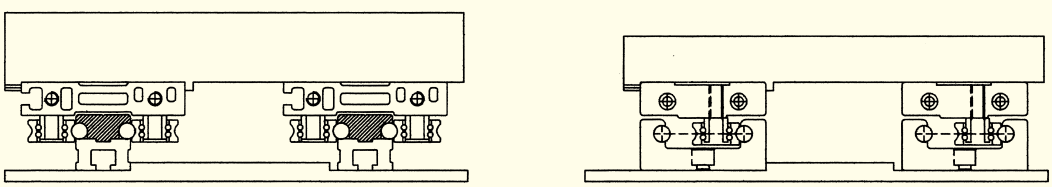


Speed Guide® 's installation example

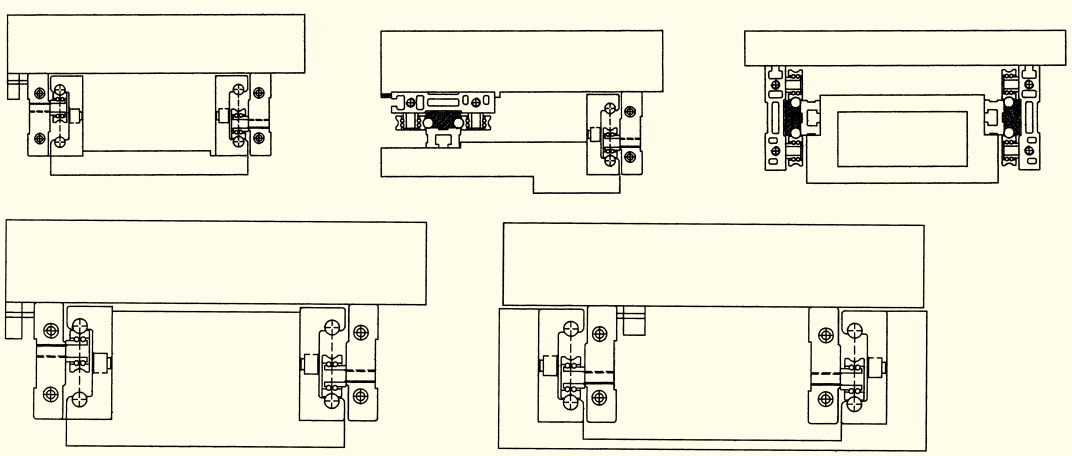
using one axis



Using two axes



Using two lateral axes



SERO® & Speed Guide®
Life time Calculation

●SERO & Speed Guide의 Lifespan Calculation

$$L_{km} = 100 \cdot \left(\frac{C}{F} \cdot \frac{f_c}{fi} \cdot fh\right)^3$$

• F = 유효하중 (N) / Effective load

$$F = F_2 + \left(\frac{F_3}{Fz} + \frac{Mx}{M_1} + \frac{My}{M_2} + \frac{Mz}{M_3}\right) \cdot Fy$$

F1 : x방향 하중 / Force in x-direction
F2 : y방향 하중 / Force in y-direction
F3 : z방향 하중 / Force in z-direction
Fy : y방향 정정격하중 / Effective static load in y-direction
M1 : x방향 모멘트 / Moment in x-direction
M2 : y방향 모멘트 / Moment in y-direction
M3 : z방향 모멘트 / Moment in z-direction
Mx, My, Mz : 정정격모멘트 / Static moment in each direction

• fc = Contact factor(in case of SERO, regulating about 0.8)

Quantity of block assembled for a unit	Contact factor FC
1	1.00
2	0.81
3	0.72
4	0.66
5	0.61

● Case of Speed Guide

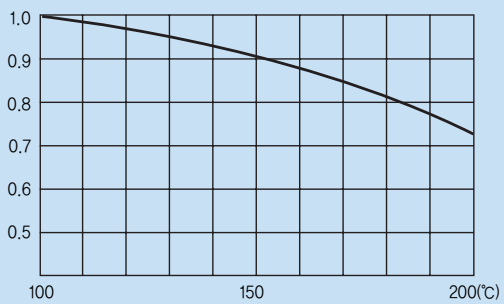
• C(N) = Basic dynamic safe working load
Predicting the stratagemical life of Speed Guide, it adds up the basic dynamic safe working load of the unit bearing as the quantity of bearing.

• fi = Load factor

impact vibration	Speed	진동 측정기(G)	Fw
No impact vibration from outside	In case of low speed V≦15m/min	G≦0.5	1~1.5
Rarely no impact vibration	In case of middle speed 15<V≦60m/min	0.5<G≦1.0	1.5~2.0
Impact vibration from outside	In case of high speed V>60m/min	1.0<G≦2.0	2.0~2.5

$P = F_W \cdot P_C$
P : Load N
P_C : Calculation load N
F_W : Load factor
V : Conveying speed per minute m/min

• fn = Temperature factor



Temperature of operating system