

SPEED DEMON **Linear Bearings**



**Cheap Pricing,
Top Shelf Performance!**

1-800-513-3163



SG Roller Blocks and Rail Overview



-3 Roller Block

SG Series offers 3, 4 and 5 roller blocks in each size - allowing for 21 possibilities. Increase loading without increasing the package size!



-4 Roller Block

Double Row Angular Contact Bearings are grade P5+ allowing for precise, accurate travel: 0.02mm over 6 meters.



-5 Roller Block

SG Block P/N Examples:

SGB20-3UU

SGB20-4UU

SGB20-5UU



Rugged Plastic End Caps house spring loaded felt wipers for protection against dust and debris.



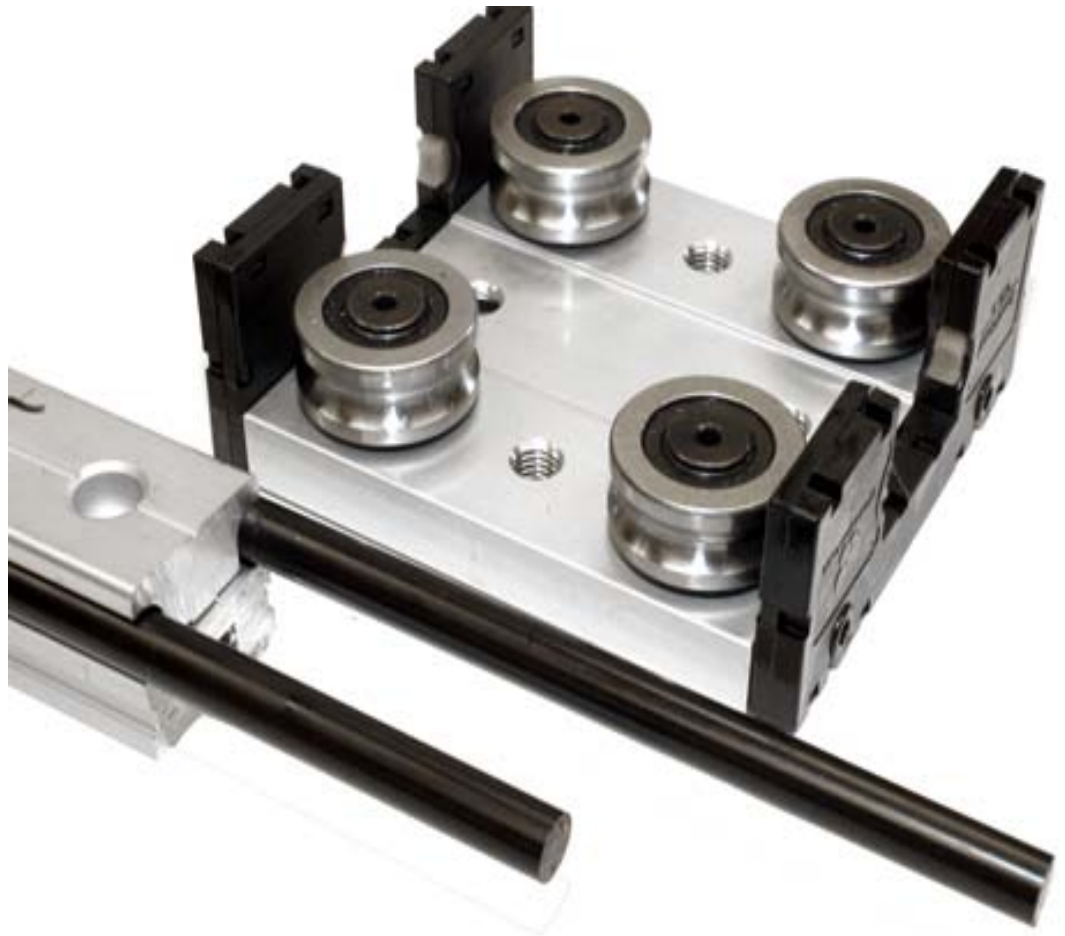
SG Rails are made from high quality, precision aluminum extrusions. Rc60 hardened shafting is uniformly pressed into the extrusion to guarantee straightness.



OSG Roller Blocks and Rail Overview



This shipping container scanner employs 28 foot OSG 40 rails. Shafting was specially coated for protection against salt air, mist and spray.



The OSG SPEED DEMON makes the word simple elegant. The 4 roller block features 2 fixed rollers and 2 patented eccentric rollers. The eccentric rollers allow for preload adjustment. Rugged plastic end caps house oil filled felt wipers for protection against dust and debris..

OSG Rail

Because the OSG rail is a 2 piece construction, it is easy to outfit with rc60 , 440c stainless and chrome plated shafting. The bottom of the rail has a "T" Nut Slot for easy mounting to standard aluminum framing extrusions. Moreover, it allows LM76 to stagger shafts from one rail section to another. This avoids hard transitions - rail to rail butt joints - and allows for near endless rail lengths. We have built rail assemblies up to 125 feet long!





Eccentric Inserts for easy pre-load adjustment.

Shafting available in Rc60 Steel, 440C Stainless and Chrome Plated Steel.

Lightweight extruded aluminum body

Advantages of SG and OSG SPEED DEMON linear roller and rail systems:

1. Smooth Running
2. Quiet Running
3. Lightweight Aluminum Extrusion Design
4. Adjustable Preload
5. Felt Wipers Clear Shafting of Debris
6. High Speeds - Up to 10 Meters Per Second
7. Easy Installation
8. Low Cost Precision Performance
9. Stock Rails - 13 Feet Cut to Size
10. OSG Rails offer near seamless transitions on long (20-100 Feet) rail assemblies.
11. SG Blocks come 3,4 and 5 roller configurations allowing for higher loads without increasing height or width.

SG

Felt Wipers are oil filled and spring loaded for shaft lubrication and protection against debris

Dual angular, double row contact roller bearings are sealed for life and maintenance-free

2 Eccentric Rollers for adjusting uniform preload



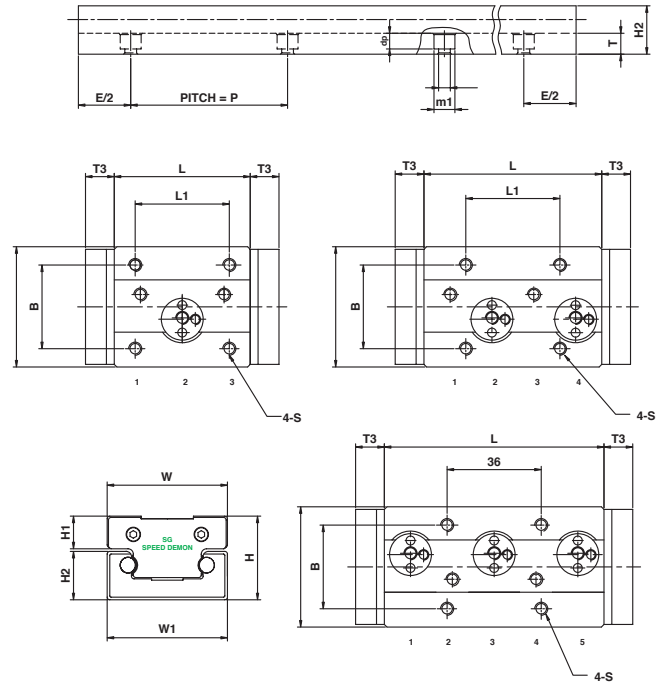
OSG

SPEED DEMON

LM76[®]



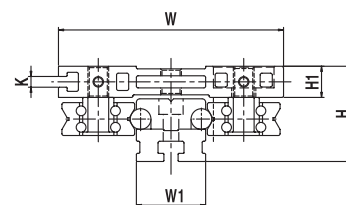
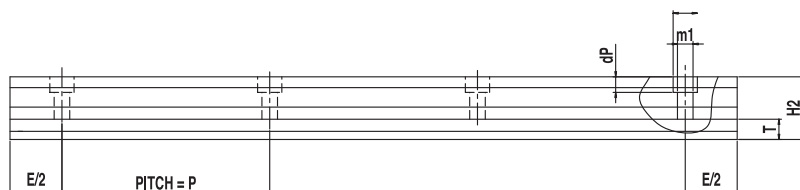
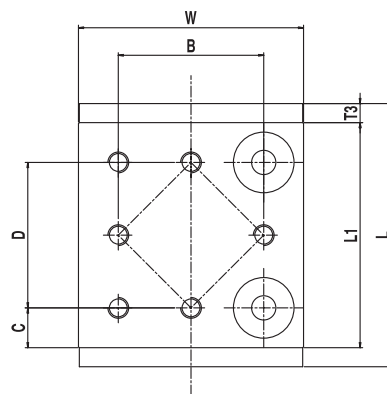
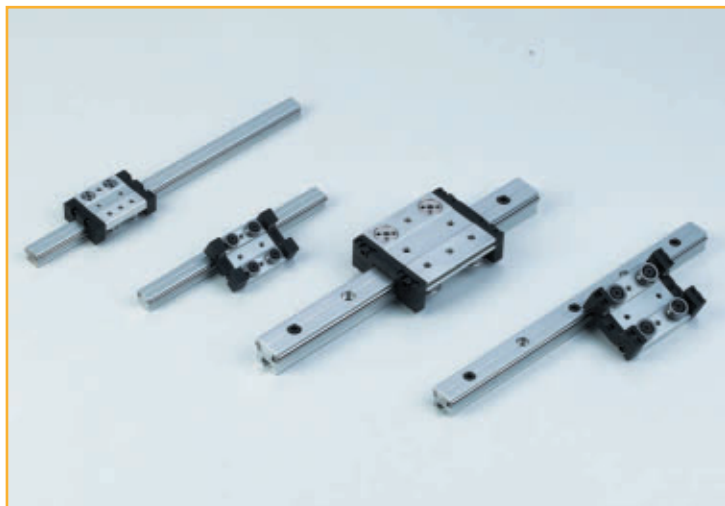
SG Roller System



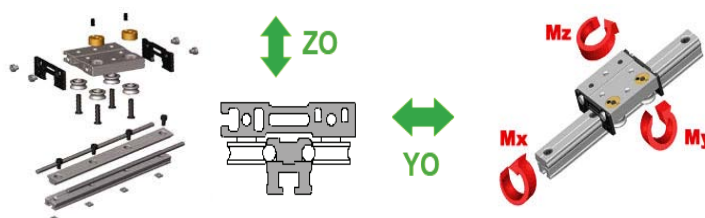
SG	Whole system		SPEED DEMON Rail SGR										SPEED DEMON Block SGB										SG						
SGR	SGB	H	W	W ₁	H ₂	dp	P	shaft	Weight (g/m)	T	m ₁	m	W	H ₁	L	B	L ₁	S	T ₃	Bearing qty	Eccentric position	Basic dynamic safe working load(N)		Dynamic moment (N-m)			Weight (g/ea)	SGR	SGB
																						Y ₀	Z ₀	M _{x0}	M _{y0}	M _{z0}			
10	-3 -4 -5	23	28	28	14	3.3	60	5	1,051	4.5	6.5	3.4	28	8	63	21	18	M4		3	2	343	322	6.4	6.8	7.1	70	10	-3 -4 -5
15N	-3 -4 -5	32	44	38	18.5	6	120	6	1,651	8	8	4.5	44	12	80	26	26	M5	11	3	2	490	460	7.4	7.8	10.2	105	15N	-3 -4 -5
15	-3 -4 -5	32	46	46	18.5	6	120	6	1,784	8	8	4.5	46	12	68	32	36	M5	11	3	2	490	460	9.2	9.8	13.8	110	15	-3 -4 -5
20N	-3 -4 -5	36	47	47	22.5	6	120	8	2,427	9	9.5	5.5	47	12	106	38	30	M6	11	3	2	820	700	15.4	21.5	29.4	195	20N	-3 -4 -5
20	-3 -4 -5	36	60	60	22.5	6	120	8	2,744	9	9.5	5.5	60	12	94	50	40	M6	11	3	2	820	700	18.2	25.4	42.1	210	20	-3 -4 -5
25	-3 -4 -5	44	70	69	26	7	120	10	3,873	10	11	6.6	70	16.65	133	57	45	M8	11	3	2	1470	1260	41.58	48.51	67.62	460	25	-3 -4 -5
35	-3 -4 -5	55	100	90	35	8.5	160	12	6,442	12	14	9	100	18	185	82	62	M10	11	3	2	2800	2380	126	135	159.6	1100	35	-3 -4 -5



OSG Roller System



Whole		SPEED DEMON Rail OSGR																	SPEED DEMON Block OSGB									
Type	W	H	W1	H2	T	shaft weight (g/m)	m	m1	dP	P	W	H1	L	B	L1	S	T ₃	C	D	K	Basic dynamic safe working load(N)		Dynamic moment (N-m)			weight (g/ea)	Type	
																					Y _o	Z _o	M _{xo}	M _{yo}	M _{zo}			
OSG-20	60	32	20	20.25	11.45	6	1230	5.5	9.5	5.5	60	60	12	80	38	60	M5	11	11	38	4.3	700	660	23.03	33.41	35.47	120	OSG-20
OSG-25	80	37	25	24.75	13.93	8	2015	6.6	11	6.5	60	80	12	100	51	80	M6	11	14.5	51	4.2	1400	1000	62.76	68	95.2	240	OSG-25
OSG-30	100	46	30	30.3	16.18	10	2987	6.6	11	6.5	60	100	16.5	120	61	100	M8	11	19.5	61	5.2	2100	1800	105.98	147.89	172.54	520	OSG-30
OSG-40	130	55	40	36.2	18.7	12	5216	9	14	9	60	130	18	150	84	130	M12	11	23	84	6.2	4000	3400	280.64	380	448	1130	OSG-40

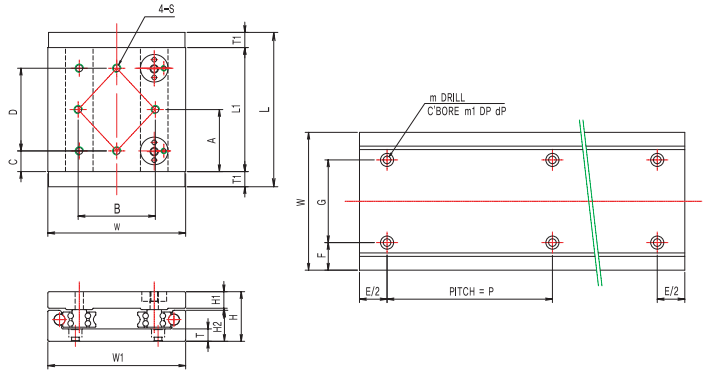


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SG WIDE TYPE Roller System



SGW	Whole system		SPEED DEMON Rail SGWR										SPEED DEMON Block SGWB										SGW						
	H	W	W ₁	H ₂	G	F	T	P	m	m ₁	dp	Weight (g/m)	L	L ₁	A	B	C	D	G	H ₁	S	T ₁		Basic dynamic safe working load (N)		Dynamic moment (N-m)			Weight (g/ea)
																								Y _o	Z _o	M _{xo}	M _{yo}	M _{zo}	
10	23	67	67	14	38	14.5	4.5	60	3.4	6.5	3.3	1,051	84	64	32	42	14.5	35	38	8	M4	10	360	340	7.8	7.0	8.2	70	10
15	32	88	88	18.5	48	20	8	120	4.5	8	6	1,784	102	80	40	52	15	50	48	12	M5	11	700	660	19.8	21.1	24.6	120	15
20	36	100	100	22.5	60	20	9	120	5.5	9.5	6	2,744	112	90	45	56	15	60	60	12	M6	11	1000	1400	60.2	61.6	67.8	240	20
25	44	120	120	26	70	25	10	120	6.6	11	7	3,873	122	100	50	60	20	60	70	16.5	M8	11	1800	2100	96.9	138.6	130.7	520	25

LIGHTWEIGHT ALUMINUM EXTRUSION DESIGN

LOW PROFILE DESIGN

SUPER SMOOTH MOTION

SUPER LOW FRICTION

EASY TO INSTALL

LOW COST PRECISION LINEAR MOTION

*Super
Quiet Running*



Permissible Moment Loading

TYPE

SG

Load					
	Dynamic allowed moment(Nm)				
Load direction		Mx	My	Mz	
OSG	10	3	6.4	6.8	7.1
		15N	3	10.2	9.2
	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	
OSG	15	16.12	23.83	24.83	
	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	



Safe Working Load and Moment Loads

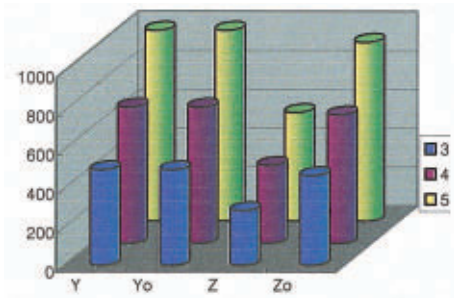
TYPE

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)	
SG	Load direction	Corad	Crad	Coax	Cax	
	10	3	623	343	350	322
	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	3,924	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
OSG	15		847	490	630	450
	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

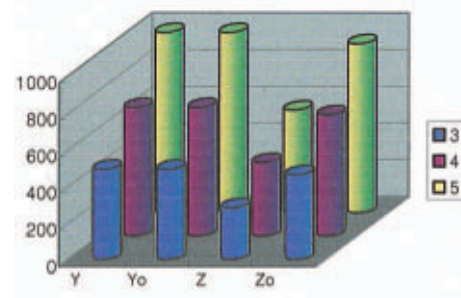


Load and Moment Comparative Table(SG)

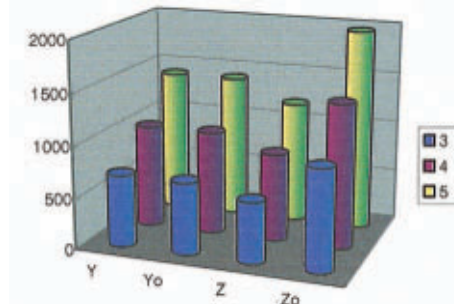
Type : 15N (Unit:N)



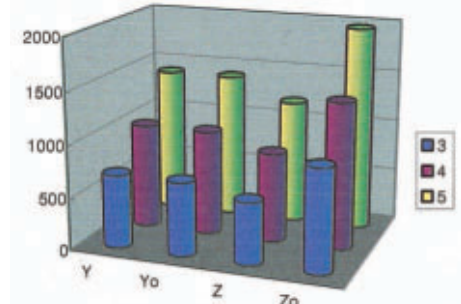
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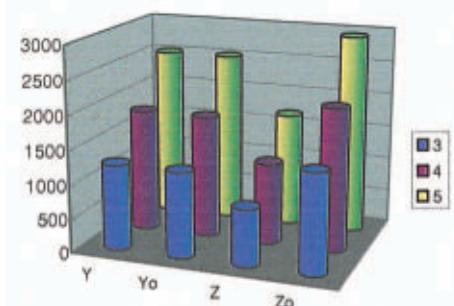
Type : 20N (Unit:N)



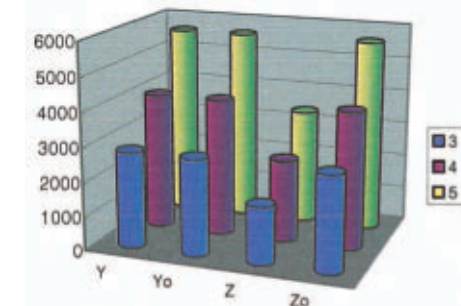
Type : 20 (Unit:N)



Type : 25 (Unit:N)



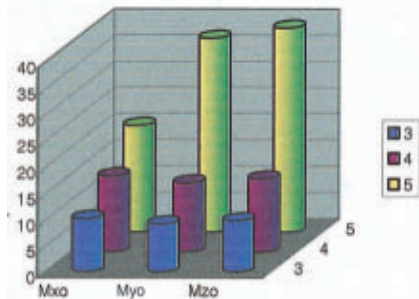
Type : 35 (Unit:N)



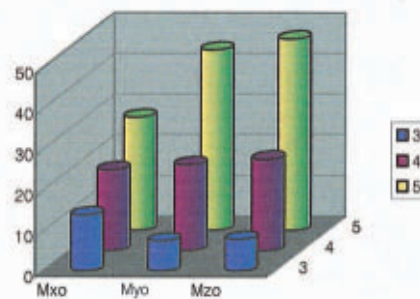


Load Transmission Ability

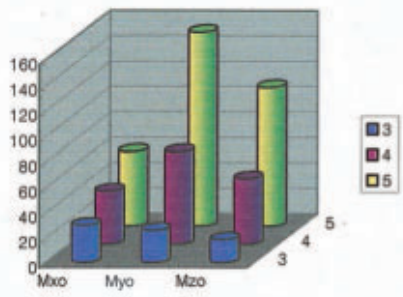
Type : 15N (Unit:N-m)



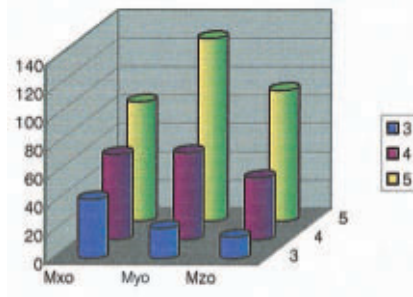
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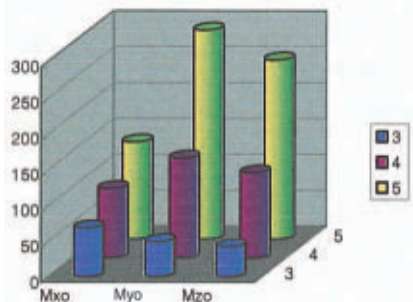
Type : 20N (Unit:N-m)



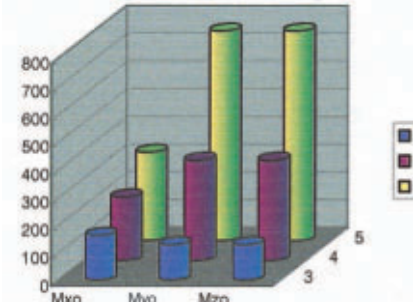
Type : 20 (Unit:N-m)



Type : 25 (Unit:N-m)



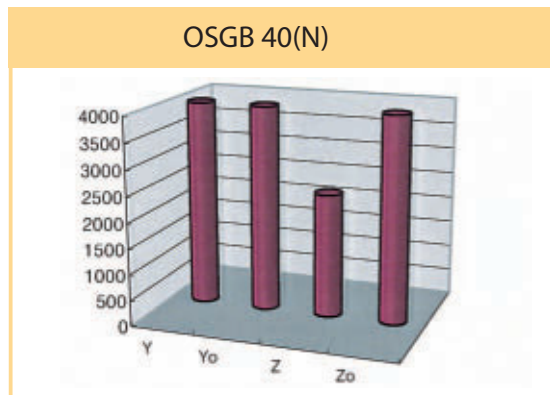
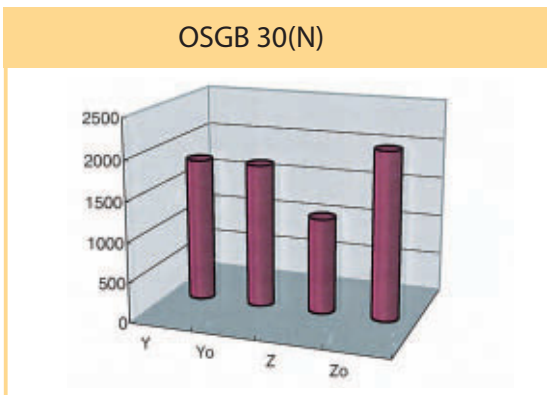
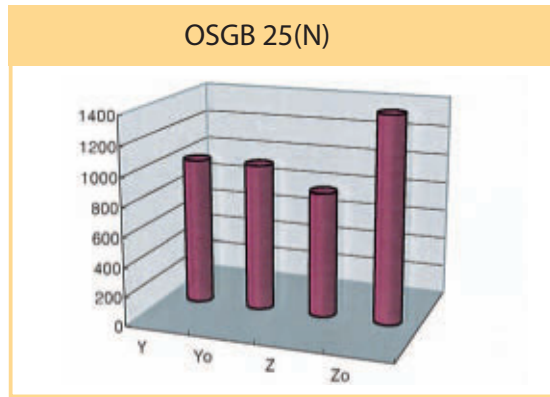
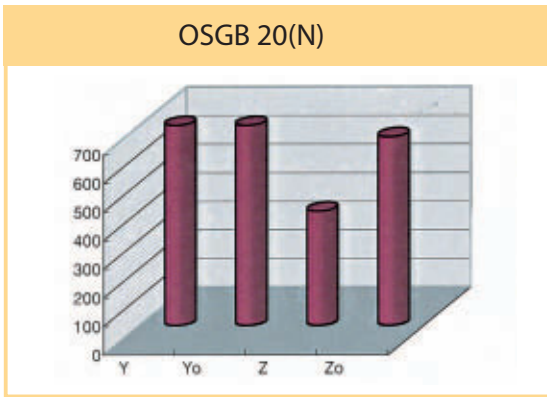
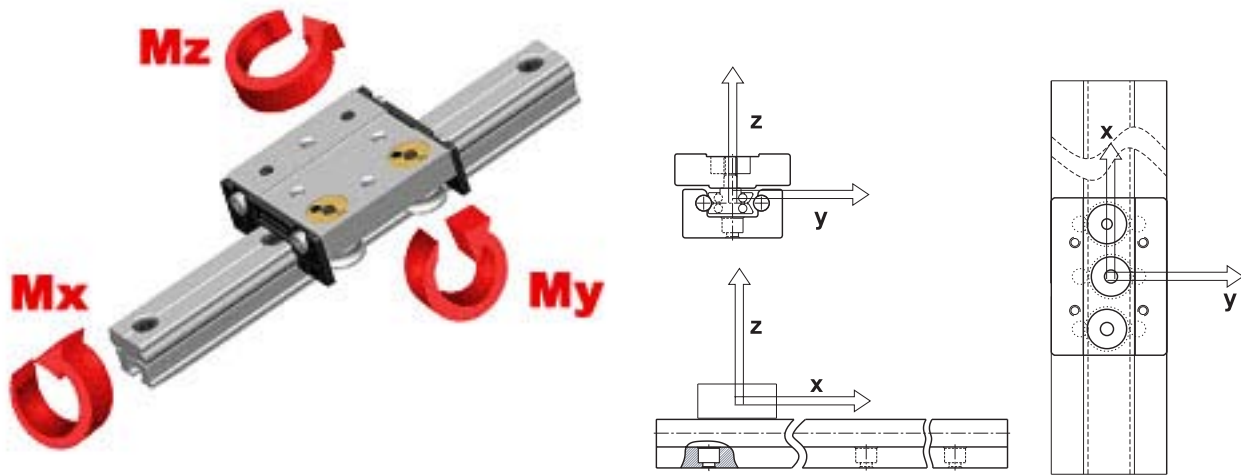
Type : 35 (Unit:N-m)





OSG Roller System

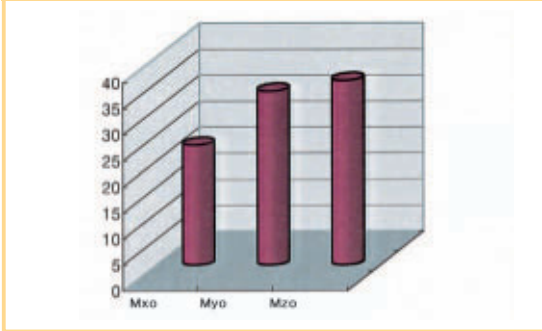
Load and Moment Comparative Table (OSG)



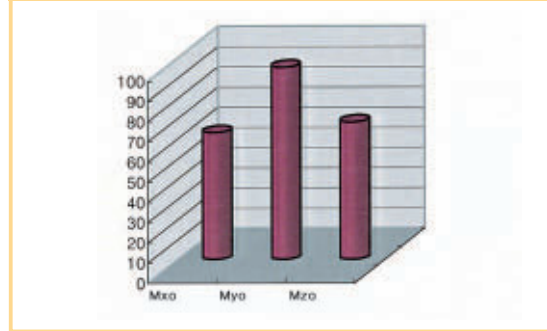


Load Transmission Ability (OSG)

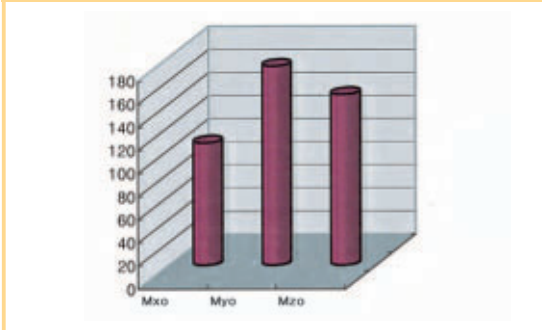
OSGB 20(N-m)



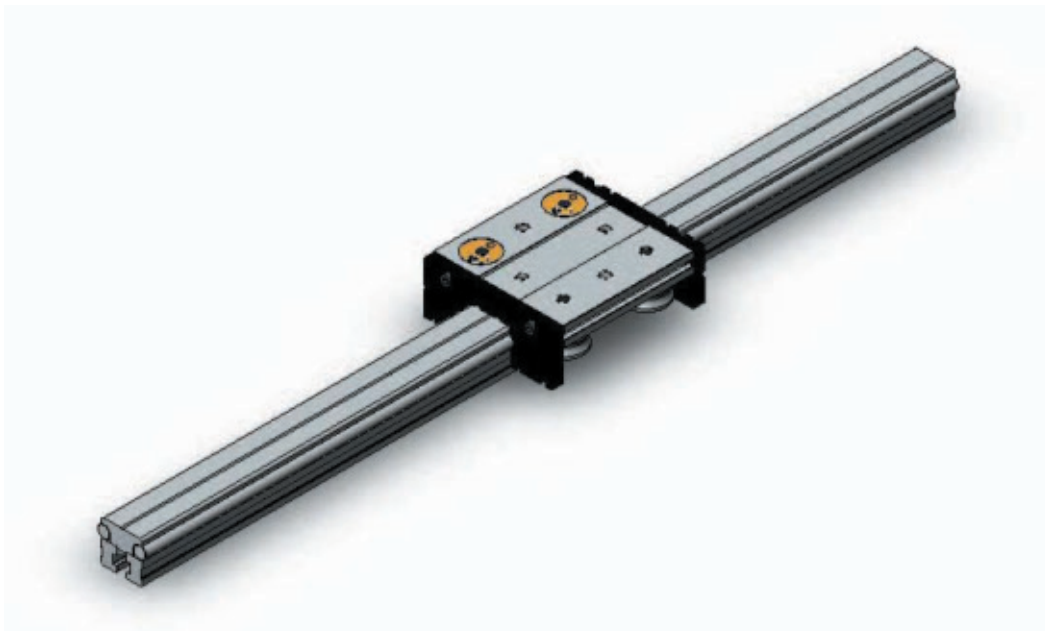
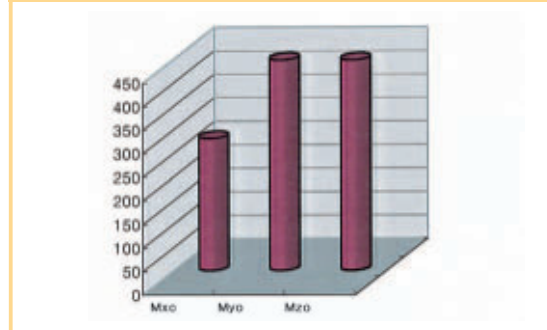
OSGB 25(N-m)



OSGB 30(N-m)



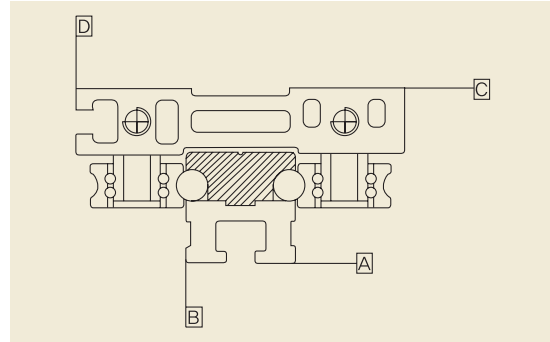
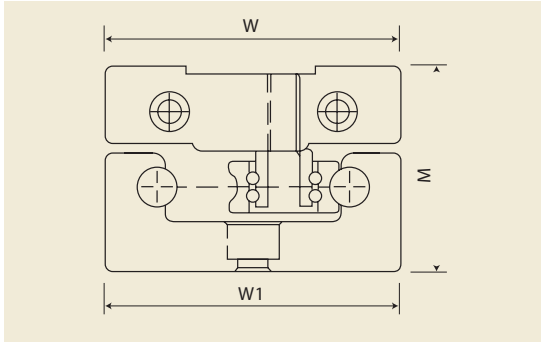
OSGB 40(N-m)





SPEED DEMON Running Precision

SPEED DEMON'S precision is not effected by system length since the bearing block has $\pm 3 \mu\text{m}$, total running accuracy.

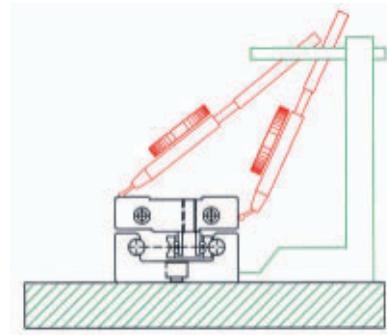
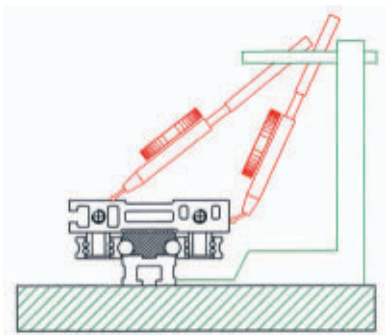


unit:mm

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

Precision aplys over the entire Guide Rail length.
*In case of rail assembly, keep the normal torque.

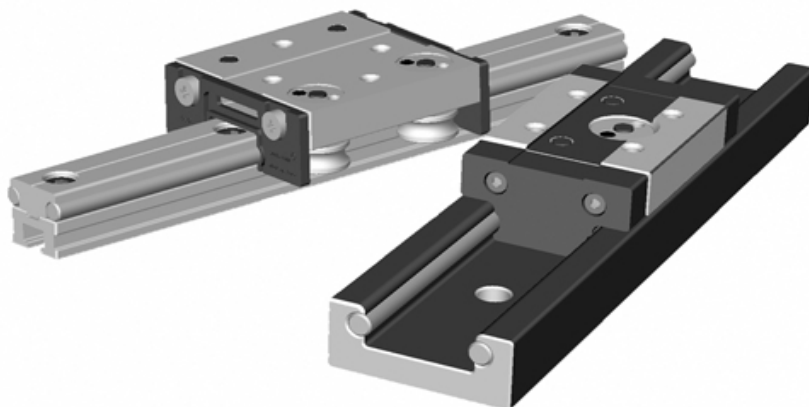
Running Precision



Maximum driving speed	Maximum acceleration	Running allowable temperature
10m/sec	50 m/g's	-20c ~ 80c









Safe Load and Deflection per Unit Length (L=1000mm)



Safety factor S=3

(S=rail's yield strength)

(unit=kgf)

Mounting Method	Type	Standard installation 		Side installation 	
		Safe load(kgf)	Deflection (mm)	Safe load(kgf)	Deflection (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



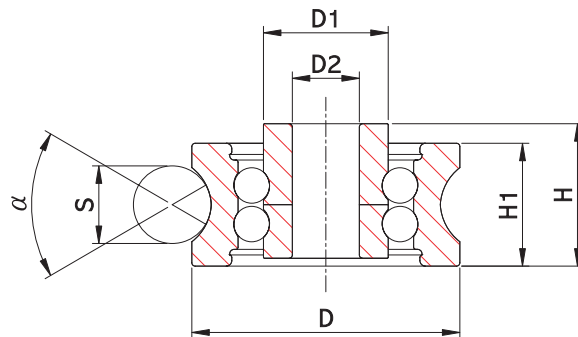
SPEED DEMON's *Double-low Bearing*

1) Double angular contacting deep-groove bearing 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	S	D	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



Adjusting Running Clearance

SG and OSG linear roller blocks employ eccentric rollers for adjusting clearance and frictional characteristics of the system - you can adjust the system to meet your application requirements.

To make adjustments:

1. Loosen locking set screw located on the top of the eccentric bushing
2. Insert snap-ring plier ends into the two holes provided for them (see image below), turn the eccentric bushing clockwise to tighten, counterclockwise to loosen.

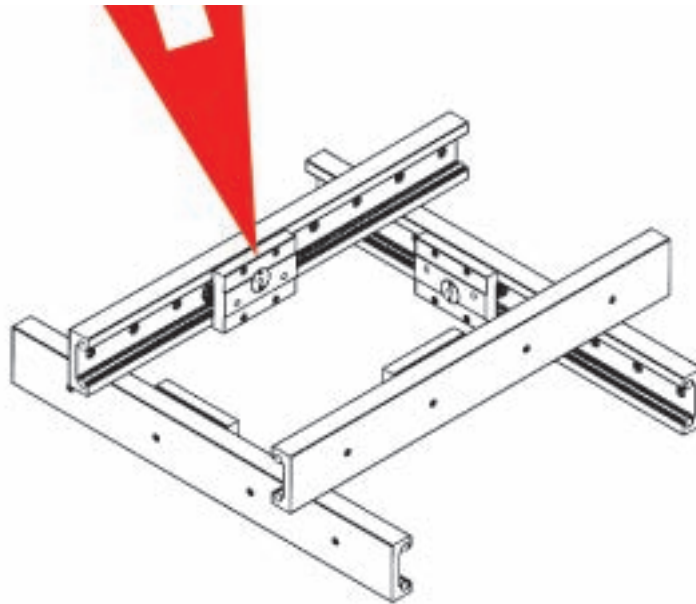
Note: If the block is too loose, it will partially rotate one side to the other. As you force the eccentric rollers against the shaft, the block will increasingly stabilize allowing for higher precision running accuracy. This will also increase the frictional characteristics of the system.





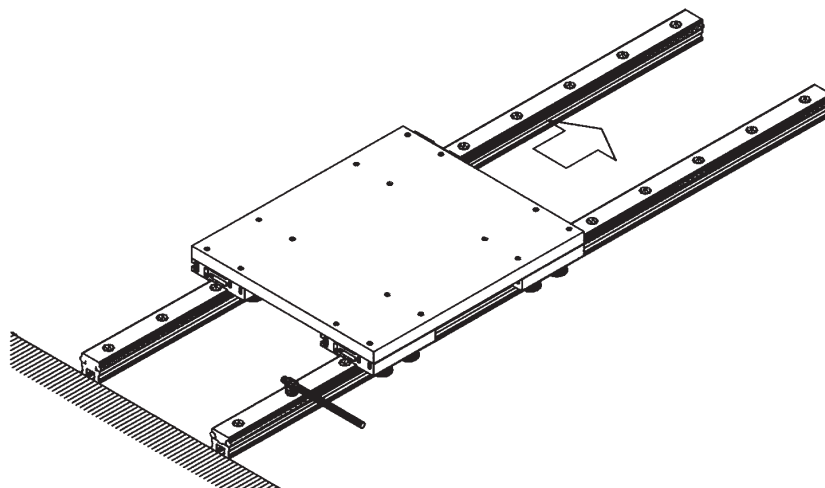
Basic Face Definition For Multiple Axis Systems

Generally, the side which favors the eccentric nut is the **BASIC FACE**. When mounting SG roller blocks on the X or lower axis - keep the basic face down (eccentric) down. On the Y axis or upper axis, the basic face should have the eccentric on the top as seen below.



Mounting Parallel Rails

When installing parallel rail, begin fastening the rails from the same end, leaving the opposite end free. Continue by alternating from rail-to-rail while you ensure the carriage plate is moving freely. Continue until you reach the opposite end.



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



SG Roller System Installation

Things to consider when installing SG style rollers and rails:

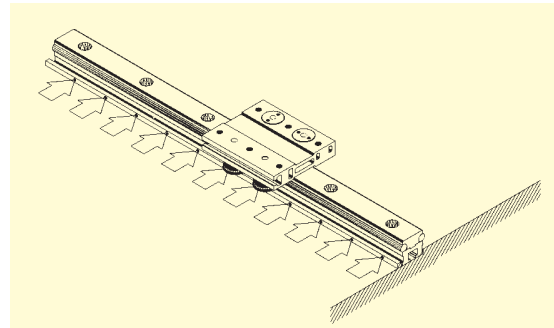
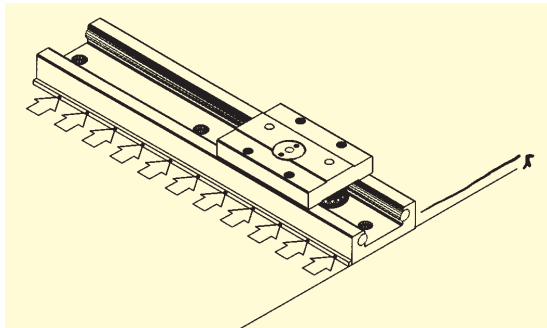
Running Precision

The Load and Moment

Running Situation

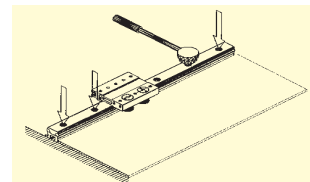
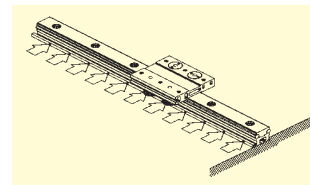
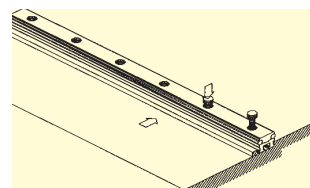
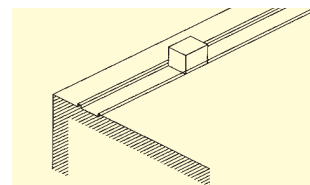
The Running Speed

1) Mounting SPEED DEMON SG Blocks and Rails:



When Installing SG Systems, the side having less rollers is the BASIC FACE.

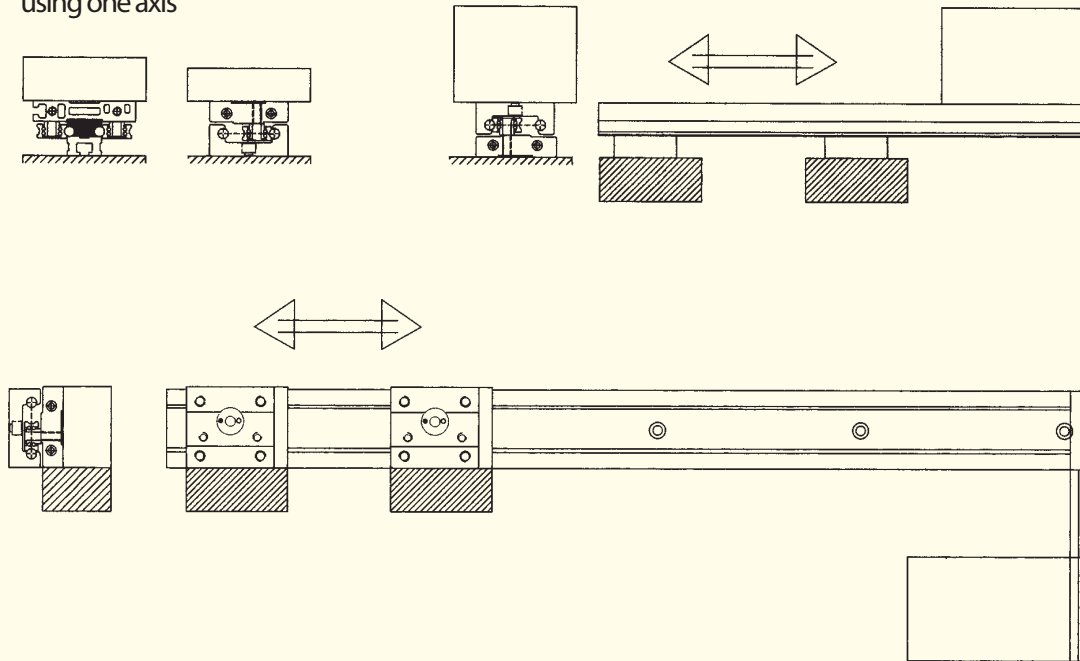
- 1 Remove all Contamination
- 2 After aligning the rail and block in a BASIC FACE position, begin to fasten the rail the mounting surface
- 3 While mounting check to ensure proper alignment of the rail
- 4 After assembling BASIC RAIL, install the SGB Block
(After considering the load and moment, decide the block's direction)



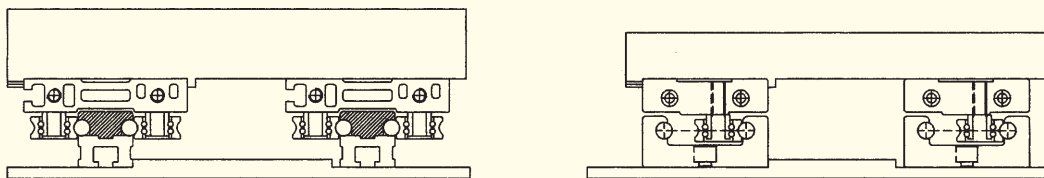


SPEED DEMON Mounting/Installation Configurations

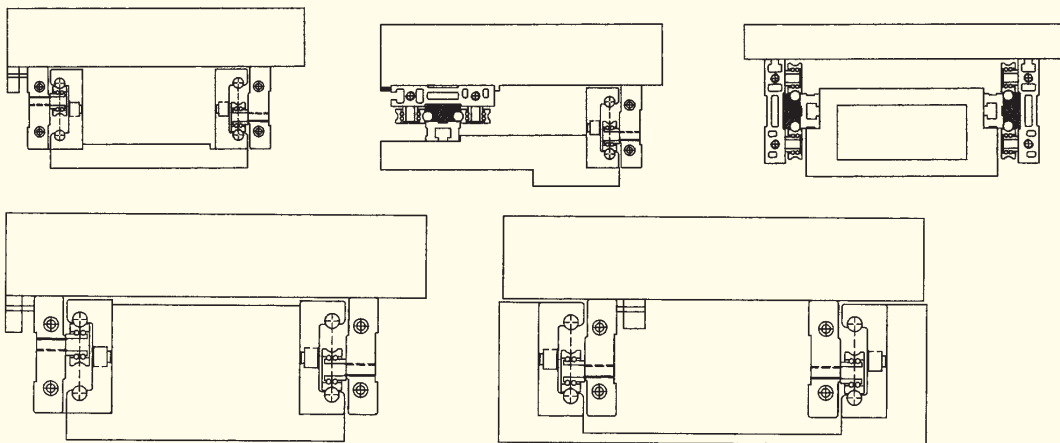
using one axis



Using two axes



Using two lateral axes





LM76[®] is an internationally recognized designer/manufacturer of linear motion bearings, shafting and slides.



LM76[®] Minuteman linear/rotary motion bearings surpass all published ratings for composite, self-lubricating sleeve-type linear motion bearings. Minuteman bearings are direct drop-in replacements for all standard and metric ball bushings, pillow/flange block assemblies. Special designs a specialty.



LM76[®] Black Racer, ceramic coated linear/rotary motion bearings have set records in acceleration and system speeds - over 100G's. Black Racer linear bearings take high loads and are direct drop-in replacements for all standard and metric ball bushings, pillow/flange block assemblies. Special designs a specialty. **NOTE: Lubrication Required**



LM76[®] EZ...Go Linear Ball Bearings are available in all standard configurations: open, closed, pillow blocks and flange blocks. Both inch and metric sizes are available in self aligning, A Series Steel and 440c Stainless.



LM76[®] is a leading supplier of linear shafting and supported shaft assemblies in:

- Rc60 Steel
- 440c Stainless
- 300 series stainless



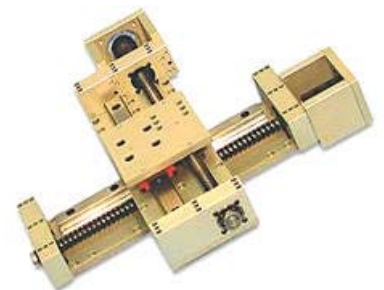
LM76[®] specializes in FDA/USDA/Washdown linear motion bearings, shafting and slides.



Defender Rail



JET Rail



Linear Slides