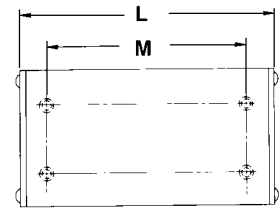
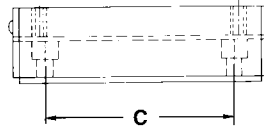
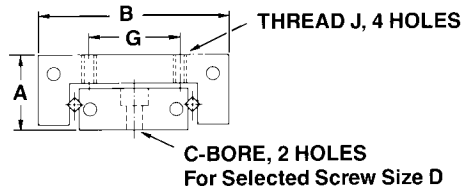


ECONOMY CROSSED ROLLER SLIDES



All mounting holes are located symmetrically about respective centerlines.

Specifications

Straight line accuracy: .0001"/inch of travel
Repeatability: .0001"

Material: Aluminum Base and Carriage
Finish: Black Anodize

Total Travel*	L	M	C	A	B	G	J	D	Load Capacity (lbs.)	Part No.
50	1.06	.625	.750	.32	.56	.218	2-56	2-56	30	PRB05-05
1.00	2.06	1.625	1.375	.32	.56	.218	2-56	2-56	55	PRB05-10
2.00	3.06	2.625	2.375	.32	.56	.218	2-56	2-56	66	PRB05-20
50	1.06	.625	.750	.40	.75	.375	4-40	4-40	48	PRB08-05
1.00	2.06	1.625	1.375	.40	.75	.375	4-40	4-40	78	PRB08-10
2.00	3.06	2.625	2.375	.40	.75	.375	4-40	4-40	94	PRB08-20
1.50	2.56	2.250	2.125	.53	1.06	.437	6-32	6-32	132	PRB12-15
2.00	3.56	3.250	3.125	.53	1.06	.437	6-32	6-32	220	PRB12-20
3.00	4.56	4.000	3.250	.53	1.06	.437	6-32	6-32	264	PRB12-30
1.00	2.00	1.375	1.500	.62	1.50	.625	6-32	6-32	132	PRB15-10
2.00	3.00	2.375	2.500	.62	1.50	.625	6-32	6-32	176	PRB15-20
3.00	4.00	3.375	3.500	.62	1.50	.625	6-32	6-32	176	PRB15-30
4.00	6.00	5.375	4.000	.62	1.50	.625	6-32	6-32	308	PRB15-40
1.00	2.00	1.375	1.625	.75	1.75	.875	6-32	6-32	132	PRB2-10
2.00	3.25	2.625	2.750	.75	1.75	.875	6-32	6-32	176	PRB2-20
3.00	4.00	3.375	3.500	.75	1.75	.875	6-32	6-32	176	PRB2-30
4.00	6.00	5.500	4.000	.75	1.75	.875	6-32	6-32	308	PRB2-40
1.50	2.62	1.625	1.875	1.00	2.62	1.250	10-32	10-32	264	PRB3-15
2.00	4.00	3.000	3.375	1.00	2.62	1.250	10-32	10-32	352	PRB3-20
3.00	5.00	4.000	4.375	1.00	2.62	1.250	10-32	10-32	440	PRB3-30
4.00	6.00	5.000	5.375	1.00	2.62	1.250	10-32	10-32	440	PRB3-40

*Minimum centered around mean position. Typical overtravel 0.06" each direction.

RAILS

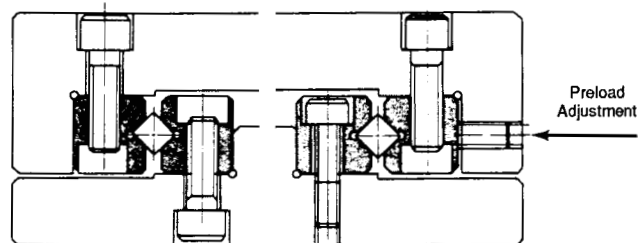
Application

Bearings are normally supplied and installed in sets of two to form an assembly that can support their rated load in any direction or orientation, and can be preloaded to eliminate side play.

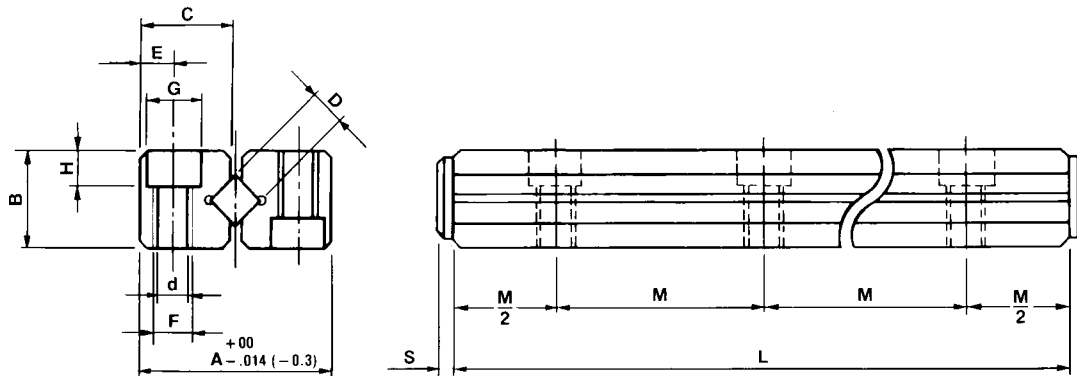
Mounting and banking surfaces must be smooth and flat, and accurately parallel, coplanar, or perpendicular respectively to achieve maximum accuracy. Preload forces must be evenly distributed. Dirt and dust must be excluded. Lubrication required depends on the application, ranging from light grease or oil at the time of installation for low speeds (less than 50 inches/min.) and occasional movement to continuous oil bath or mist at 1200 inches/min.

Construction

Each bearing consists of a pair of hardened steel ways containing 90° vee grooves, and a row of alternately crossed cylindrical rollers. The hardened steel rollers are captive in a brass cage for easy handling and assembly and permanent alignment. The ways are installed face to face by the user, with the rollers between the vee grooves.



Mounting holes in the way bars are threaded, and also counter-bored to alternatively permit using the next smaller size screw with threaded mounting holes in the user's components.



Specifications

Maximum deviation from parallelism between vee groove face and datum face for each way bar is 200 micro inches.

Rails: Hardened Steel

Rollers: Hardened Steel

NOTE: Each set contains 4-V grooved rails with end screws and 2-roller cages with captive rollers.

Length, Travel, and Load Selection

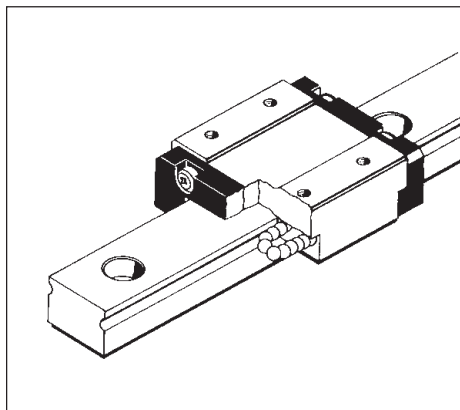
Travel T	Length L	No. Rollers in Each Retainer	No. Holes	Rail Set Load Cap. (lbs.)	Part No.
.473 (12)	.788 (20)	5	2	44	PNB1-020
.788 (20)	1.181 (30)	7	3	61	PNB1-030
1.063 (27)	1.575 (40)	10	4	88	PNB1-040
1.260 (32)	1.969 (50)	13	5	114	PNB1-050
.709 (18)	1.181 (30)	5	2	66	PNB2-030
.945 (24)	1.772 (45)	8	3	105	PNB2-045
1.181 (30)	2.362 (60)	11	4	145	PNB2-060
1.732 (44)	2.953 (75)	13	5	171	PNB2-075
1.102 (28)	1.969 (50)	7	2	154	PNB3-050
1.890 (48)	2.953 (75)	10	3	220	PNB3-075
2.283 (58)	3.937 (100)	14	4	308	PNB3-100
3.071 (78)	4.921 (125)	17	5	374	PNB3-125
3.464 (88)	5.906 (150)	21	6	462	PNB3-150
2.283 (58)	3.150 (80)	7	2	308	PNB4-080
3.228 (82)	4.725 (120)	11	3	484	PNB4-120
4.134 (105)	6.299 (160)	15	4	660	PNB4-160
2.165 (55)	3.937 (100)	8	2	704	PNB6-100
3.346 (85)	5.906 (150)	12	3	1056	PNB6-150
4.724 (120)	7.874 (200)	16	4	1408	PNB6-200
7.283 (185)	11.811 (300)	24	6	2112	PNB6-300
9.646 (245)	15.748 (400)	32	8	2816	PNB6-400

Profile and Mounting Dimensions

A	B	C	D	S	M	E	F	J	d	G	H	Series
.335 (8.5)	.158 (4.0)	.154 (3.9)	.059 (1.5)	.059 (1.5)	.394 (10)	.071 (1.8)	M2	# 0	.065 (1.65)	.118 (3.0)	.055 (1.4)	PNB1-000
.473 (12)	.236 (6.0)	.217 (5.5)	.079 (2.0)	.079 (2.0)	.591 (15)	.098 (2.5)	M3	# 2	.100 (2.55)	.173 (4.4)	.079 (2.0)	PNB2-000
.708 (18)	.315 (8.0)	.327 (8.3)	.118 (3.0)	.079 (2.0)	.984 (25)	.138 (3.5)	M4	# 4	.130 (3.30)	.236 (6.0)	.122 (3.1)	PNB3-000
.866 (22)	.433 (11)	.402 (10.2)	.158 (4.0)	.079 (2.0)	1.575 (40)	.178 (4.5)	M5	# 8	.169 (4.3)	.315 (8.0)	.165 (4.2)	PNB4-000
1.221 (31)	.591 (15)	.559 (14.2)	.236 (6.0)	.118 (3.0)	1.969 (50)	.236 (6.0)	M6	#10	.205 (5.2)	.374 (9.5)	.205 (5.2)	PNB6-000

BALL SLIDE GUIDES

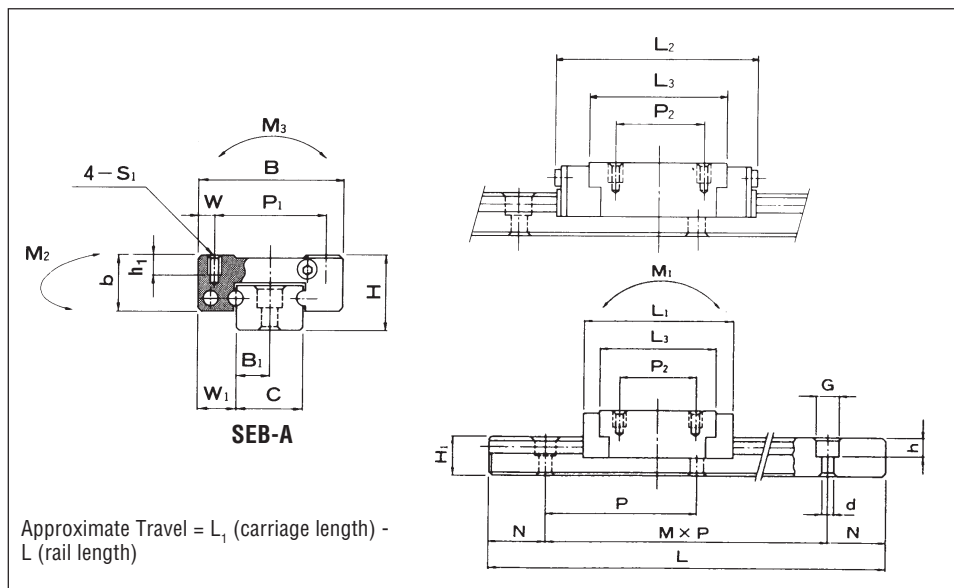
Compact Design



SEB (Ball type) — Low Price / High Speed

The SEB type slide guide consists of a block and a guide rail, both of which have two precision-ground, R-shaped raceway grooves. Steel balls recirculate in each raceway groove while they make 4 point contact. The block consists of a main body with raceway grooves and a pair of resin return caps for smooth circulation of steel balls.

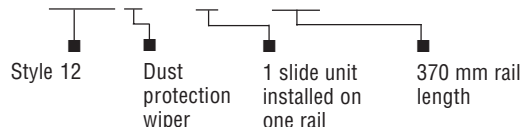
- Smooth and stable operation.
- Compact, lightweight and low price.
- High load capacity by the use of Gothic arch grooves.
- Four-point contact to carry load and moment in all directions.
- Dust protection wiper as standard.
- Extra wide type also available.
- For higher accuracy and rigidity, a crossed roller version is available.
- All stainless steel version available — consult factory



Ordering Information

Order standard ball slide guides from table by model number. Include the number of slide units required on one rail and the guides rail length in mm.

EXAMPLE: SEB12 U — 1 — 370



Style	Dimensions Of Carriage											Basic Load Rating		Dimensions Of Guide Rail (Metric)							
	H	B	Wiper L ₂	L ₁	W	P ₁	P ₂	S ₁	h ₁	L ₃	b	C lbf (CN)	Co lbf (CON)	H ₁	C	B ₁	W1	d x G x h	N		
SEB 5U*	.236 (6)	.472 (12)	.669 (17)	.614 (15.6)	.079 (2)	.315 (8)	—	M2	.059 (1.5)	.386 (9.8)	.177 (4.5)	96 (430)	160 (715)	.157 (4)	.197 (5)	.098 (2.5)	.138 (3.5)	.094 x .138 x .039 (2.4 x 3.5 x 1)	.197 (5)		
SEB 7U*	.315 (8)	.669 (17)	.925 (23.5)	.862 (21.9)	.098 (2.5)	.472 (12)	.318 (8)	M2	.098 (2.5)	.594 (15.1)	.256 (6.5)	242 (1080)	375 (1670)	.185 (4.7)	.276 (7)	.138 (3.5)	.197 (5)	.094 x .165 x .091 (2.4 x 4.2 x 2.3)	.197 (5)		
SEB 9U	.394 (10)	.787 (20)	1.20 (30.5)	1.106 (28.1)	.098 (2.5)	.591 (15)	.394 (10)	M3	.118 (3)	.803 (20.4)	.307 (7.8)	375 (1670)	551 (2450)	.217 (5.5)	.354 (9)	.177 (4.5)	.217 (5.5)	.138 x .236 x .138 (3.5 x 6 x 3.5)	.295 (7.5)		
SEB 12U	.512 (13)	1.063 (27)	1.339 (34)	1.181 (30)	.138 (3.5)	.787 (20)	.591 (15)	M3	.138 (3.5)	.906 (23)	.394 (10)	485 (2160)	706 (3140)	.295 (7.5)	.472 (12)	.236 (6)	.295 (7.5)	.138 x .236 x .177 (3.5 x 6 x 4.5)	.394 (10)		
SEB 15U	.630 (16)	1.260 (32)	1.673 (42.5)	1.516 (38.5)	.138 (3.5)	.984 (25)	.788 (20)	M3	.157 (4)	1.161 (29.5)	.472 (12)	816 (3630)	1212 (5390)	.374 (9.5)	.591 (15)	.295 (7.5)	.335 (8.5)	.138 x .236 x .177 (3.5 x 6 x 4.5)	.591 (15)		
SEB 20U	.984 (25)	1.811 (46)	2.441 (62)	2.193 (55.7)	.157 (4)	1.496 (38)	1.496 (38)	M4	.236 (6)	1.709 (45.7)	.689 (17.5)	1542 (6860)	2203 (9800)	.591 (15)	.787 (20)	.394 (10)	.512 (13)	.236 x .374 x .335 (6 x 9.5 x 8.5)	.788 (20)		

Measurements in inches (mm) Note: Inch conversion to mm: 25.4 x Inch

* Stainless Steel block and rail

This table is continued...

Specifications:

Accuracy (See Figure 1):

	Inches	(mm)
Height H tolerance	0.0008	(0.020)
Height H pair variation	0.0006	(0.015)
Width W_1 tolerance	0.001	(0.025)
Width W_1 pair variation	0.0008	(0.020)

Temperature:

Ambient temperatures up to 100°C (212°F) maximum.

Running Parallelism:

Surface C to Surface A See Figure 2
Surface D to Surface B See Figure 2

Load Ratings:

In applications involving high impact or speeds in excess of 2400"/min., divide the rated load rating by a factor of 3.

Preload:

Factory set preload ensures high rigidity.

Materials:

Roller rails and slide-block are made of 52100 chrome steel

* Stainless Steel (SEB 5 & 7)

Special-Length Guide Rails

For the SEB and SER types, special-length guide rails are also available, within the maximum length of the standard product. If the n_1 and n_2 dimensions shown in Figure 3 are not specified, such rails are manufactured within the standard dimension range.

Lubrication and Dust Prevention

The slide guides are shipped lubricated with sealed quality lithium soap base lubricant and can be used directly. The guides are standard with a wiper to prevent contamination.

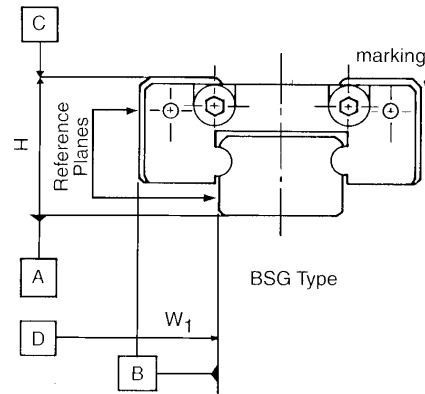


Figure 1.

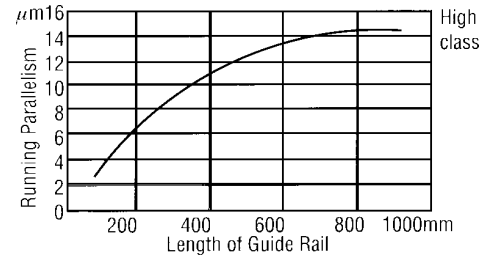


Figure 2.

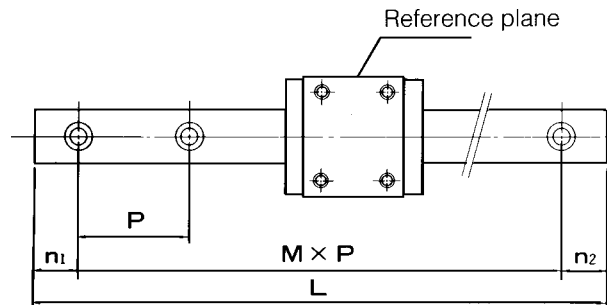


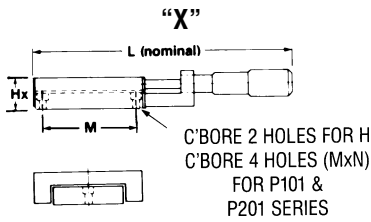
Figure 3. Special length guide rails

Guide Rail Lengths (Metric)											P	Allowable Static Moments			Weight (Metric)		Style	
Length			Length			Length			Length			M ₁ LB-IN	M ₂ LB-IN	M ₃ LB-IN	Carriage lb(kg)	Guide Rail lb/ft(kg/m)		
L _{in.}	(L _{mm})	[M]	L _{in.}	(L _{mm})	[M]	L _{in.}	(L _{mm})	[M]	L _{in.}	(L _{mm})								[M]
1.575 5.118	(40) (130)	[2] [8]	2.165 6.299	(55) (160)	[3] [10]	2.756 (70)	[4]		3.937 (100)	[6]		.591 (15)	10	13	16	.006 (.003)	.087 (.13)	SEB 5U*
1.575 3.937	(40) (100)	[2] [6]	2.165 5.118	(55) (130)	[3] [8]	2.756 (70)	[4]		3.346 (85)	[5]		.591 (15)	36	43	46	.022 (0.01)	.128 (0.19)	SEB 7U*
2.165 6.102	(55) (155)	[2] [7]	2.953 7.677	(75) (195)	[3] [9]	3.740 10.827	(95) (275)	[4] [13]	4.528 (115)	[5]		.788 (20)	61	69	104	.044 (0.02)	.208 (0.31)	SEB 9U
4.724 12.598	(120) (320)	[4] [12]	6.693 14.567	(170) (370)	[6] [14]	8.661 18.504	(220) (470)	[8] [18]	10.630 (270)	[10]		.984 (25)	78	95	164	.088 (0.04)	.410 (0.61)	SEB 12U
5.906 21.652	(150) (550)	[3] [13]	9.055 26.378	(230) (670)	[5] [16]	12.205 (310)	[7]		16.929 (430)	[10]		1.575 (40)	191	225	356	.132 (0.06)	.685 (1.02)	SEB 15U
8.661 25.197	(220) (640)	[3] [10]	11.024 34.646	(280) (880)	[4] [14]	13.386 (340)	[5]		18.110 (460)	[7]		2.362 (60)	451	538	868	.507 (0.23)	1.438 (2.14)	SEB 20U

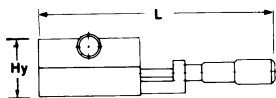
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X-XY-XYZ POSITIONERS WITH MICROMETERS

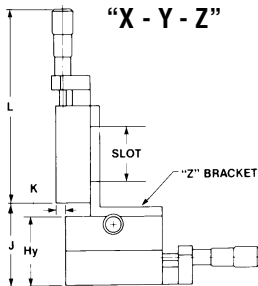
Profile Dimensions



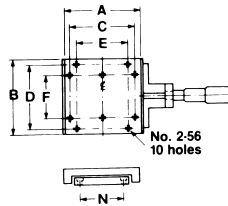
"X - Y"



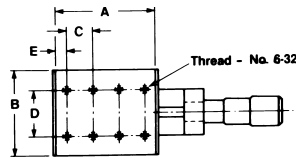
"X - Y - Z"



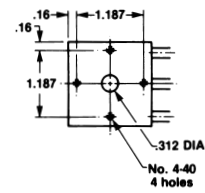
Carriage Mounting Dimensions



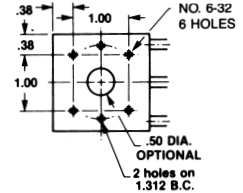
Series	C	D	E	F	N
101	1.00	1.00	.69	.50	.69
201	1.50	1.50	1.19	1.00	1.19



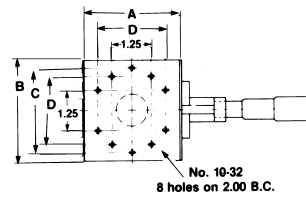
Series	C	D	E	No. Holes
400	.50	.875	.25	8
500	.55	.875	.25	12



Series 300

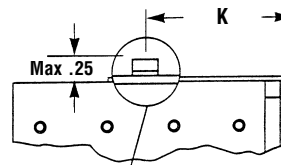


Series 450



Series	C	D
1200	2.625	2.125
2200	3.625	3.125

Optional Carriage Positional Lock



See Note 3 Below

Series	K Nominal
P100	1.265
P200	1.265
P1200	1.750
P2200	2.250
P400	2.390
P300	2.395
P450	2.395
P500	2.390

Specifications

Straight line accuracy: .0005/inch of travel

Repeatability: .0001

Drive: Micrometer .001 graduations standard
.01 mm graduations optional

Material: Aluminum Base and Carriage

Finish: Black Anodize

Travel T	A	B	L	Base Mounting M	H	Hx	Hy	J	K	Load Capacity (lbs.)		Part No.*
										X, XY	Z	
.50	1.25	1.25	3.25	1.00	# 2	.38	.75	.62	.38	4	1.25	P101- P201- P301- P401-
.50	1.75	1.75	3.75	1.50	# 2	.38	.75	.62	.44	4	1.25	
.50	1.50	1.50	3.50	1.187	# 4	.62	1.25	1.62	.32	12	2	
.50 (13mm)	2.00	1.75	4.62	1.62	# 6	.75	1.69	.50	1.12	20	2	
.50 (13mm)	1.75	1.75	4.38	1.312	# 6	.75	1.50	2.00	Flush	20	2	P450- P451- P501- P502- P1201- P2201-
1.00 (25mm)	1.75	1.75	5.88	1.312	# 6	.75	1.50	2.00	Flush	20	2	
.50 (13mm)	3.25	1.75	5.86	2.75	# 6	.75	1.69	1.56	Flush	42	20	
1.00 (25mm)	3.25	1.75	7.41	2.75	# 6	.75	1.69	1.56	Flush	42	20	
1.00 (25mm)	3.12	3.12	7.25	2.625	#10	.88	1.76	2.50	.50	30	30	
1.00 (25mm)	4.12	4.12	8.38	3.625	#10	.88	1.76	2.75	.56	30	30	
.50	1.50	1.50	3.50	1.187	# 4	.62	1.25	.44	1.00	—	2	P301LP.** P450LP.** P451LP.**
.50 (13mm)	1.75	1.75	4.38	1.312	# 6	.75	1.50	.69	1.12	—	2	
1.00 (25mm)	1.75	1.75	5.88	1.312	# 6	.75	1.50	.69	1.12	—	2	

* To order any positioner, please follow these directions with the appropriate series.

1. Add "M" for Metric Micrometer.
2. Designate axis desired as follows:
X, XY, or XYZ
3. For optional lock substitute L for dash (-) in part number

Example: P101-X
P101-XYZ
P401-XY
P401M-XY

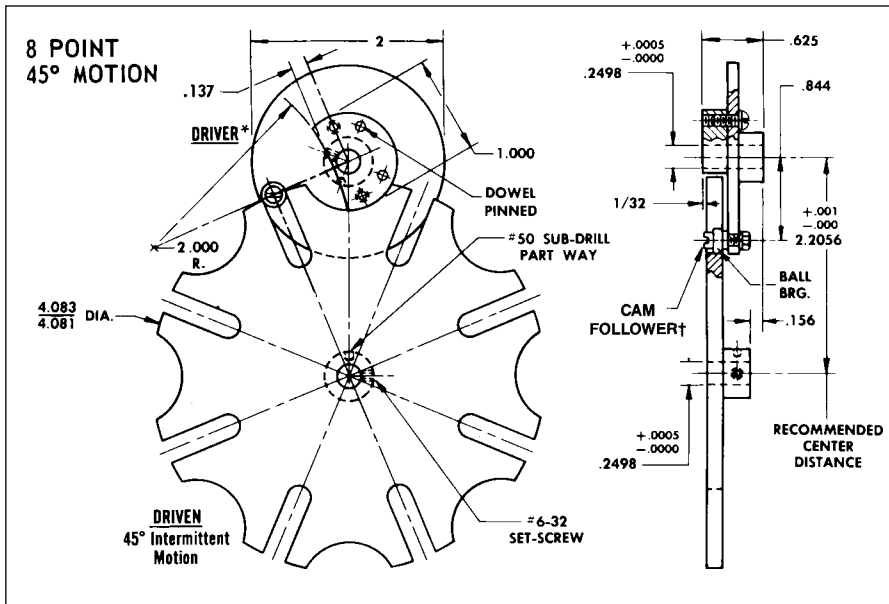
Example: P101LX

** LP indicates low profile for XYZ only.

Micrometer Locking Device Available —Consult Factory

GENEVA MECHANISMS

Intermittent Motion ■ 1/4" Shaft ■ 45° Motion



No. of Points	Intermittent Motion	Part No.
8	360° Driver = 45° Driven	EU-4

Driver Travel — Either Direction and Reversible
1/8" & 3/16" Shaft Units Available, Consult Factory.

*Lighting Holes
Optional, on Request.

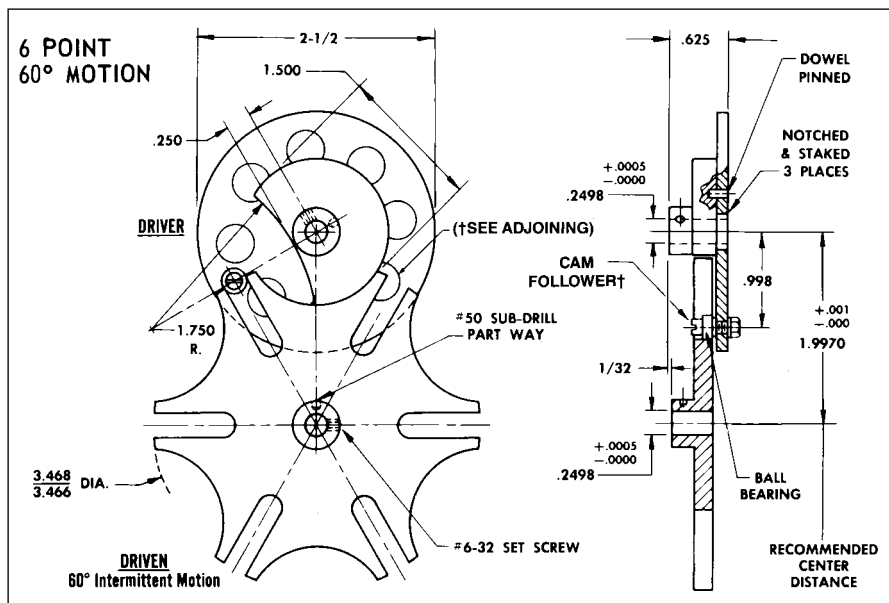
†2 Cam Followers
on Driver Available
on Request.

Material: 303 Stainless Steel

See section 11 for assemblies

GENEVA MECHANISMS

Intermittent Motion ■ 1/4" Shaft ■ 60° Motion



No. of Points	Intermittent Motion	Part No.
6	360° Driver = 60° Driven	EU-3

Driver Travel — Either Direction and Reversible
1/8" & 3/16" Shaft Units Available, Consult Factory.

*Lighting Holes
Optional, on Request.

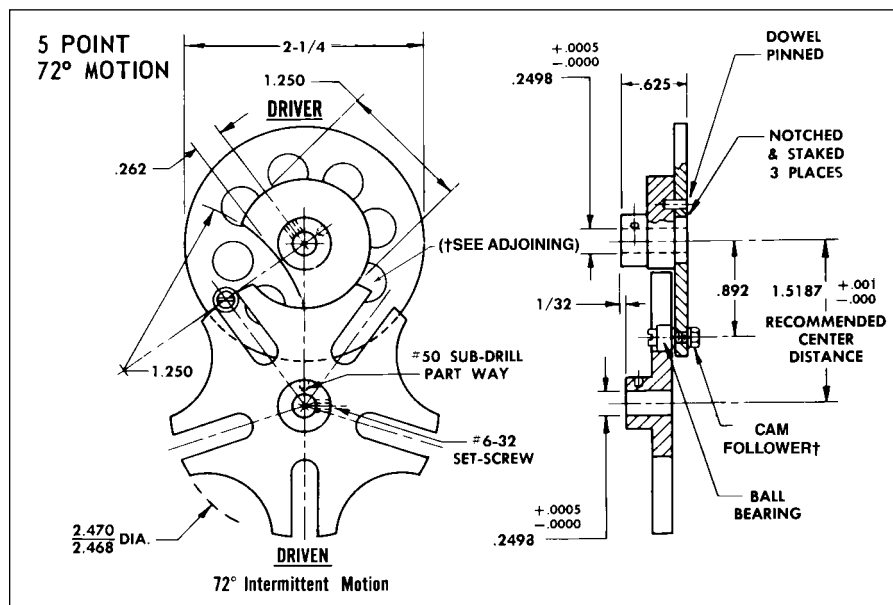
†2 Cam Followers
on Driver Available
on Request.

Material: 303 Stainless Steel

See section 11 for assemblies

GENEVA MECHANISMS

Intermittent Motion ■ 1/4" Shaft ■ 72° Motion



Material: 303 Stainless Steel

No. of Points	Intermittent Motion	Part No.
5	360° Driver = 72° Driven	EU-2

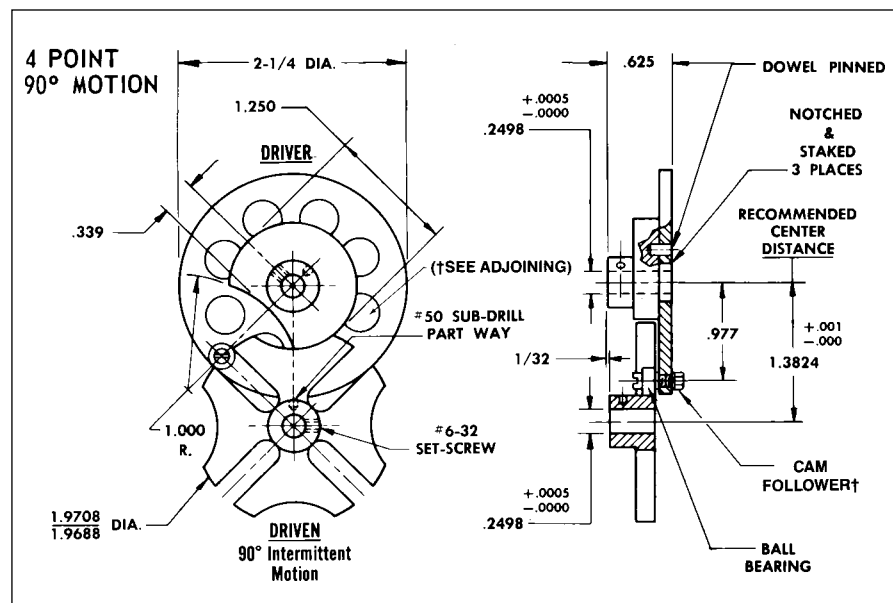
Driver Travel — Either Direction and Reversible
1/8" & 3/16" Shaft Units Available, Consult Factory.

*Lighting Holes
Optional, on Request.

†2 Cam Followers
on Driver Available
on Request.

GENEVA MECHANISMS

Intermittent Motion ■ 1/4" Shaft ■ 90° Motion



Material: 303 Stainless Steel

See section 11 for assemblies

No. of Points	Intermittent Motion	Part No.
4	360° Driver = 90° Driven	EU-1

Driver Travel — Either Direction and Reversible
1/8" & 3/16" Shaft Units Available, Consult Factory.

*Lighting Holes
Optional, on Request.

†2 Cam Followers
on Driver Available
on Request.