Product Introduction
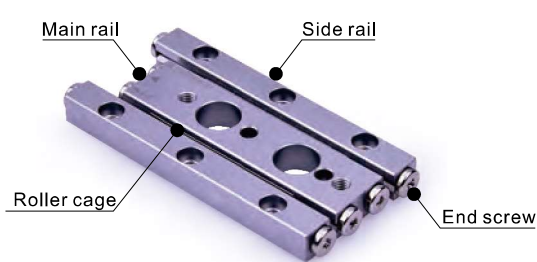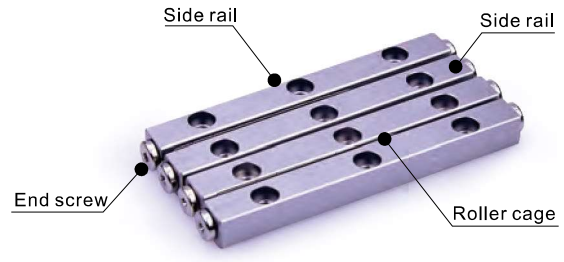
Crossed Roller provides high rigidity and high accuracy linear movement with non-recirculating rollers design. By cross-arrangement of rollers, it will hugely reduce friction meanwhile provide high rigidity for rollers to bear heavy loads. Crossed roller is mainly used in high precision machine and measurement equipment such as circuit board printer, optical measurement instrument, X-ray equipment or base for multiple kinds of instruments.

Main rail   Side rail

Roller cage

End screw

Three-Row Type Of Crossed Roller Way

Side rail   Side rail

End screw

Roller cage

Four-Row Type Of Crossed Roller Way

Cylindrical roller with high precision roundness and wear resistance
(JIS B 1506 G2) is manufactured in Japan

Order Information

LGC 3 A 200 R25 - H

① ② ③ ④ ⑤ ⑥

① **Model Code**	LGC : Crossed Roller Way
② **Roller Diameter**	1 : Φ1.5mm 2 : Φ2.0mm 3 : Φ3.0mm 4 : Φ4.0mm 6 : Φ6.0mm
③ **Type [Note]**	A: Three-row type [Note] B: Four-row type
④ **Rail dimension**	200:rail length 200X100:main rail length is 200mm/side rail length is 100mm
	[Reference to spec. table for detail]
⑤ **The number of rollers in each roller cage**	R25:25 rollers .... [Reference to spec. table for detail]
⑥ **Accuracy**	H : High P : Precision

[Note] LGC6: only for type B.

Cross Reference Table for Maximun Stroke & Roller numbers

LGC1 Max. Stroke (mm)	Numbers of rollers in one roller cage								
	R6	R7	R8	R9	R10	R11	R13	R16	R19
Shortest length of rails (mm) — 20	12	7	-	-	-	-	-	-	-
30	-	-	22	17	12	7	-	-	-
40	-	-	-	-	-	27	17	-	-
50	-	-	-	-	-	-	37	22	7
60	-	-	-	-	-	-	-	42	27
70	-	-	-	-	-	-	-	-	47
80	-	-	-	-	-	-	-	-	67

The standard quantity of rollers
Alternative options of the quantity of rollers

LGC2 Max. Stroke (mm)	Numbers of rollers in one roller cage													
	R6	R7	R8	R9	R10	R11	R13	R16	R19	R22	R25	R28	R32	R36
Shortest length of rails (mm) — 30	16	8	-	-	-	-	-	-	-	-	-	-	-	-
45	-	-	30	22	14	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	36	20	-	-	-	-	-	-	-
75	-	-	-	-	-	-	50	26	-	-	-	-	-	-
90	-	-	-	-	-	-	-	56	32	-	-	-	-	-
105	-	-	-	-	-	-	-	-	62	38	-	-	-	-
120	-	-	-	-	-	-	-	-	-	68	44	-	-	-
135	-	-	-	-	-	-	-	-	-	98	74	50	-	-
150	-	-	-	-	-	-	-	-	-	-	104	80	48	-
165	-	-	-	-	-	-	-	-	-	-	-	110	78	45
180	-	-	-	-	-	-	-	-	-	-	-	140	108	76

LGC3 Max. Stroke (mm)	Numbers of rollers in one roller cage													
	R7	R8	R9	R10	R11	R13	R16	R19	R22	R25	R28	R32	R36	R40
Shortest length of rails (mm) — 50	34	24	14	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	54	44	24	-	-	-	-	-	-	-	-
100	-	-	-	-	-	74	44	-	-	-	-	-	-	-
125	-	-	-	-	-	-	94	64	-	-	-	-	-	-
150	-	-	-	-	-	-	-	114	84	54	-	-	-	-
175	-	-	-	-	-	-	-	-	134	104	74	-	-	-
200	-	-	-	-	-	-	-	-	-	154	124	84	-	-
225	-	-	-	-	-	-	-	-	-	-	174	134	94	-
250	-	-	-	-	-	-	-	-	-	-	-	184	144	104
275	-	-	-	-	-	-	-	-	-	-	-	234	194	154
300	-	-	-	-	-	-	-	-	-	-	-	-	244	204

LGC4 Max. Stroke (mm)	Numbers of rollers in one roller cage													
	R8	R9	R10	R11	R13	R16	R19	R22	R25	R28	R32	R36	R40	R45
Shortest length of rails (mm) — 80	54	40	26	-	-	-	-	-	-	-	-	-	-	-
120	-	-	-	92	64	-	-	-	-	-	-	-	-	-
160	-	-	-	-	-	102	60	-	-	-	-	-	-	-
200	-	-	-	-	-	-	140	98	56	-	-	-	-	-
240	-	-	-	-	-	-	-	178	136	94	-	-	-	-
280	-	-	-	-	-	-	-	-	216	174	118	-	-	-
320	-	-	-	-	-	-	-	-	-	254	198	142	86	-
360	-	-	-	-	-	-	-	-	-	-	278	222	166	96
400	-	-	-	-	-	-	-	-	-	-	358	302	246	176
440	-	-	-	-	-	-	-	-	-	-	-	382	326	256
480	-	-	-	-	-	-	-	-	-	-	-	-	406	336

LGC6 Max. Stroke (mm)	Numbers of rollers in one roller cage												
	R8	R9	R11	R13	R16	R19	R22	R25	R28	R32	R36	R40	R45
Shortest length of rails (mm) — 100	62	44	-	-	-	-	-	-	-	-	-	-	-
150	-	-	108	72	-	-	-	-	-	-	-	-	-
200	-	-	-	-	118	64	-	-	-	-	-	-	-
250	-	-	-	-	-	164	110	56	-	-	-	-	-
300	-	-	-	-	-	-	210	156	102	-	-	-	-
350	-	-	-	-	-	-	-	256	202	130	-	-	-
400	-	-	-	-	-	-	-	-	302	230	158	-	-
450	-	-	-	-	-	-	-	-	-	330	258	186	-
500	-	-	-	-	-	-	-	-	-	-	358	286	196
550	-	-	-	-	-	-	-	-	-	-	458	386	296
600	-	-	-	-	-	-	-	-	-	-	-	486	396

Accuracy

Accuracy

Main rail   Side rail
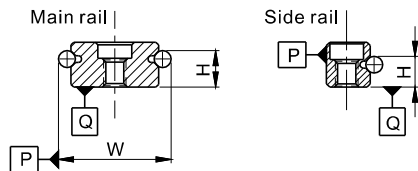
Unit : mm

Item	High(H)	Precision(P)
Tolerance of height **H**	±0.02	±0.01
Variation of height **H**	0.01	0.005
Tolerance of width **W**	±0.02	±0.01

Rail Length and Parallelism of The Raceway

Crossed Roller Way

LGC Series
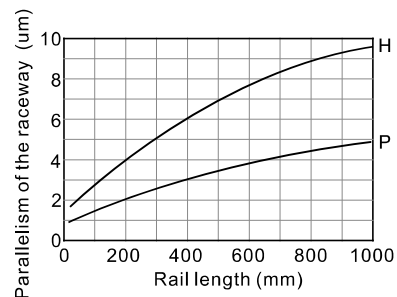
Specification Table

Dimensions of Three-row Type
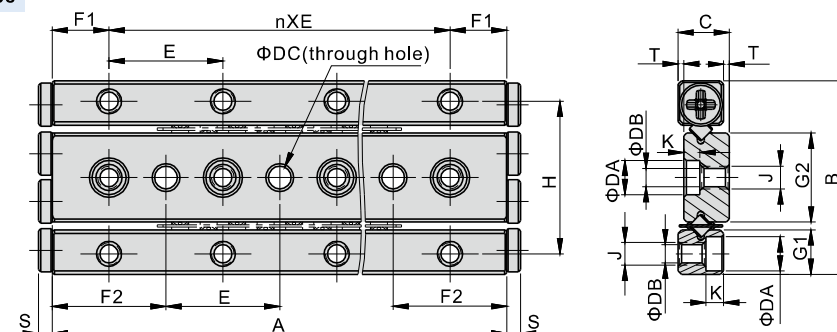
Model\Item	A	B	C	ΦDA	ΦDB	ΦDC	nXE	F1	F2	G1	G2	H	J	K	S	T
LGC1A20	20						1X10									
LGC1A30	30						2X10									
LGC1A40	40						3X10									
LGC1A50	50	17	4.5	3.0	1.55	$2^{+0.03}_{+0.005}$	4X10	5	10	3.9	7.8	13.4	M2X0.4	1.5	1.2	0.5
LGC1A60	60						5X10									
LGC1A70	70						6X10									
LGC1A80	80						7X10									
LGC2A30	30						1X15									
LGC2A45	45						2X15									
LGC2A60	60						3X15									
LGC2A75	75						4X15									
LGC2A90	90						5X15									
LGC2A105	105	24	6.5	4.4	2.5	$3^{+0.03}_{+0.005}$	6X15	7.5	15	5.5	11	19	M3X0.5	2.1	1.5	0.5
LGC2A120	120						7X15									
LGC2A135	135						8X15									
LGC2A150	150						9X15									
LGC2A165	165						10X15									
LGC2A180	180						11X15									
LGC3A50	50						1X25									
LGC3A75	75						2X25									
LGC3A100	100						3X25									
LGC3A125	125						4X25									
LGC3A150	150						5X25									
LGC3A175	175	36	8.5	6.0	3.4	$4^{+0.03}_{+0.005}$	6X25	12.5	25	8.3	16.6	29	M4X0.7	3.1	2	0.5
LGC3A200	200						7X25									
LGC3A225	225						8X25									
LGC3A250	250						9X25									
LGC3A275	275						10X25									
LGC3A300	300						11X25									
LGC4A80	80						1X40									
LGC4A120	120						2X40									
LGC4A160	160						3X40									
LGC4A200	200						4X40									
LGC4A240	240						5X40									
LGC4A280	280	44	11.5	7.5	4.3	$5^{+0.03}_{+0.005}$	6X40	20	40	10	20	35	M5X0.8	4.1	2	0.5
LGC4A320	320						7X40									
LGC4A360	360						8X40									
LGC4A400	400						9X40									
LGC4A440	440						10X40									
LGC4A480	480						11X40									

[Note] One set includes one main rail, two side rails, two roller cages, and the corresponding screws for mounting.

Specification Table

Dimensions of Four-row Type
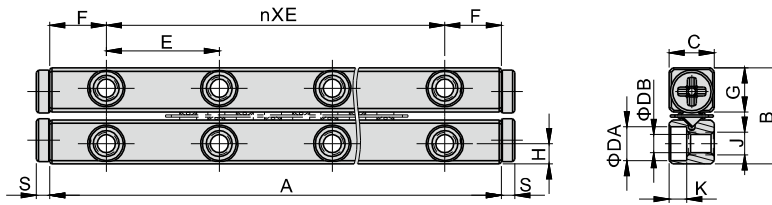
Model\Item	A	B	C	ΦDA	ΦDB	nXE	F	G	H	J	K	S
LGC1B20	20					1X10						
LGC1B30	30					2X10						
LGC1B40	40					3X10						
LGC1B50	50	8.5	4	3.0	1.55	4X10	5	3.9	1.8	M2X0.4	1.5	1.2
LGC1B60	60					5X10						
LGC1B70	70					6X10						
LGC1B80	80					7X10						
LGC2B30	30					1X15						
LGC2B45	45					2X15						
LGC2B60	60					3X15						
LGC2B75	75					4X15						
LGC2B90	90					5X15						
LGC2B105	105	12	6	4.4	2.5	6X15	7.5	5.5	2.5	M3X0.5	2.1	1.5
LGC2B120	120					7X15						
LGC2B135	135					8X15						
LGC2B150	150					9X15						
LGC2B165	165					10X15						
LGC2B180	180					11X15						
LGC3B50	50					1X25						
LGC3B75	75					2X25						
LGC3B100	100					3X25						
LGC3B125	125					4X25						
LGC3B150	150					5X25						
LGC3B175	175	18	8	6.0	3.4	6X25	12.5	8.3	3.5	M4X0.7	3.1	2
LGC3B200	200					7X25						
LGC3B225	225					8X25						
LGC3B250	250					9X25						
LGC3B275	275					10X25						
LGC3B300	300					11X25						
LGC4B80	80					1X40						
LGC4B120	120					2X40						
LGC4B160	160					3X40						
LGC4B200	200					4X40						
LGC4B240	240					5X40						
LGC4B280	280	22	11	7.5	4.3	6X40	20	10	4.5	M5X0.8	4.1	2
LGC4B320	320					7X40						
LGC4B360	360					8X40						
LGC4B400	400					9X40						
LGC4B440	440					10X40						
LGC4B480	480					11X40						
LGC6B100	100					1X50						
LGC6B150	150					2X50						
LGC6B200	200					3X50						
LGC6B250	250					4X50						
LGC6B300	300					5X50						
LGC6B350	350	31	15	9	5.3	6X50	25	14.7	6	M6X1.0	5.2	3
LGC6B400	400					7X50						
LGC6B450	450					8X50						
LGC6B500	500					9X50						
LGC6B550	550					10X50						
LGC6B600	600					11X50						

[Note] One set includes four side rails, two roller cages, and the corresponding screws for mounting.

Roller Cage Order Information

LGC 3 R25

① ② ③

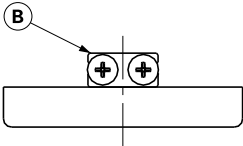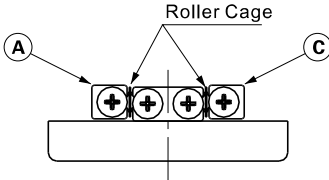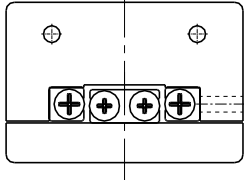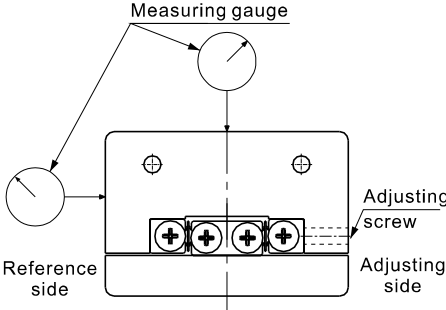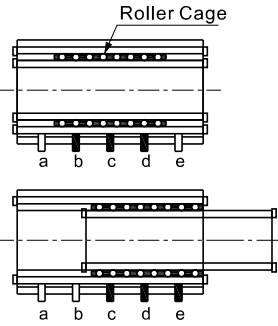|		
① **Model Code**	LGC : Crossed Roller Way
② **Roller Diameter**	1 : Φ1.5mm 2 : Φ2.0mm
	3 : Φ3.0mm 4 : Φ4.0mm 6 : Φ6.0mm
③ **The number of rollers**	R25:25 rollers …. [Reference to spec. table for detail]

Specification Table

Informations of Roller Cage

P   R(Number)

Model\Item	P	R	Basic Dynamic Load Rating (C_1)	Basic Static Load Rating (C_0)	Allowable Load (F_0)
LGC1R6		6			
LGC1R7		7			
LGC1R8		8			
LGC1R9		9			
LGC1R10	2.5	10	125N per roller	120N per roller	39N per roller
LGC1R11		11			
LGC1R13		13			
LGC1R16		16			
LGC1R19		19			

Model\Item	P	R	Basic Dynamic Load Rating (C_1)	Basic Static Load Rating (C_0)	Allowable Load (F_0)
LGC2R6		6			
LGC2R7		7			
LGC2R8		8			
LGC2R9		9			
LGC2R10		10			
LGC2R11		11			
LGC2R13		13			
LGC2R16	4	16	292N per roller	290N per roller	97N per roller
LGC2R19		19			
LGC2R22		22			
LGC2R25		25			
LGC2R28		28			
LGC2R32		32			
LGC2R36		36			

Model\Item	P	R	Basic Dynamic Load Rating (C_1)	Basic Static Load Rating (C_0)	Allowable Load (F_0)
LGC3R7		7			
LGC3R8		8			
LGC3R9		9			
LGC3R10		10			
LGC3R11		11			
LGC3R13		13			
LGC3R16		16			
LGC3R19	5	19	640N per roller	610N per roller	203N per roller
LGC3R22		22			
LGC3R25		25			
LGC3R28		28			
LGC3R32		32			
LGC3R36		36			
LGC3R40		40			

Model\Item	P	R	Basic Dynamic Load Rating (C_1)	Basic Static Load Rating (C_0)	Allowable Load (F_0)
LGC4R8		8			
LGC4R9		9			
LGC4R10		10			
LGC4R11		11			
LGC4R13		13			
LGC4R16		16			
LGC4R19		19			
LGC4R22	7	22	1230N per roller	1170N per roller	390N per roller
LGC4R25		25			
LGC4R28		28			
LGC4R32		32			
LGC4R36		36			
LGC4R40		40			
LGC4R45		45			

Model\Item	P	R	Basic Dynamic Load Rating (C_1)	Basic Static Load Rating (C_0)	Allowable Load (F_0)
LGC6R8		8			
LGC6R9		9			
LGC6R11		11			
LGC6R13		13			
LGC6R16		16			
LGC6R19		19			
LGC6R22	9	22	3175N per roller	2550N per roller	810N per roller
LGC6R25		25			
LGC6R28		28			
LGC6R32		32			
LGC6R36		36			
LGC6R40		40			
LGC6R45		45			

Crossed Roller Way
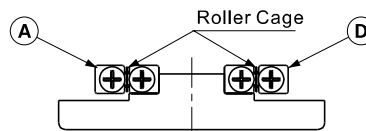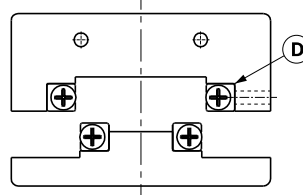
LGC Series

Installation Illustration
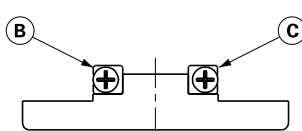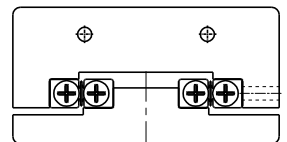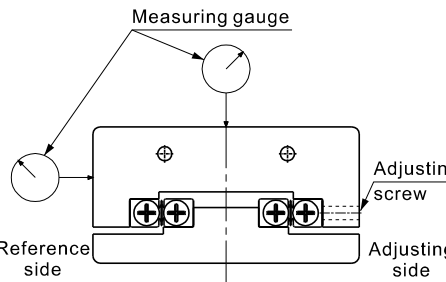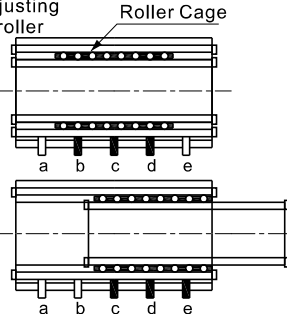
Three-row type--Installation method 1

Step 1	Step 2	Step 3
Lock the mounting screws on rail B with the recommended torque.	Place the roller cage and rail A and C.	Hold the rails to avoid moving, and temporarily fix the rail A and C after putting the slide table. Move the slide table back and forth to the end and adjust the roller cage to the center position of the rail.

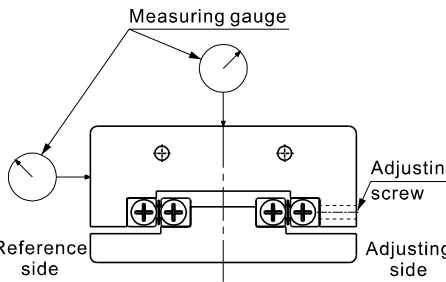| Step 4	Step 5	Step 6
Fix the measuring gauges to the top surface center and side surface (reference side) of the slide table.	Move the slide table and tighten the adjusting screws within the roller range. Repeat the movement until the value of the measuring gauge drops to the lowest and keeps no change, then tighten the adjusting screws a~e with correct torque.	Tighten the rail A and C completely, then perform the same steps as tightening the adjusting screws, move the slide table and tighten the mounting screws within the roller range with recommended torque.
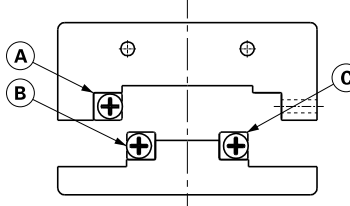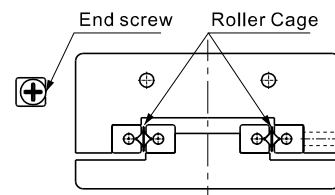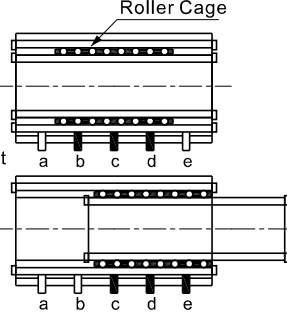
Three-row type--Installation method 2

Step 1	Step 2	Step 3
Lock the mounting screws on rail A and B with the recommended torque.	Temporarily fix the rail C at the adjusting side.	Removing the end screws on one side and insert the roller cage, then mount back the removed end screws and tighten. Move the slide table back and forth to the end and adjust the roller cage to the center position of the rail.

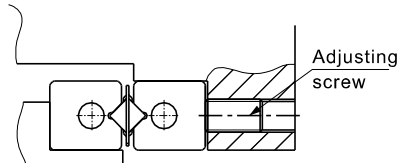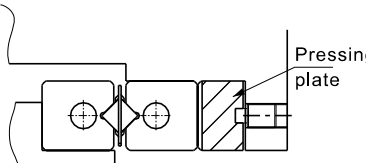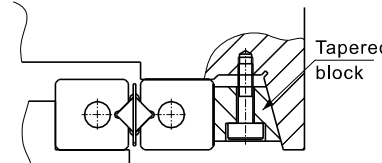| Step 4	Step 5	Step 6
Fix the measuring gauges to the top surface center and side surface (reference side) of the slide table.	Move the slide table and tighten the adjusting screws within the roller range. Repeat the movement until the value of the measuring gauge drops to the lowest and keeps no change, then tighten the adjusting screws a~e with correct torque.	Tighten the rail C completely, then perform the same steps as tightening the adjusting screws, move the slide table and tighten the mounting screws within the roller range with recommended torque.

Four-row type--Installation method 1

Step 1	Step 2	Step 3
Lock the mounting screws on rail B and C with the recommended torque.	Place the roller cage and rail A and D.	Hold the rails to avoid moving, and temporarily fix the rail A and D after putting the slide table. Move the slide table back and forth to the end and adjust the roller cage to the center position of the rail.

Step 4	Step 5	Step 6
Fix the measuring gauges to the top surface center and side surface (reference side) of the slide table.	Move the slide table and tighten the adjusting screws within the roller range. Repeat the movement until the value of the measuring gauge drops to the lowest and keeps no change, then tighten the adjusting screws a~e with correct torque.	Tighten the rail A and D completely, then perform the same steps as tightening the adjusting screws, move the slide table and tighten the mounting screws within the roller range with recommended torque.

Four-row type--Installation method 2

Step 1	Step 2	Step 3
Lock the mounting screws on rail A, B and C with the recommended torque.	Temporarily fix the rail D at the adjusting side.	Removing the end screws on one side and insert the roller cage, then mount back the removed end screws and tighten. Move the slide table back and forth to the end and adjust the roller cage to the center position of the rail.

Step 4	Step 5	Step 6
Fix the measuring gauges to the top surface center and side surface (reference side) of the slide table.	Move the slide table and tighten the adjusting screws within the roller range. Repeat the movement until the value of the measuring gauge drops to the lowest and keeps no change, then tighten the adjusting screws a~e with correct torque.	Tighten the rail D completely, then perform the same steps as tightening the adjusting screws, move the slide table and tighten the mounting screws within the roller range with recommended torque.

Clearance adjustment

Application	Usually, the adjusting screw is used to push the rail on the adjusting side to adjust the clearance	When rigidity and precision are required, pressing plate is recommended to adjust the clearance.	When high rigidity and high precision are particularly required, tapered block is recommended to adjust the clearance.
Diagram	(Adjusting screw)	(Pressing plate)	(Tapered block)

User Manual

Load Rating

Load direction	Vertical load		Lateral load	
Type	Three-Row type	Four-Row type	Three-Row type	Four-Row type
Schematic				
Basic dynamic load rating - C_a (N)	$C_a=\{2P\times(\frac{R}{2}-1)\}^{\frac{1}{36}}\times(\frac{R}{2})^{\frac{3}{4}}\times C_1$ * Effective roller number R/2: round off to integer (EX : 5/2=2.5 , take 2)		$C_a=\{2P\times(\frac{R}{2}-1)\}^{\frac{1}{36}}\times(\frac{R}{2})^{\frac{3}{4}}\times2^{\frac{7}{9}}\times C_1$ *Effective roller number R/2: round off to integer (EX : 5/2=2.5 , take 2)	
Basic Static load rating - C_{a0} (N)	$C_{a0}=R\times C_0$		$C_{a0}=R\times C_0$	
Allowable load-F_{a0} (N)	$F_{a0}=R\times F_0$		$F_{a0}=R\times F_0$	

P: Pitch of roller cage (mm)
R: The number of cylindrical rollers incorporated in a roller cage
C_1: Basic dynamic load rating per cylindrical roller (N)
C_0: Basic static load rating per cylindrical roller (N)
F_0: Allowable load per cylindrical roller (N)

Ex : Calculate LGC3A180R25 basic load rating
From specification table(Informations of Roller Cage)
Pitch of roller cage :P=5mm
The number of cylindrical rollers incorporated in a roller cage : R = 25
Basic dynamic load rating per cylindrical roller : C_1 = 640 N
Basic static load rating per cylindrical roller : C_0 = 610N
Allowable load per cylindrical roller: F_0=203N
Effective roller number R/2 = 12.5, take 12
Take these parameters into calculation, we can get
For vertical load :Basic dynamic load rating C_a = 4,701.88 N ;
　　　　　　　　Basic Static load rating C_{a0} = 15,250 N ;
　　　　　　　　Allowable load F_{a0} = 5,075 N ;
For Lateral load : Basic dynamic load rating C_a = 8,061.31 N ;
　　　　　　　　Basic Static load rating C_{a0} = 15,250 N ;
　　　　　　　　Allowable load F_{a0} = 5,075 N .

Static Safety Factor(f_s)

Inertia force caused by impact, sudden start or stop will exert unexpected force on crossed roller guide. Therefore, safety factor based on working condition needs to be put into consideration, see as follows:

Load Condition	f_s
Normal Load	1.0~1.3
Load with Impacts or Vibrations	2.0~3.0

$$f_s=\frac{C_{a0}}{F}$$

f_s: Static safety factor
C_{a0}: Basic static load rating　　　(N)
F: Calculated working load　　　(N)

Nominal Life(L)

Nominal life is calculated as follow:

$$L=(\frac{f_T}{f_w}\cdot\frac{C_a}{F})^{\frac{10}{3}}\times100$$

L:Nominal life　　　　　　　　(km)
C_a:Basic dynamic load rating　　(N)
F:Calculated working load　　　(N)
f_T:Temperature factor　　　　(Reference to Temperature Factor Chart)
f_w:Load factor　　　　　　　(Reference to Load Factor Table)

Calculating the Service Life Time(L_h)

Based on the calculated nominal life, the Service Life Time is obtained through the following equation as if the stroke length and the value of reciprocations per minutes remain constant.

$$L_h=\frac{L\times10^6}{2\times\ell_s\times m\times60}$$

L_h:Service life time　　　(h)
ℓ_s:Stroke length　　　　(mm)
m:Rounds per minute　　(min^{-1})

Temperature Factor(f_T)

If the environmental temperature exceeds 100℃, take the adverse effect of the high temperature into account by multiplying the basic load ratings by the temperature factor.

Temperature Factor(f_T) Chart
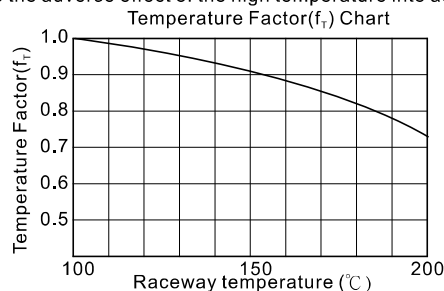
Load Factor(f_w)

In general, reciprocating machines tend to involve vibrations or impact during operation. it is extremely difficult to accurately determine the impact caused by high-speed motion or frequent start and stop motion. However, the calibrated load can be expected by experience.The basic load rating(C_a or C_{a0}) divide by load factor(f_w) in the following table to calibrate from speed effect and vibrations.

Load Factor Table		
Vibrations/Impact	Speed(V)	f_w
Faint	V≤0.25m/s	1~1.2
Weak	0.25<V≤1m/s	1.2~1.5

Stroke

When moving, roller cage will move along with rail about half of its moving distance. Therefore, distance between center of loads and roller cage will vary with motion. In order to maintain accuracy, please conform to 'Cross Reference Table for Max. Stroke & Roller Numbers' table when deciding specs.
EX: Choose spec for a roller diameter 6 mm, high accuracy type and desiring length of rails are 300 and 200 mm, desiring moving distance is 50 mm.
Refer to 'Cross Reference Table for Max. Stroke & Roller Numbers' : roller diameter 6 mm with 200 mm as shortest rail, its roller numbers can be R16 or R19, and admissible moving distance is 118 and 64 mm respectively.
Both roller numbers can meet the required working distance 50mm.

Mounting Screw

Tightening torque for fixing screw

Spec	Screw size	Tightening torque(N.m)
LGC1	M1.4X0.3PX6L	0.14
LGC2	M2.0X0.4PX8L	0.40
LGC3	M3.0X0.5PX9.5L	1.40
LGC4	M4.0X0.7PX16L	3.20
LGC6	M5.0X0.8PX20L	6.60

※High strenth screw is preferred.

Adjusting Screw

Tightening torque for fixing screw

Spec	Screw size	Tightening torque(N.m)
LGC1	M2	0.008
LGC2	M3	0.012
LGC3	M4	0.05
LGC4	M4	0.08
LGC6	M5	0.2

Gap between adjusting screws

It must have more than 2 of adjusting screws even the rails are short.
When the rails are long, the gap between adjusting screws are recommended in the table below:

Spec	Gap between adjusting screws(mm)
LGC1	10
LGC2	15
LGC3	25
LGC4	40

Mounting screw

Adjusting screw
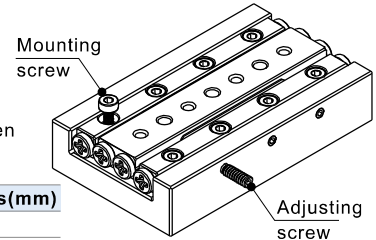
Allowable preload

Excessive preload will cause dents or shorten the lifetime, refer to the table below for allowable preload clearance. And check the amount of displacement of roller contact part while tightening the adjustment screw.

Spec	LGC1	LGC2	LGC3	LGC4
Allowable preload (um)	-2	-3	-4	-5

Precautions on dispensing

To avoid the screws from falling off by vibration, the screws thread can be dispensed before tightening.
However, glue should not spill onto the roller and its contact surface to avoid affecting the walking accuracy.

Precautions on lubrication

1. Linear guides have been treated with anti-rust oil in the factory. Before use, wipe the rail and treat with lubrication.
2. When adding grease, in order to avoid the sliding resistance caused by uneven oil film, run back and forth several times before operation.
3. Do not mix lubricating oil (grease)with different properties . Even if the thickeners of different grease are the same, they may affect each other due to different additives.
4. In special environments such as places with frequent vibration, clean rooms, vacuum, low temperature or high temperature, use grease that meets the specifications and environment.
5. Pay attention to that the consistency of the grease changes depending on the temperature, so the sliding resistance also changes.
6. After adding grease, excess grease may splash around during operation, so wipe excess grease before using it when necessary.
7. In order to avoid insufficient lubrication caused by grease loss, grease inspection and replenishment are required according to the frequency of use. The lubrication frequency varies depending on the use conditions and the environment, hence the lubrication frequency and replenishment should be set according to the actual operation .

Precautions on safety

1. In high-speed use or bearing bias load, vibration, etc., roller cage offset may occur (Note 1), to avoid excessive extrusion, the stroke must be reserved when using, it is recommended that the operating stroke is slightly less than the maximum stroke to avoid cage extrusion damage.
2. In order to obtain a high walking accuracy, it is recommended that therail mounting surface should be ground to reach the same level or higher level to the parallelism and flatness of the rail, and the rails should be installed correctly close to the mounting surface.
3. Be sure to remove the burrs, dents, dust, foreign objects, etc. of the rail mounting surface on the slide table and base, and pay attention to protection during assembly.When adjusting the preload, it is generally recommended to apply no or very small preload. Excessive preload can cause indentation damages and shorten the service life.

Precautions on use

1.Caution in handling
Dropping crossed roller way may cause damage on surface and further affect its accuracy, and even jerks during movement.
2. Adjustment
Fail to adjust the preload or mounting surfaces correctly will affect the product lifetime and accuracy. Make sure to assemble, install,
and adjust the product with care. Appropriate preload will help with rigidity and accuracy; yet overloading the crossed roller way will result in damages and deformation. On installation, please follow the installation procedure and recommended torque.
3. Use as a Set
The accuracy of crossed roller guide is controlled as a set. Accuracy is not guaranteed when mixing parts from different sets.
4. Allowable Load
Definition of allowable load is the maximum loads applied on crossed roller to cause acceptable elastic deformation while maintain a smooth movement. When working condition requires high accuracy and smooth movement, be sure load applied on product is under allowable load.
5. Cage Slippage
The roller cage could slip under high speed motion, vertical use application, unbalanced load, and vibration conditions.
Avoiding excessive loads is recommended. Meanwhile, using crossed roller within range of allowable stroke while applying safety factors will help avoid compression and damage.
6. Possible causes of cage offset
A.Vertical installation   B.High speed or high acceleration application.   C.Thermal deformation.
D.Structure rigidity or accuracy of the base or slide table are insufficient. E.Incorrect installation (the railsare not correctly aligned or have uneven preload)
7. Method of avoiding cage offset
During use, perform full-stroke movement multiple times to move the cage to the center position.
In vertical installation, the cage is affected by gravity and offset probability increases, hence the stroke must be reserved, if the situation is not improved, LRM/LSH series are recommended to use, in this case cage offset will not happen.