Determining the Accuracy

Accuracy Standards

Accuracy of the LM Guide is specified in terms of running parallelism, dimensional tolerance for height and width, and height and width difference between a pair when 2 or more LM blocks are used on one rail or when 2 or more rails are mounted on the same plane.
For details, see “Accuracy Standard for Each Model” on A1-77 to A1-87.

[Running of Parallelism]

It refers to the tolerance for parallelism between the LM block and the LM rail reference surface when the LM block travels the whole length of the LM rail with the LM rail secured on the reference reference surface using bolts.

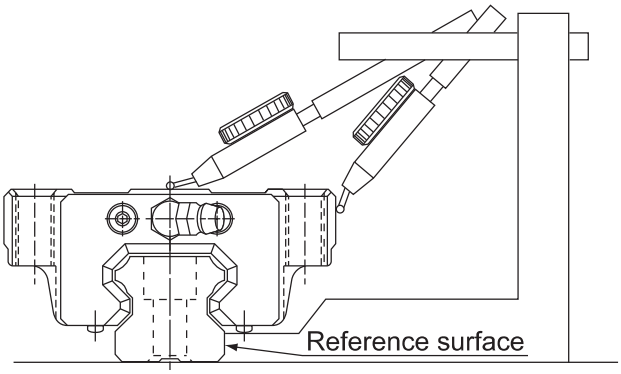

Fig.11 Running of Parallelism

[Difference in Height M]

Indicates a difference between the minimum and maximum values of height (M) of each of the LM blocks used on the same plane in combination.

[Difference in Width W_2]

Indicates a difference between the minimum and maximum values of the width (W_2) between each of the LM blocks, mounted on one LM rail in combination, and the LM rail.

Note 1) When two or more rails are used on the same plane in parallel, this applies only to the difference in width (W_2) and dimensional tolerance of the master rail. Please specify if you wish for it to apply to the difference in width and dimensional tolerance of the subsidiary rail as well. Master LM rails will have a serial number ending with “KB” printed on them. However, this is not the case for standard grade products.

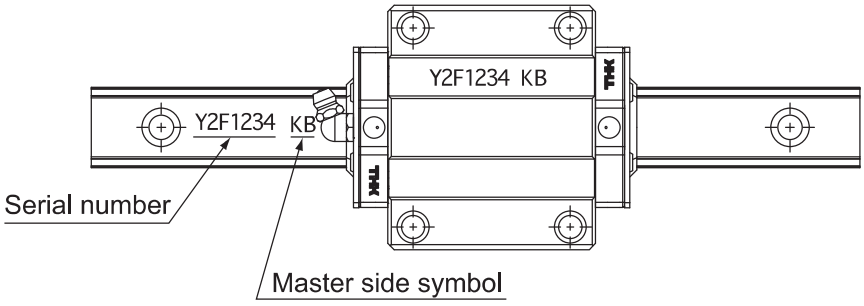

Fig.12 Master LM Rail (E.g. Model HSR-A)

Note 2) Accuracy measurements each represent the average value of the central point or the central area of the LM block.
Note 3) If it is mounted on a less rigid base such as an aluminum base, the curve of the rail will affect the accuracy of the machine. Therefore, it is necessary to define straightness of the rail in advance.

Guidelines for Accuracy Grades by Machine Type

Table13 shows guidelines for selecting an accuracy grade of the LM Guide according to the machine type.

Table13 Guideline for Accuracy Grades by Machine Type

Type of machine		Accuracy grades				
		Normal	H	P	SP	UP
Machine tool	Machining center			●	●	
	Lathe			●	●	
	Milling machine			●	●	
	Boring machine			●	●	
	Jig borer				●	●
	Grinding machine				●	●
	Electric discharge machine			●	●	●
	Punching press		●	●		
	Laser beam machine		●	●	●	
	Woodworking machine	●	●	●		
	NC drilling machine		●	●		
	Tapping center		●	●		
	Palette changer	●				
	ATC	●				
	Wire cutting machine			●	●	
	Dressing machine				●	●
Industrial robot	Cartesian coordinate	●	●	●		
	Cylindrical coordinate	●	●			
Semiconductor manufacturing equipment	Wire bonding machine			●	●	
	Prober				●	●
	Electronic component inserter		●	●		
	Printed circuit board drilling machine		●	●	●	
Other equipment	Injection molding machine	●	●			
	3D measuring instrument				●	●
	Office equipment	●	●			
	Conveyance system	●	●			
	XY table		●	●	●	
	Coating machine	●	●			
	Welding machine	●	●			
	Medical equipment	●	●			
	Digitizer		●	●	●	
	Inspection equipment			●	●	●

Normal : Normal grade
H : High accuracy grade
P : Precision grade
SP : Super precision grade
UP : Ultra precision grade

Accuracy Standard for Each Model

- Accuracies of models SHS, SSR, SVR/SVS, SHW, HSR, SR, NR-X/NRS-X, NR/NRS, HRW, NSR-TBC, HSR-M1, HSR-M1VV, SR-M1, HSR-M2, SRG and SRN are categorized into Normal grade (no symbol), High accuracy grade (H), Precision grade (P), Super precision grade (SP) and Ultra precision grade (UP) by model numbers, as indicated in Table15 on A1-78.

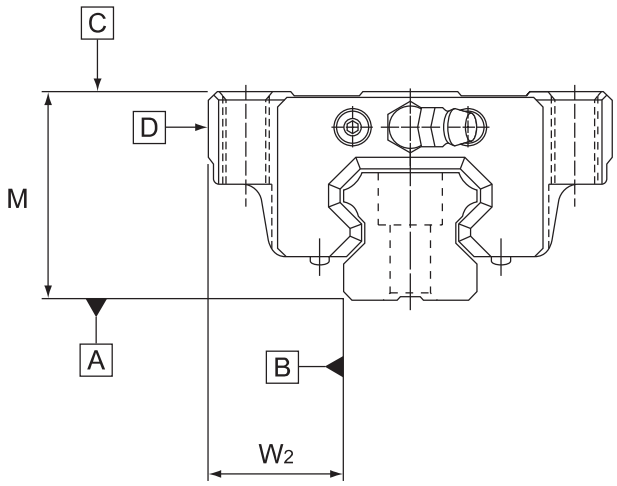

Fig.13

Table14 LM Rail Length and Running Parallelism by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values				
Above	Or less	Normal grade	High-accuracy grade	Precision grade	Super precision grade	Ultra precision grade
—	50	5	3	2	1.5	1
50	80	5	3	2	1.5	1
80	125	5	3	2	1.5	1
125	200	5	3.5	2	1.5	1
200	250	6	4	2.5	1.5	1
250	315	7	4.5	3	1.5	1
315	400	8	5	3.5	2	1.5
400	500	9	6	4.5	2.5	1.5
500	630	11	7	5	3	2
630	800	12	8.5	6	3.5	2
800	1000	13	9	6.5	4	2.5
1000	1250	15	11	7.5	4.5	3
1250	1600	16	12	8	5	4
1600	2000	18	13	8.5	5.5	4.5
2000	2500	20	14	9.5	6	5
2500	3090	21	16	11	6.5	5.5

Table15 Accuracy Standards for Models SHS, SSR, SVR/SVS, SHW, HSR, SR, NR-X/NRS-X, NR/NRS, HRW, NSR-TBC, HSR-M1, HSR-M1VV, SR-M1, HSR-M2, SRG, and SRN.

Unit: mm

Model No.	Accuracy standards	Normal grade	High-accuracy grade	Precision grade	Super precision grade	Ultra precision grade
	Item	No Symbol	H	P	SP	UP
8 10 12 14	Dimensional tolerance in height M	±0.07	±0.03	±0.015	±0.007	—
	Difference in height M	0.015	0.007	0.005	0.003	—
	Dimensional tolerance in width W_2	±0.04	±0.02	±0.01	±0.007	—
	Difference in width W_2	0.02	0.01	0.006	0.004	—
	Running parallelism of surface C against surface A	As shown in Table14 A1-77				
	Running parallelism of surface D against surface B	As shown in Table14 A1-77				
15 17 20 21	Dimensional tolerance in height M	±0.07	±0.03	0 –0.03	0 –0.015	0 –0.008
	Difference in height M	0.02	0.01	0.006	0.004	0.003
	Dimensional tolerance in width W_2	±0.06	±0.03	0 –0.02	0 –0.015	0 –0.008
	Difference in width W_2	0.02	0.01	0.006	0.004	0.003
	Running parallelism of surface C against surface A	As shown in Table14 A1-77				
	Running parallelism of surface D against surface B	As shown in Table14 A1-77				
25 27 30 35	Dimensional tolerance in height M	±0.08	±0.04	0 –0.04	0 –0.02	0 –0.01
	Difference in height M	0.02	0.015	0.007	0.005	0.003
	Dimensional tolerance in width W_2	±0.07	±0.03	0 –0.03	0 –0.015	0 –0.01
	Difference in width W_2	0.025	0.015	0.007	0.005	0.003
	Running parallelism of surface C against surface A	As shown in Table14 A1-77				
	Running parallelism of surface D against surface B	As shown in Table14 A1-77				
40 45 50 55 60	Dimensional tolerance in height M	±0.08	±0.04	0 –0.05	0 –0.03	0 –0.015
	Difference in height M	0.025	0.015	0.007	0.005	0.003
	Dimensional tolerance in width W_2	±0.07	±0.04	0 –0.04	0 –0.025	0 –0.015
	Difference in width W_2	0.03	0.015	0.007	0.005	0.003
	Running parallelism of surface C against surface A	As shown in Table14 A1-77				
	Running parallelism of surface D against surface B	As shown in Table14 A1-77				
65 70 75 85 100 120 150	Dimensional tolerance in height M	±0.08	±0.04	0 –0.05	0 –0.04	0 –0.03
	Difference in height M	0.03	0.02	0.01	0.007	0.005
	Dimensional tolerance in width W_2	±0.08	±0.04	0 –0.05	0 –0.04	0 –0.03
	Difference in width W_2	0.03	0.02	0.01	0.007	0.005
	Running parallelism of surface C against surface A	As shown in Table14 A1-77				
	Running parallelism of surface D against surface B	As shown in Table14 A1-77				

Note1) Models SRG35 to 65 are available in high accuracy grade and above. Other models are only available in precision grade or above. (Normal grade is not available.)

Note2) Model SRN is available in high accuracy grade or above. (Normal grade is not available.)

- Accuracies of model HMG are defined by model number as indicated in Table16.

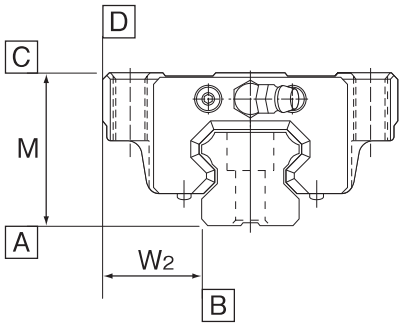

Fig.14

Table16 Model HMG Accuracy Standard

Unit: mm

Model No.	Accuracy Standards	Normal grade
	Item	No symbol
15	Dimensional tolerance in height M	±0.1
	Difference in height M	0.02
	Dimensional tolerance in width W_2	±0.1
	Difference in width W_2	0.02
	Running parallelism of surface C against surface A	as shown in Table17
	Running parallelism of surface D against surface B	as shown in Table17
25 35	Dimensional tolerance in height M	±0.1
	Difference in height M	0.02
	Dimensional tolerance in width W_2	±0.1
	Difference in width W_2	0.03
	Running parallelism of surface C against surface A	as shown in Table17
	Running parallelism of surface D against surface B	as shown in Table17
45 65	Dimensional tolerance in height M	±0.1
	Difference in height M	0.03
	Dimensional tolerance in width W_2	±0.1
	Difference in width W_2	0.03
	Running parallelism of surface C against surface A	as shown in Table17
	Running parallelism of surface D against surface B	as shown in Table17

Table17 LM Rail Length and Running Parallelism by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values
Above	Or less	Normal grade
—	125	30
125	200	37
200	250	40
250	315	44
315	400	49
400	500	53
500	630	58
630	800	64
800	1000	70
1000	1250	77
1250	1600	84
1600	2000	92

- Accuracies of model HCR are categorized into normal and high accuracy grades by model number as indicated in Table18.

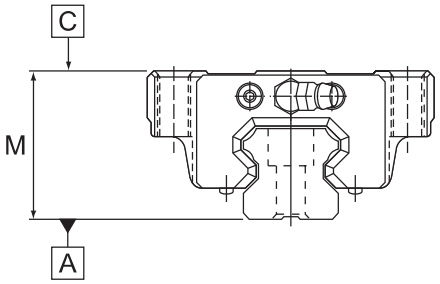

Fig.15

Table18 Accuracy Standard for Model HCR

Unit: mm

Model No.	Accuracy standards	Normal grade	High-accuracy grade
	Item	No Symbol	H
12 15 25 35	Dimensional tolerance in height M	±0.2	±0.2
	Difference in height M	0.05	0.03
	Running parallelism of surface C against surface A	as shown in Table19	
45 65	Dimensional tolerance in height M	±0.2	±0.2
	Difference in height M	0.06	0.04
	Running parallelism of surface C against surface A	as shown in Table19	

Table19 LM Rail Length and Running Parallelism by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values	
Above	Or less	Normal grade	High-accuracy grade
—	125	30	15
125	200	37	18
200	250	40	20
250	315	44	22
315	400	49	24
400	500	53	26
500	630	58	29
630	800	64	32
800	1000	70	35
1000	1250	77	38
1250	1600	84	42
1600	2000	92	46

- Accuracies of model JR are defined by model number as indicated in Table20.

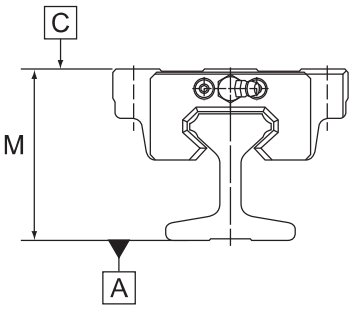

Fig.16

Table20 Accuracy Standard for Model JR

Unit: mm

Model No.	Accuracy standards	Normal grade
	Item	No Symbol
25 35	Difference in height M	0.05
	Running parallelism of surface C against surface A	as shown in Table21
45 55	Difference in height M	0.06
	Running parallelism of surface C against surface A	as shown in Table21

Table21 LM Rail Length and Running Parallelism by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values
Above	Or less	Normal grade
—	50	5
50	80	5
80	125	5
125	200	6
200	250	8
250	315	9
315	400	11
400	500	13
500	630	15
630	800	17
800	1000	19
1000	1250	21
1250	1600	23
1600	2000	26
2000	2500	28
2500	3150	30
3150	4000	33

- Accuracies of models SCR and CSR are categorized into precision, super precision and ultra precision grades by model number as indicated in Table22.

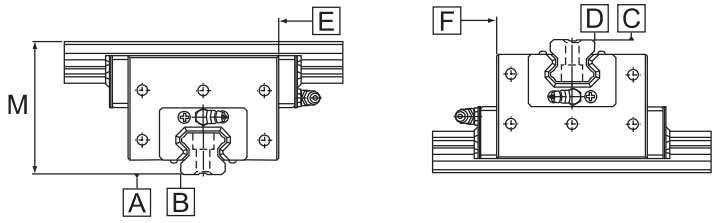

Fig.17

Table22 Accuracy Standard for Models SCR and CSR

Unit: mm

Model No.	Accuracy standards	Precision grade	Super precision grade	Ultra precision grade
	Item	P	SP	UP
15 20	Difference in height M	0.01	0.007	0.005
	Perpendicularity of surface D against surface B	0.005	0.004	0.003
	Running parallelism of surface E against surface B	as shown in Table23		
	Running parallelism of surface F against surface D	as shown in Table23		
25	Difference in height M	0.01	0.007	0.005
	Perpendicularity of surface D against surface B	0.008	0.006	0.004
	Running parallelism of surface E against surface B	as shown in Table23		
	Running parallelism of surface F against surface D	as shown in Table23		
30 35	Difference in height M	0.01	0.007	0.005
	Perpendicularity of surface D against surface B	0.01	0.007	0.005
	Running parallelism of surface E against surface B	as shown in Table23		
	Running parallelism of surface F against surface D	as shown in Table23		
45	Difference in height M	0.012	0.008	0.006
	Perpendicularity of surface D against surface B	0.012	0.008	0.006
	Running parallelism of surface E against surface B	as shown in Table23		
	Running parallelism of surface F against surface D	as shown in Table23		
65	Difference in height M	0.018	0.012	0.009
	Perpendicularity of surface D against surface B	0.018	0.012	0.009
	Running parallelism of surface E against surface B	as shown in Table23		
	Running parallelism of surface F against surface D	as shown in Table23		

Table23 LM Rail Length and Running Parallelism by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values		
Above	Or less	Precision grade	Super precision grade	Ultra precision grade
—	50	2	1.5	1
50	80	2	1.5	1
80	125	2	1.5	1
125	200	2	1.5	1
200	250	2.5	1.5	1
250	315	3	1.5	1
315	400	3.5	2	1.5
400	500	4.5	2.5	1.5
500	630	5	3	2
630	800	6	3.5	2
800	1000	6.5	4	2.5
1000	1250	7.5	4.5	3
1250	1600	8	5	4
1600	2000	8.5	5.5	4.5
2000	2500	9.5	6	5
2500	3090	11	6.5	5.5

- Accuracies of model HR are categorized into normal, high accuracy, precision, super precision and ultra precision grades as indicated in Table24.

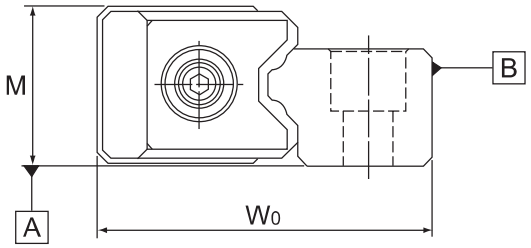

Fig.18

Table24 Accuracy Standard for Model HR

Unit: mm

Accuracy standards	Normal grade	High-accuracy grade	Precision grade	Super precision grade	Ultra precision grade
Item	No Symbol	H	P	SP	UP
Dimensional tolerance in height M	±0.1	±0.05	±0.025	±0.015	±0.01
Difference in height M Note 1)	0.03	0.02	0.01	0.005	0.003
Dimensional tolerance for total width W_0	±0.1		±0.05		
Difference in total width W_0 Note 2)	0.03	0.015	0.01	0.005	0.003
Parallelism of the raceway against surfaces A and B	as shown in Table25				

Note 1) Difference in height M applies to a set of LM Guides used on the same plane.
Note 2) Difference in total width W_0 applies to LM blocks used in combination on one LM rail.
Note 3) In a set of LM Guides, dimensional tolerance and difference in total width W_0 for precision and higher grades apply only to the master rail. The Master LM Guide will have a serial number ending with "KB" printed on it.

Table25 LM Rail Length and Running Parallelism by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values				
Above	Or less	Normal grade	High-accuracy grade	Precision grade	Super precision grade	Ultra precision grade
—	50	5	3	2	1.5	1
50	80	5	3	2	1.5	1
80	125	5	3	2	1.5	1
125	200	5	3.5	2	1.5	1
200	250	6	4	2.5	1.5	1
250	315	7	4.5	3	1.5	1
315	400	8	5	3.5	2	1.5
400	500	9	6	4.5	2.5	1.5
500	630	11	7	5	3	2
630	800	12	8.5	6	3.5	2
800	1000	13	9	6.5	4	2.5
1000	1250	15	11	7.5	4.5	3
1250	1600	16	12	8	5	4
1600	2000	18	13	8.5	5.5	4.5
2000	2500	20	14	9.5	6	5
2500	3000	21	16	11	6.5	5.5

- Accuracies of model GSR are categorized into normal, high accuracy and precision grades by model number as indicated in Table26.

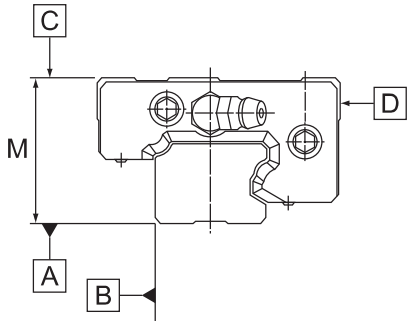

Fig.19

Table26 Accuracy Standard for Model GSR

Unit: mm

Model No.	Accuracy standards	Normal grade	High-accuracy grade	Precision grade
	Item	No Symbol	H	P
15 20	Dimensional tolerance in height M	±0.02		
	Running parallelism of surface C against surface A	as shown in Table27		
	Running parallelism of surface D against surface B	as shown in Table27		
25 30 35	Dimensional tolerance in height M	±0.03		
	Running parallelism of surface C against surface A	as shown in Table27		
	Running parallelism of surface D against surface B	as shown in Table27		

Table27 LM Rail Length and Running Parallelism by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values		
Above	Or less	Normal grade	High-accuracy grade	Precision grade
—	50	5	3	2
50	80	5	3	2
80	125	5	3	2
125	200	5	3.5	2
200	250	6	4	2.5
250	315	7	4.5	3
315	400	8	5	3.5
400	500	9	6	4.5
500	630	11	7	5
630	800	12	8.5	6
800	1000	13	9	6.5
1000	1250	15	11	7.5
1250	1600	16	12	8
1600	2000	18	13	8.5
2000	2500	20	14	9.5
2500	3000	21	16	11

- Accuracies of model GSR-R are categorized into normal and high accuracy grades by model number as indicated in Table28.

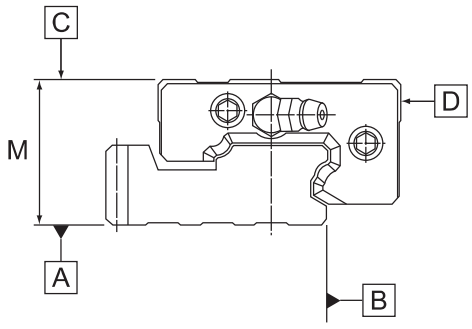

Fig.20

Table28 Accuracy Standard for GSR-R

Unit: mm

Model No.	Accuracy standards	Normal grade	High-accuracy grade
	Item	No Symbol	H
25 30 35	Dimensional tolerance in height M	±0.03	
	Running parallelism of surface C against surface A	as shown in Table29	
	Running parallelism of surface D against surface B	as shown in Table29	

Table29 LM Rail Length and Running Parallelism by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values	
Above	Or less	Normal grade	High-accuracy grade
—	50	5	3
50	80	5	3
80	125	5	3
125	200	5	3.5
200	250	6	4
250	315	7	4.5
315	400	8	5
400	500	9	6
500	630	11	7
630	800	12	8.5
800	1000	13	9
1000	1250	15	11
1250	1600	16	12
1600	2000	18	13

- Accuracies of models SRS, RSX, RSR, RSX-M1, and RSR-M1 are categorized into normal, high accuracy, and precision grades by model number as indicated in Table30.

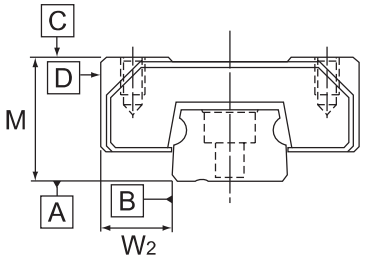

Fig.21

Table30 Accuracy Standards for Models SRS, RSX, RSR, RSX-M1, and RSR-M1

Unit: mm

Model No.	Accuracy standards	Normal grade	High-accuracy grade	Precision grade
	Item	No Symbol	H	P
3 5	Dimensional tolerance in height M	±0.03	—	±0.015
	Difference in height M	0.015	—	0.005
	Dimensional tolerance in width W_2	±0.03	—	±0.015
	Difference in width W_2	0.015	—	0.005
	Running parallelism of surface C against surface A	as shown in Table31		
	Running parallelism of surface D against surface B	as shown in Table31		
7 9 12 14 15 20 25	Dimensional tolerance in height M	±0.04	±0.02	±0.01
	Difference in height M	0.03	0.015	0.007
	Dimensional tolerance in width W_2	±0.04	±0.025	±0.015
	Difference in width W_2	0.03	0.02	0.01
	Running parallelism of surface C against surface A	as shown in Table32		
	Running parallelism of surface D against surface B	as shown in Table32		

Table31 LM Rail Length and Running Parallelism for Models SRS5, RSX5 and RSR3 by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values	
Above	Or less	Normal grade	Precision grade
—	25	2.5	1.5
25	50	3.5	2
50	100	5.5	3
100	150	7	4
150	200	8.4	5

Table32 LM Rail Length and Running Parallelism for Models SRS7 to SRS25, RSX7 to RSX15, and RSR9 to RSR15 by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values		
Above	Or less	Normal grade	High-accuracy grade	Precision grade
—	40	8	4	1
40	70	10	4	1
70	100	11	4	2
100	130	12	5	2
130	160	13	6	2
160	190	14	7	2
190	220	15	7	3
220	250	16	8	3
250	280	17	8	3
280	310	17	9	3
310	340	18	9	3
340	370	18	10	3
370	400	19	10	3
400	430	20	11	4
430	460	20	12	4
460	520	21	12	4
520	550	22	12	4
550	640	22	13	4
640	670	23	13	4
670	700	23	13	5
700	820	23	14	5
820	850	24	14	5
850	970	24	15	5
970	1030	25	16	5
1030	1150	25	16	6
1150	1330	26	17	6
1330	1420	27	18	6
1420	1510	27	18	7
1510	1830	28	19	7
1830	2000	28	19	8

Table33 LM Rail Length and Running Parallelism for Model RSR2 by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values	
Above	Or less	Normal grade	Precision grade
—	25	2	1
25	50	2	1
50	75	2.5	1
75	100	3.5	1
100	125	4	1.5
125	150	5	1.5
150	175	5.5	2
175	200	6	2

- Accuracies of model MX are categorized into normal and precision grades by model number as indicated in Table34.

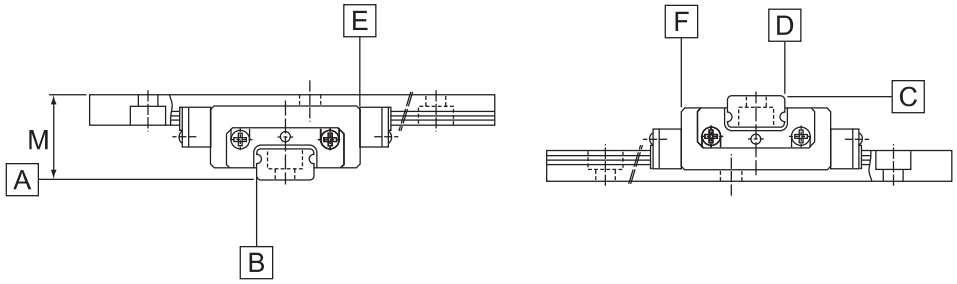

Fig.22

Table34 Accuracy Standard for Model MX

Unit: mm

Model No.	Accuracy standards	Normal grade	Precision grade
	Item	No Symbol	P
5	Difference in height M	0.015	0.005
	Perpendicularity of surface D against surface B	0.003	0.002
	Running parallelism of surface E against surface B	as shown in Table35	
	Running parallelism of surface F against surface D	as shown in Table35	
7	Difference in height M	0.03	0.007
	Perpendicularity of surface D against surface B	0.01	0.005
	Running parallelism of surface E against surface B	as shown in Table36	
	Running parallelism of surface F against surface D	as shown in Table36	

Table35 LM Rail Length and Running Parallelism for Model MX5 by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values	
Above	Or less	Normal grade	Precision grade
—	25	2.5	1.5
25	50	3.5	2
50	100	5.5	3
100	150	7	4
150	200	8.4	5

Table36 LM Rail Length and Running Parallelism for Model MX7 by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values	
Above	Or less	Normal grade	Precision grade
—	40	8	1
40	70	10	1
70	100	11	2
100	130	12	2
130	160	13	2
160	190	14	2
190	220	15	3
220	250	16	3
250	280	17	3
280	310	17	3
310	340	18	3
340	370	18	3
370	400	19	3

- Accuracies of model SRW are categorized into precision, super precision and ultra precision grades by model number as indicated in Table37.

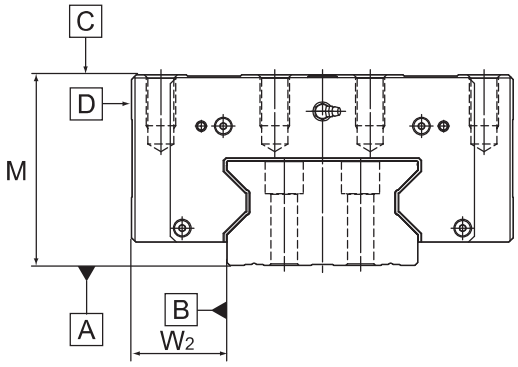

Fig.23

Table37 Accuracy Standard for Model SRW

Unit: mm

Model No.	Accuracy standards	Precision grade	Super precision grade	Ultra precision grade
	Item	P	SP	UP
70 85	Dimensional tolerance in height M	0 –0.05	0 –0.03	0 –0.015
	Difference in height M	0.007	0.005	0.003
	Dimensional tolerance in width W_2	0 –0.04	0 –0.025	0 –0.015
	Difference in width W_2	0.007	0.005	0.003
	Running parallelism of surface C against surface A	as shown in Table38		
	Running parallelism of surface D against surface B	as shown in Table38		
100	Dimensional tolerance in height M	0 –0.05	0 –0.04	0 –0.03
	Difference in height M	0.01	0.007	0.005
	Dimensional tolerance in width W_2	0 –0.05	0 –0.04	0 –0.03
	Difference in width W_2	0.01	0.007	0.005
	Running parallelism of surface C against surface A	as shown in Table38		
	Running parallelism of surface D against surface B	as shown in Table38		
130 150	Dimensional tolerance in height M	0 –0.05	0 –0.04	0 –0.03
	Difference in height M	0.01	0.007	0.005
	Dimensional tolerance in width W_2	0 –0.05	0 –0.04	0 –0.03
	Difference in width W_2	0.01	0.007	0.005
	Running parallelism of surface C against surface A	as shown in Table38		
	Running parallelism of surface D against surface B	as shown in Table38		

Table38 LM Rail Length and Running Parallelism by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism values		
Above	Or less	Precision grade	Super precision grade	Ultra precision grade
—	50	2	1.5	1
50	80	2	1.5	1
80	125	2	1.5	1
125	200	2	1.5	1
200	250	2.5	1.5	1
250	315	3	1.5	1
315	400	3.5	2	1.5
400	500	4.5	2.5	1.5
500	630	5	3	2
630	800	6	3.5	2
800	1000	6.5	4	2.5
1000	1250	7.5	4.5	3
1250	1600	8	5	4
1600	2000	8.5	5.5	4.5
2000	2500	9.5	6	5
2500	3090	11	6.5	5.5

- Accuracies of model EPF are categorized into normal, high accuracy and precision grades by model number as indicated in Table39.

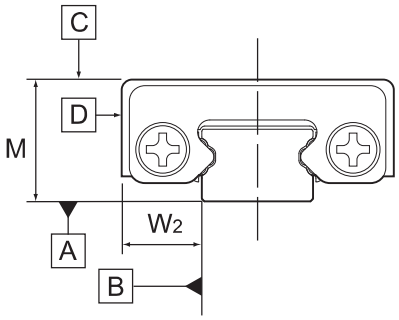

Fig.24

Table39 Accuracy Standard for Model EPF

Unit: mm

Model No.	Accuracy Standards	Normal grade	High-accuracy grade	Precision grade
	Item	No Symbol	H	P
7M 9M 12M 15M	Dimensional tolerance in height M	±0.04	±0.02	±0.01
	Difference in height M	0.03	0.015	0.007
	Dimensional tolerance in width W_2	±0.04	±0.025	±0.015
	Running parallelism of surface C against surface A(Note)	0.008	0.004	0.001
	Running parallelism of surface D against surface B(Note)	0.008	0.004	0.001

Note) If the stroke is more than 40 mm, contact THK.