

1.6. Accuracy Standards

The accuracy of model KR is defined in positioning repeatability, positioning accuracy, backlash and running parallelism.

●Positioning Repeatability

After repeating positioning to a given point in the same direction seven times, measure the halting point and obtain the value of half the maximum difference. Perform this measurement in the center and both ends of the travel distance, use the maximum value as the measurement value and express the value of half the maximum difference with symbol " \pm " as positioning repeatability.

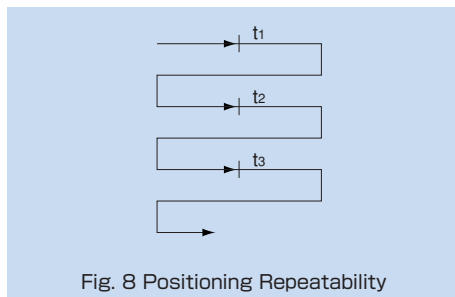


Fig. 8 Positioning Repeatability

●Positioning Accuracy

Using the maximum stroke as the reference length, express the maximum error between the actual distance traveled from the reference point and the command value in an absolute value as positioning accuracy.

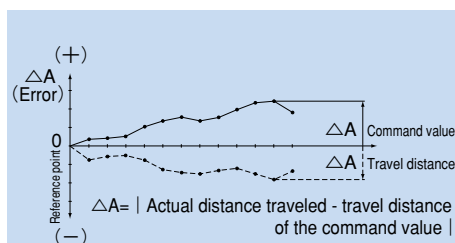


Fig. 9 Positioning Accuracy

●Backlash

Feed and slightly move the nut block and read the measurement on the test indicator as the reference value. Subsequently, apply a load to the nut block from the same direction (table feed direction), and then release the nut block from the load. Use the difference between the reference value and the return as the backlash measurement. Perform this measurement in the center and near both ends, use the maximum value as the measurement value.

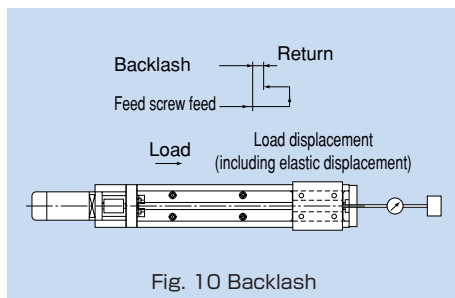


Fig. 10 Backlash

●Running Parallelism

Place a straightedge on the surface table where model KR is mounted, measure almost throughout the travel distance of the nut block using a test indicator. Use the maximum difference among the readings within the travel distance as the running parallelism measurement.

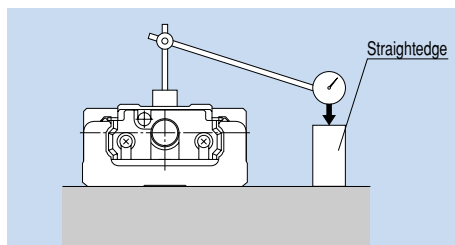


Fig. 11 Running Parallelism

The accuracies of model KR are classified into normal grade (no symbol), high grade (H) and precision grade (P). Tables below show standards for all the accuracies.

Table 7-1 Normal Grade (No Symbol)

Unit: mm

Model No.	LM rail length	Positioning repeatability	Positioning accuracy	Running parallelism	Backlash	Starting torque (N·cm)
KR 20	100	±0.01	No standard defined	No standard defined	0.02	0.5
	150					
	200					
KR 26	150	±0.01	No standard defined	No standard defined	0.02	1.5
	200					
	250					
KR 30H	300	±0.01	No standard defined	No standard defined	0.02	7
	150					
	200					
	300					
	400					
KR 33	500	±0.01	No standard defined	No standard defined	0.02	7
	600					
	150					
	200					
	300					
KR 45H	400	±0.01	No standard defined	No standard defined	0.02	10
	500					
	600					
	340					
	440					
	540					
KR 46	640	±0.01	No standard defined	No standard defined	0.02	10
	740					
	840					
	940					
	340					
KR 55	440	±0.01	No standard defined	No standard defined	0.05	12
	540					
	640					
	740					
	940					
KR 65	980	±0.01	No standard defined	No standard defined	0.05	12
	1080					
	1180					
	1280					
KR 65	1380	±0.012	No standard defined	No standard defined	0.05	15
	1680					
	1680					

Note: The evaluation method complies with THK standards.
 Note: For most models, the starting torque represents the value when lithium soap-group grease No. 2 is used.
 However, that of models KR20 and KR26 represents the value when THK AFA Grease is used, and that of KR15 represents the value when THK AFF Grease is used.

Note: If highly viscous grease such as vacuum grease and clean room grease is used, the actual starting torque may exceed the corresponding value in the table. Use much care in selecting a motor.

Table 7-2 High Grade (H)

Unit: mm

Model No.	LM rail length	Positioning repeatability	Positioning accuracy	Running parallelism	Backlash	Starting torque (N·cm)		
KR 15	75	±0.004	0.04	0.02	0.01	0.4		
	100							
	125							
	150							
	175							
200								
KR 20	100	±0.005	0.06	0.025	0.01	0.5		
	150							
	200							
KR 26	150	±0.005	0.06	0.025	0.01	1.5		
	200							
	250							
	300							
KR 30H	150	±0.005	0.06	0.025	0.02	7		
	200							
	300							
	400		0.1	0.035				
	500							
600								
KR 33	150	±0.005	0.06	0.025	0.02	7		
	200							
	300							
	400		0.1	0.035				
	500							
600								
KR 45H	340	±0.005	0.1	0.035	0.02	10		
	440							
	540							
	640		0.12	0.04				
	740							
	840							
940	0.15	0.05						
KR 46	340	±0.005	0.1	0.035	0.02	10		
	440							
	540							
	640		0.12	0.04				
	740							
940	0.15	0.05						
KR 55	980	±0.005	0.18	0.05	0.05	12		
	1080							
	1180		0.25					
	1280							
1380								
KR 65	980	±0.008	0.18	0.05	0.05	12		
	1180		0.2					
	1380							
	1680		0.28				0.055	15



Table 7-3 Precision Grade (P)

Unit: mm

Model No.	LM rail length	Positioning repeatability	Positioning accuracy	Running parallelism	Backlash	Starting torque (N·cm)
KR 15	75	±0.003	0.02	0.01	0.002	0.8
	100					
	125					
	150					
	175					
200						
KR 20	100	±0.003	0.02	0.01	0.003	1.2
	150					
	200					
KR 26	150	±0.003	0.02	0.01	0.003	4
	200					
	250					
	300					
KR 30H	150	±0.003	0.02	0.01	0.003	15
	200					
	300					
	400		0.025	0.015		
	500					
600						
KR 33	150	±0.003	0.02	0.01	0.003	15
	200					
	300					
	400		0.025	0.015		
	500					
600						
KR 45H	340	±0.003	0.025	0.015	0.003	15
	440					
	540					
	640		0.03	0.02		
	740					
KR 46	340	±0.003	0.025	0.015	0.003	15
	440					
	540					
	640		0.03	0.02		
	740					
KR 55	980	±0.005	0.035	0.025	0.003	17
	1180		0.04	0.03		20
KR 65	980	±0.005	0.035	0.025	0.005	20
	1180		0.04	0.03		22
	1380					

Note: The evaluation method complies with  standards.

Note: For most models, the starting torque represents the value when lithium soap-group grease No. 2 is used.

However, that of models KR20 and KR26 represents the value when  AFA Grease is used, and that of KR15 represents the value when  AFF Grease is used.

Note: If highly viscous grease such as vacuum grease and clean room grease is used, the actual starting torque may exceed the corresponding value in the table. Use much care in selecting a motor.