

Dimensions of LS Series (Interchangeable rail)



Example of reference number
Regular rail (non-butting rail)

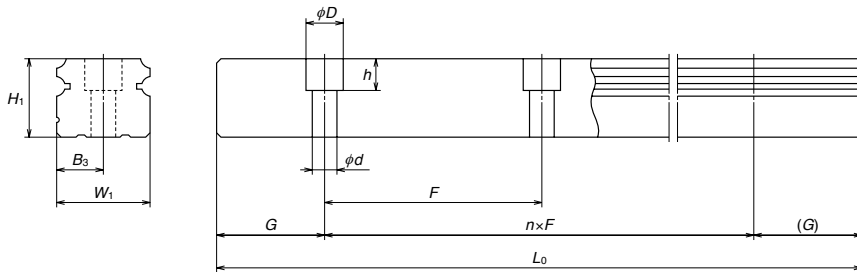
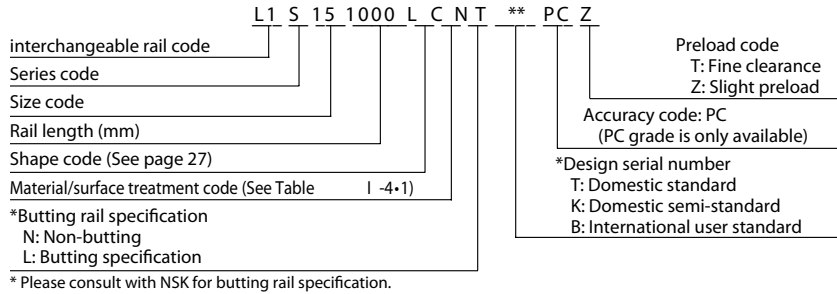


Table I -5•14

Model No.	Rail						Unit: mm	
	Width W ₁	Height H ₁	Pitch F	Mounting bolt hole d×D×h	B ₃	G Recommended	Max. length L _{MAX} () for stainless	Rail Weight (Kg / m)
L1S15	15	12.5	60	3.5×6×4.5* 4.5×7.5×5.3	7.5	20	2000 (1700)	1.4
L1S20	20	15.5	60	6×9.5×8.5	10	20	3960 (3500)	2.3
L1S25	23	18	60	7×11×9	11.5	20	3960 (3500)	3.1
L1S30	28	23	80	7×11×9	14	20	4000 (3500)	4.8
L1S35	34	27.5	80	9×14×12	17	20	4000 (3500)	7.0

G dimension is 1/2F^{-0.3} for butting rail.

* Standard mounting hole of LS15 rail is for M3 bolts (Hole size: 3.5×7.5×5.3).
If you require the mounting hole for M4 bolts (Hole size: 4.5×7.5×5.3), please specify it when ordering.

A-I -5.3 LA Series

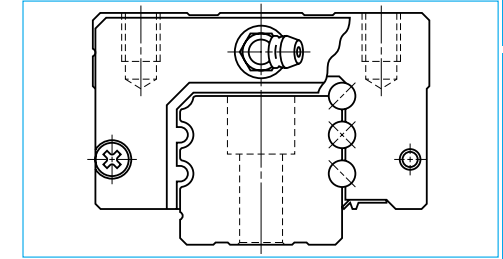
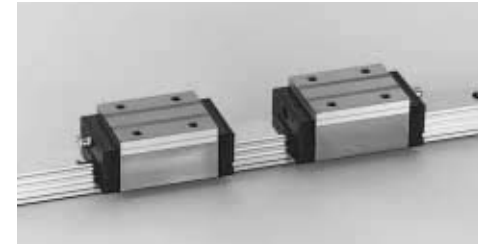


Fig. I -5•9 LA Series

(1) High rigidity and high load carrying capacity

A set of three ball grooves is made on both sides. This contributes to the increased rigidity and load carrying capacity. The top and bottom groove are formed in the circular arc with a closer radius of ball, which ensures great rigidity and load carrying capacity. With the gothic-arch center groove, rigidity and load carrying capacity are further increased.

(2) Moderate friction

A well-balanced combination of 2-point contacts at the top and bottom grooves and 4 points contact at the center groove provides moderate friction while ensuring rigidity by appropriate preload.

(3) Load distribution four directions

Contact angle is set at 45 degrees in all grooves, dispersing the load to four rows irrespective of load direction. This realizes equal rigidity and load carrying capacity in vertical and lateral directions and provides well-balanced design.

(4) Strong against shock load

Load from any direction, vertical and lateral, is received by four rows at all times. The number of the row which receives the load is larger than in other linear guides, making this series stronger against shock load.

(5) Highly accurate

Fixing the measuring rollers is easy thanks to the gothic-arch groove. Ball-groove measuring is accurate and simple. This benefits a highly precise and stable manufacturing.

(6) The dust protection design

The rail's cross section is designed as simple as possible. Furthermore, the improved seal enhances the sealing function. Inner seal is available as an option.

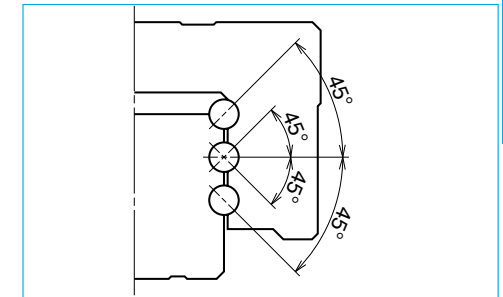


Fig. I -5•10 Super rigidity design

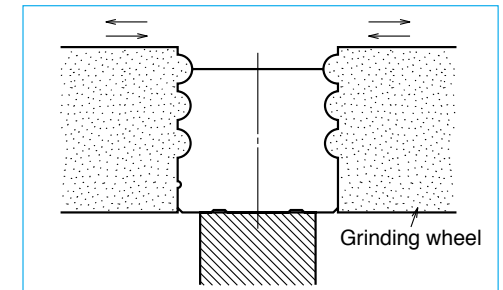


Fig. I -5•11 Rail grinding

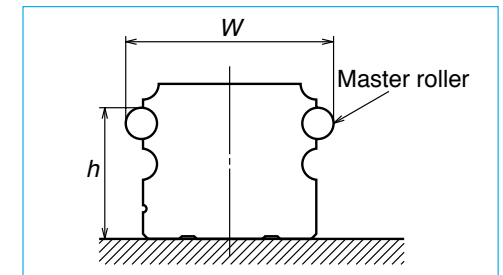
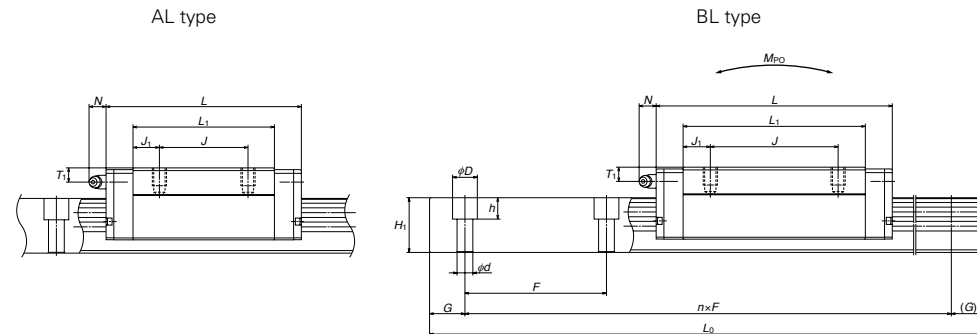
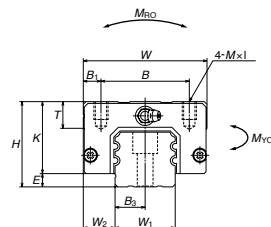
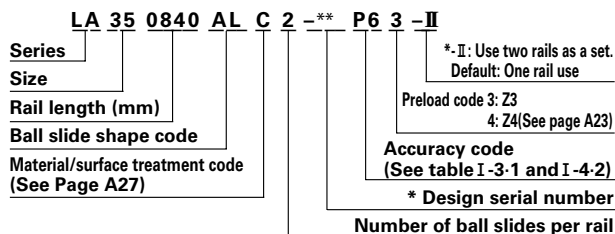


Fig. I -5•12 Measuring groove accuracy

Dimensions of LA Series (Preloaded assembly)

LA-AL (High load type)

LA-BL (Super high load type)



* Please note that we assign the design number, and omit the last code (II) that indicates a use of two rails as a set to finalize the reference number as product identification.

Table. I-5-15

Model No.	Assembly			Ball slide												
	Height H	E	W ₂	Width W	Length L	Mounting tap hole					Grease fitting					
						B	J	M×pitch×l	B ₁	L ₁	J ₁	K	T	Hole size	T ₁	N
LA25AL	36	5.5	12.5	48	79.8	35	35	M6×1×7	6.5	58	11.5	30.5	8	M6×0.75	6	11
LA25BL					107.8	50			86	18						
LA30AL	42	7.5	16	60	100.2	40	40	M8×1.25×10	10	72	16	34.5	11	M6×0.75	6.5	11
LA30BL					126.2	60			98	19						
LA35AL	48	7.5	18	70	110.6	50	50	M8×1.25×10	10	80	15	40.5	15	M6×0.75	8	11
LA35BL					144.6	72			114	21						
LA45AL	60	10	20.5	86	141.4	60	60	M10×1.5×16	13	105	22.5	50	17	Rc1/8	10	13
LA45BL					173.4	80			137	28.5						
LA55AL	70	12	23.5	100	165.4	75	75	M12×1.75×16	12.5	126	25.5	58	18	Rc1/8	11	13
LA55BL					203.4	95			164	34.5						

LA Series does not have a ball retainer. Be aware that balls fall out when the ball slider is withdrawn from the rail.

** LA25AL, BL and LA30AL, BL are the items on order. Please consult with NSK.

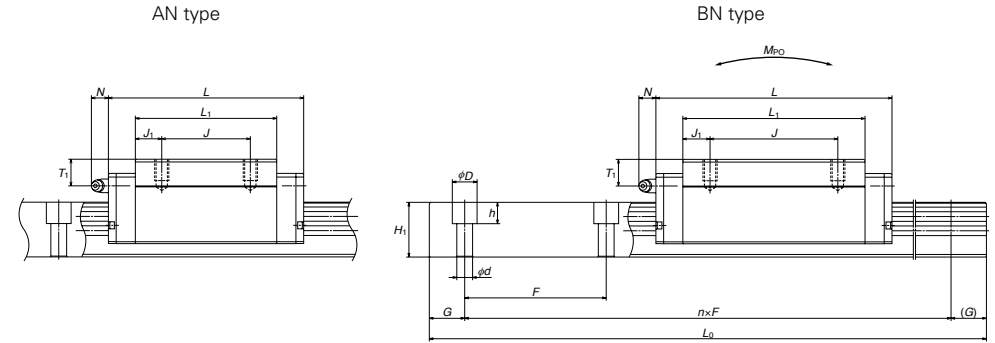
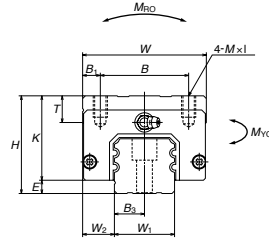
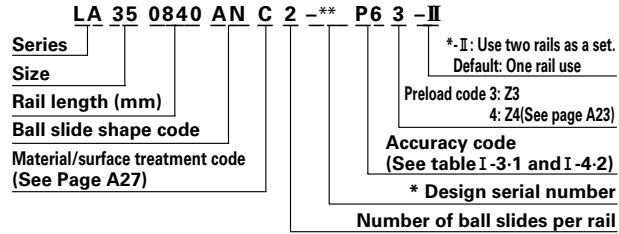
Unit: mm

Rail							Basic load rating					Ball dia.	Weight	
Width W ₁	Height H ₁	Pitch F	Mounting bolt hole d×D×h	B ₃	G (recomm ended)	Max. length L _{0max}	Dynamic C (N)	Static C ₀	Static moment			D _w	Ball slide (kg)	Rail (kg/m)
									M _{RO}	M _{EO}	M _{VO}			
23	22	60	7×11×9	11.5	20	3960	30000	50000	290	410	410	3.968	0.5	3.7
							40500	77000	445	935	935		0.8	
28	28	80	9×14×12	14	20	4000	47000	77500	535	820	820	4.762	0.8	5.8
							58000	105000	725	1470	1470		1.2	
34	30.8	80	9×14×12	17	20	4000	61500	98000	845	1130	1130	5.556	1.3	7.7
							80500	143000	1240	2330	2330		1.6	
45	36	105	14×20×17	22.5	22.5	3990	91000	148000	1840	2210	2210	6.350	2.5	12.0
							111000	197000	2460	3850	3850		3.2	
53	43.2	120	16×23×20	26.5	30	3960	139000	215000	3150	3800	3800	7.937	3.9	17.2
							172000	292000	4250	6800	6800		5.1	

The basic dynamic load rating is a load that furnishes 50 km rating fatigue life; it is a vertical and constant load to the ball slide mounting surface.

When converting the basic dynamic load rating C to the dynamic load rating C₁₀₀ for 100 km rating fatigue life, divide the C by 1.26

LA-AN (High load type)
LA-BN (Super high load type)



* Please note that we assign the design number, and omit the last code (II) that indicates a use of two rails as a set to finalize the reference number as product identification.

Table. I-5•16

Model No.	Assembly			Ball slide												
	Height H	E	W ₂	Width W	Length L	Mounting tap hole					Grease fitting					
						B	J	M×pitch×l	B ₁	L ₁	J ₁	K	T	Hole size	T ₁	N
LA25AN	40	5.5	12.5	48	79.8	35	35	M6×1×10	6.5	58	11.5	34.5	12	M6×0.75	10	11
LA25BN					107.8	50				86	18					
LA30AN	45	7.5	16	60	100.2	40	40	M8×1.25×11	10	72	16	37.5	14	M6×0.75	9.5	11
LA30BN					126.2	60				98	19					
LA35AN	55	7.5	18	70	110.6	50	50	M8×1.25×12	10	80	15	47.5	15	M6×0.75	15	11
LA35BN					144.6	72				114	21					
LA45AN	70	10	20.5	86	141.4	60	60	M10×1.5×16	13	105	22.5	60	17	Rc1/8	20	13
LA45BN					173.4	80				137	28.5					
LA55AN	80	12	23.5	100	165.4	75	75	M12×1.75×18	12.5	126	25.5	68	18	Rc1/8	21	13
LA55BN					203.4	95				164	34.5					
LA65AN	90	14	31.5	126	196.2	76	70	M16×2×19	25	147	38.5	76	22	Rc1/8	19	13
LA65BN					256.2	120				207	43.5					

LA Series does not have a ball retainer. Be aware that balls fall out when the ball slider is withdrawn from the rail.

Unit: mm

Rail							Basic load rating					Ball dia.	Weight	
Width W ₁	Height H ₁	Pitch F	Mounting bolt hole d×D×h	B ₃	G (recomm. ended)	Max. length L _{0max}	Dynamic C (N[kgfl])	Static C ₀	Static moment M _{RO} M _{FO} M _{VO} (N · m[kgf · m])			D _w	Ball slide (kg)	Rail (kg/m)
23	22	60	7×11×9	11.5	20	3960	30000	50000	290	410	410	3.968	0.6	3.7
							40500	77000	445	935	935		0.9	
28	28	80	9×14×12	14	20	4000	47000	77500	535	820	820	4.762	0.9	5.8
							58000	105000	725	1470	1470		1.3	
34	30.8	80	9×14×12	17	20	4000	61500	98000	845	1130	1130	5.556	1.5	7.7
							80500	143000	1240	2330	2330		2.1	
45	36	105	14×20×17	22.5	22.5	3990	91000	148000	1840	2210	2210	6.350	3.0	12.0
							111000	197000	2460	3850	3850		3.9	
53	43.2	120	16×23×20	26.5	30	3960	139000	215000	3150	3800	3800	7.937	4.7	17.2
							172000	292000	4250	6800	6800		6.1	
63	55	150	18×26×22	31.5	35	3900	260000	420000	7300	9050	9050	10.318	7.7	25.9
							340000	615000	10700	18700	18700		10.8	

The basic dynamic load rating is a load that furnishes 50 km rating fatigue life; it is a vertical and constant load to the ball slide mounting surface.

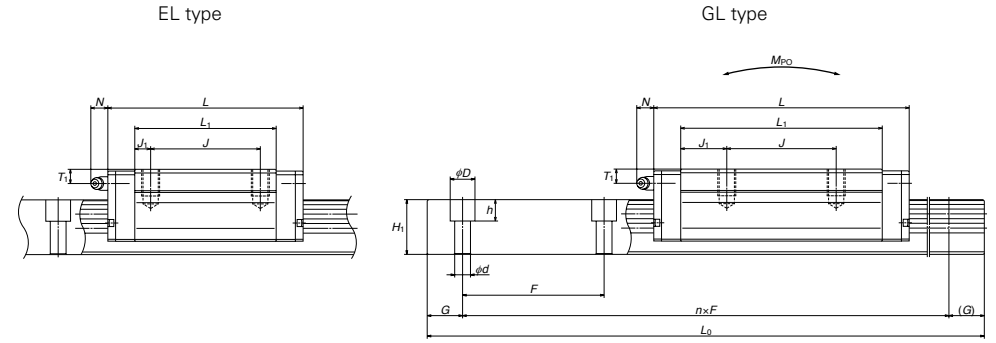
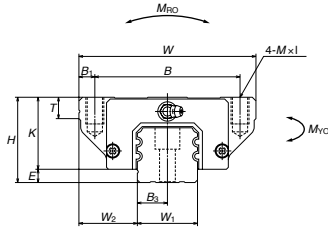
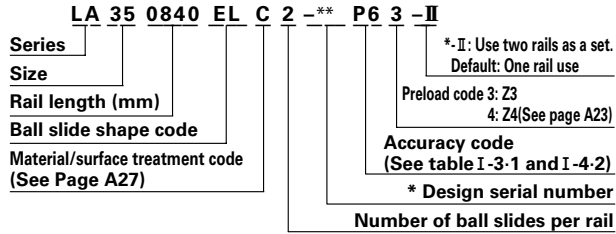
When converting the basic dynamic load rating C to the dynamic load rating C₁₀₀ for 100 km rating fatigue life, divide the C by 1.26

LA Series (preloaded assembly)



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LA-EL (High load type) LA-GL (Super high load type)



* Please note that we assign the design number, and omit the last code (II) that indicates a use of two rails as a set to finalize the reference number as product identification.

Table. I-5•17

Model No.	Assembly			Ball slide												
	Height H	E	W ₂	Width W	Length L	Mounting tap hole					Grease fitting					
						B	J	MxpitchxI	B ₁	L ₁	J ₁	K	T	Hole size	T ₁	N
LA25EL	36	5.5	23.5	70	79.8	57	45	M8x1.25x12	6.5	58	6.5	30.5	11	M6x0.75	6	11
LA25GL					107.8					86		20.5				
LA30EL	42	7.5	31	90	100.2	72	52	M10x1.5x16	9	72	10	34.5	11	M6x0.75	6.5	11
LA30GL					126.2					98		23				
LA35EL	48	7.5	33	100	110.6	82	62	M10x1.5x15	9	80	9	40.5	12	M6x0.75	8	11
LA35GL					144.6					114		26				
LA45EL	60	10	37.5	120	141.4	100	80	M12x1.75x18	10	105	12.5	50	13	Rc1/8	10	13
LA45GL					173.4					137		28.5				
LA55EL	70	12	43.5	140	165.4	116	95	M14x2x21	12	126	15.5	58	15	Rc1/8	11	13
LA55GL					203.4					164		34.5				
LA65EL	90	14	53.5	170	196.2	142	110	M16x2x24	14	147	18.5	76	22	Rc1/8	19	13
LA65GL					256.2					207		48.5				

LA Series does not have a ball retainer. Be aware that balls fall out when the ball slider is withdrawn from the rail.

Unit: mm

Rail							Basic load rating					Ball dia.	Weight	
Width W ₁	Height H ₁	Pitch F	Mounting bolt hole dxDxh	B ₂	G (recomm ended)	Max. length L _{0max}	Dynamic C (N)	Static C ₀	Static moment (N · m)			D _W	Ball slide (kg)	Rail (kg/m)
23	22	60	7x11x9	11.5	20	3960	30000	50000	290	410	410	3.968	0.8	3.7
28	28	80	9x14x12	14	20	4000	47000	77500	535	820	820	4.762	1.3	5.8
34	30.8	80	9x14x12	17	20	4000	61500	98000	845	1130	1130	5.556	1.9	7.7
45	36	105	14x20x17	22.5	22.5	3990	91000	148000	1840	2210	2210	6.350	3.3	12.0
53	43.2	120	16x23x20	26.5	30	3960	139000	215000	3150	3800	3800	7.937	5.5	17.2
63	55	150	18x26x22	31.5	35	3900	260000	420000	7300	9050	9050	10.318	11.0	25.9

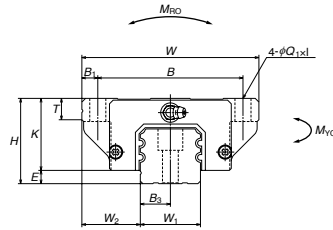
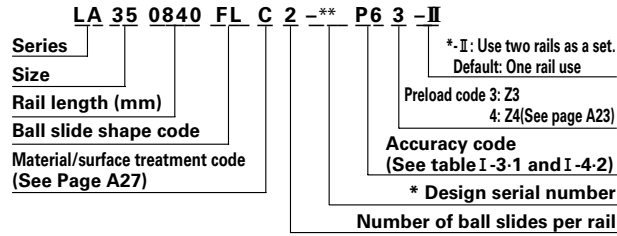
The basic dynamic load rating is a load that furnishes 50 km rating fatigue life; it is a vertical and constant load to the ball slide mounting surface.
When converting the basic dynamic load rating C to the dynamic load rating C₁₀₀ for 100 km rating fatigue life, divide the C by 1.26

LA Series (preloaded assembly)



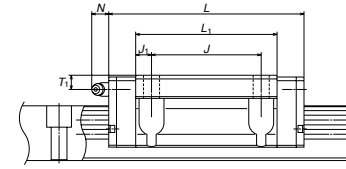
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LA-FL (High load type)
LA-HL (Super high load type)



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FL type



HL type

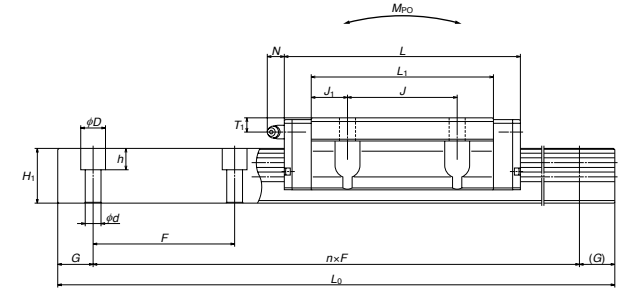


Table. I-5•18

Model No.	Assembly			Ball slide												
	Height H	E	W ₂	Width W	Length L	Mounting hole					Grease fitting					
						B	J	Q ₁ xI	B ₁	L ₁	J ₁	K	T	Hole size	T ₁	N
LA25FL	36	5.5	23.5	70	79.8	57	45	7×10	6.5	58	6.5	30.5	11	M6×0.75	6	11
LA25HL					107.8					86		20.5				
LA30FL	42	7.5	31	90	100.2	72	52	9×12	9	72	10	34.5	11	M6×0.75	6.5	11
LA30HL					126.2					98		23				
LA35FL	48	7.5	33	100	110.6	82	62	9×13	9	80	9	40.5	12	M6×0.75	8	11
LA35HL					144.6					114		26				
LA45FL	60	10	37.5	120	141.4	100	80	11×15	10	105	12.5	50	13	Rc1/8	10	13
LA45HL					173.4					137		28.5				
LA55FL	70	12	43.5	140	165.4	116	95	14×18	12	126	15.5	58	15	Rc1/8	11	13
LA55HL					203.4					164		34.5				
LA65FL	90	14	53.5	170	196.2	142	110	16×23	14	147	18.5	76	22	Rc1/8	19	13
LA65HL					256.2					207		48.5				

LA Series does not have a ball retainer. Be aware that balls fall out when the ball slider is withdrawn from the rail.

Unit: mm

Rail							Basic load rating					Ball dia.	Weight	
Width W ₁	Height H ₁	Pitch F	Mounting bolt hole d×D×h	B ₃	G (recomm. ended)	Max. length L _{0max}	Dynamic C (N)	Static C ₀	Static moment			D _w	Ball slide (kg)	Rail (kg/m)
									M _{ro}	M _{po}	M _{vo}			
23	22	60	7×11×9	11.5	20	3960	30000	50000	290	410	410	3.968	0.8	3.7
28	28	80	9×14×12	14	20	4000	47000	77500	535	820	820	4.762	1.3	5.8
34	30.8	80	9×14×12	17	20	4000	61500	98000	845	1130	1130	5.556	1.9	7.7
45	36	105	14×20×17	22.5	22.5	3990	91000	148000	1840	2210	2210	6.350	3.3	12.0
53	43.2	120	16×23×20	26.5	30	3960	139000	215000	3150	3800	3800	7.937	5.5	17.2
63	55	150	18×26×22	31.5	35	3900	260000	420000	7300	9050	9050	10.318	11.0	25.9

The basic dynamic load rating is a load that furnishes 50 km rating fatigue life; it is a vertical and constant load to the ball slide mounting surface.

When converting the basic dynamic load rating C to the dynamic load rating C₁₀₀ for 100 km rating fatigue life, divide the C by 1.26