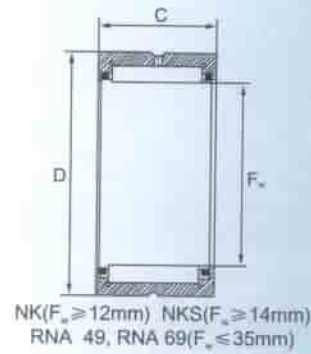
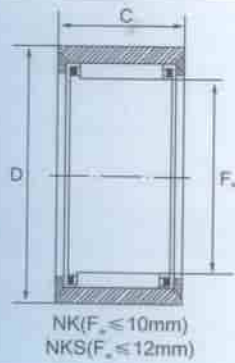


# ENTITY BUSHED NEEDLE ROLLER BEARINGS



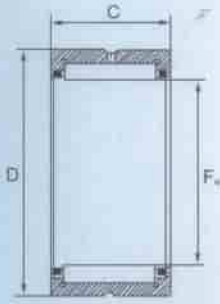
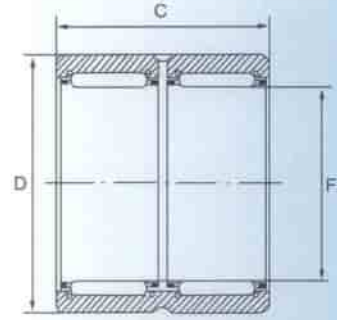
## Products range

Series	Structure description
NK	Needle roller bearing without inner ring, light series
NKS	Needle roller bearing without inner ring, heavy series
RNA49	Needle roller bearing without inner ring, dimension series 49
RNA69	Needle roller bearing without inner ring, dimension series 69
NKI	Needle roller bearing with inner ring, light series
NKIS	Needle roller bearing with inner ring, heavy series
NA49	Needle roller bearing with inner ring, dimension series 49
NA69	Needle roller bearing with inner ring, dimension series 69
RNA49...RS	Needle roller bearing without inner ring, dimension series 49, lip seal on one side
RNA49...2RS	Needle roller bearing without inner ring, dimension series 49, lip seals on both sides
NA49...RS	Needle roller bearing with inner ring, dimension series 49, lip seal on one side
NA49...2RS	Needle roller bearing with inner ring, dimension series 49, lip seals on both sides
RNAO	Needle roller bearing without ribs, without inner ring, single or double row
NAO	Needle roller bearing without ribs, with inner ring, single or double row
RNAV	Needle roller bearing without cage, without inner ring, series 40
NAV	Needle roller bearing without cage, with inner ring, series 40



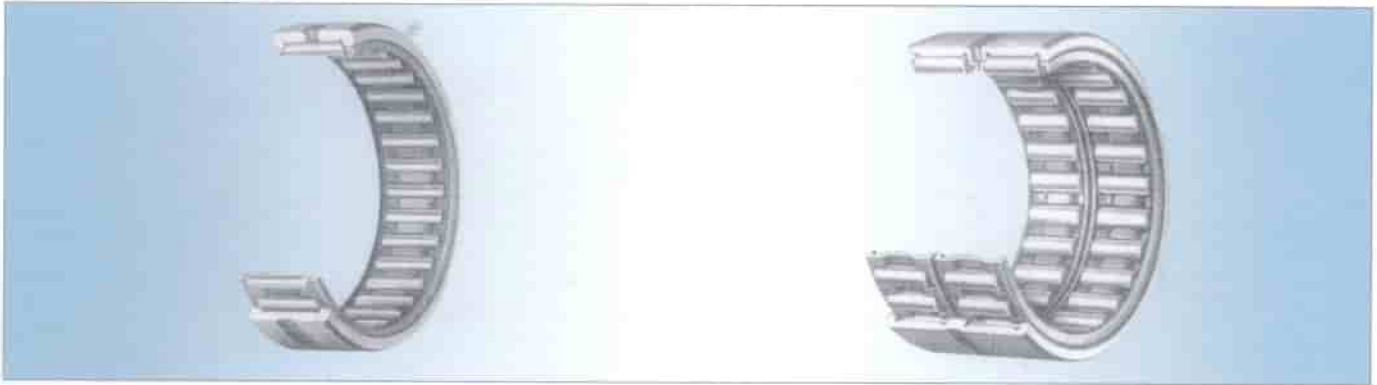
Shaft Diameter	Bearing Designation					Mass Approx	Boundary Dimensions			Basic Load Rating		Limiting Speed	
	Series				Substituted		$F_w$	D	C	$C_d$ Dynamic	$C_s$ Static		Oil
	mm	NK	NKS	RNA 49									
5	NK 5/10 TN	-	-	-	-	2.9	5	10	10	2 100	1 400	36 780	
8	NK 8/12 TN	-	-	-	-	8.3	8	15	12	3 050	3 650	29 112	
10	NK 10/12	-	-	-	4624097 K	10	10	17	12	4 750	5 350	23 500	
	-	-	-	-	5624097	16.6	10	17	15	4 860	7 100	23 500	
12	NK 12/12	-	-	-	644079	11.8	12	19	12	6 050	6 400	21 640	
	-	-	-	-	5624098	15.4	12	19	15	6 400	7 100	21 640	
	NK 12/16	-	-	-	-	16.8	12	19	16	8 200	9 800	21 640	
14	NK 14/16	-	-	-	4624900K	20.8	14	22	16	8 260	9 600	18 322	
	-	NKS 14	-	-	-	27	14	25	16	10 400	10 800	17 652	
	-	-	RNA 4900	-	4624900	24.4	14	22	13	8 060	9 000	18 322	
	-	-	-	RNA 6900	6634900	29.1	14	22	22	8 281	11 612	18 322	
15	NK 15/12	-	-	-	644800 K	18.5	15	23	12	8 600	10 070	21 004	
	-	-	RNA 152815	-	-	31.7	15	28	15	13 600	17 200	10 031	
	-	-	-	-	7948/15	16.1	15	22	12	8 200	9 800	8 412	
	-	-	-	-	644302	18.2	15	25	12	10 600	13 500	17 144	
16	NK 16/16	-	-	-	-	20.8	16	24	16	9 030	11 900	15 522	
	NK 16/20	-	-	-	624701	23.9	16	24	20	10 400	16 800	15 522	
	-	-	RNA 4901	-	4624901	16.6	16	24	13	6 400	8 900	15 522	
	-	-	-	RNA 6901	6634901	28.7	16	24	22	14 000	18 600	15 522	
	-	NKS 16	-	-	-	30	16	28	16	14 900	15 000	20 000	
17	NK 17/16	-	-	-	644903K	21.5	17	25	16	9 000	13 500	14 163	
18	NK 18/20	-	-	-	-	30.5	18	26	20	10 500	13 800	13 628	
20	NK 20/16	-	-	-	644802	25.7	20	28	16	11 500	13 400	12 716	
	NK 20/20	-	-	-	624802	29.3	20	28	20	12 400	21 800	12 716	
	NK 202616	-	-	-	-	20.8	20	26	16	9 600	10 800	9 125	
	NK 202620	-	-	-	-	17.2	20	26	20	10 500	11 900	9 125	
	-	NKS 20	-	-	-	46.8	20	32	20	20 000	22 000	18 000	
	NK 203312 SX	-	-	-	-	29.1	20	33	12	13 000	17 500	11 124	
	-	-	-	-	6624101	24.3	20	28	25	11 000	12 900	12 716	
	-	-	RNA 4902	-	4624902	20.5	20	28	13	10 800	12 800	12 716	
	-	-	-	RNA 6902	6634902	35.4	20	28	23	13 000	25 000	12 716	
22	NK 22/16	-	-	-	NK 223016	29.2	22	30	16	13 500	18 000	11 527	
	-	-	-	-	NK 223516	34.6	22	35	16	18 600	20 800	12 711	
	-	NKS 22	-	-	-	60.2	22	35	20	21 500	25 000	17 000	
	-	-	RNA 4903	-	4644903	20.7	22	30	13	12 000	16 800	16 300	
	-	-	-	RNA 6903	6634903	39.8	22	30	23	14 000	19 900	16 300	
	-	-	-	-	624703	53	22	35	25	24 500	28 000	14 187	
	-	-	-	-	634704 L	42.5	22	30	30	17 700	27 000	16 300	
	-	-	-	-	644704	27.4	22	28	16	10 500	15 050	15 172	
	-	-	-	-	NK 223516	49.4	22	35	16	18 600	20 800	16 522	

Limiting speed for oil lubrication. For grease lubrication, 60% of the values given in the table is permissible.


 NK, NKS, RNA 49,  
RNA 69( $F_w \leq 35\text{mm}$ )

 RNA 69( $F_w \geq 40\text{mm}$ )

Shaft Diameter	Bearing Designation					Mass Approx g	Boundary Dimensions			Basic Load Rating		Limiting Speed Oil rpm
	Series				Substituted		$F_w$	D	C	$C_r$ Dynamic	$C_{0r}$ Static	
	mm	NK	NKS	RNA 49								
23	-	-	-	-	634704 KA	37.5	23	30	30	18 600	29 000	15 711
25	NK 25/16	-	-	-	624904	30	25	33	16	12 900	20 400	15 000
	NK 25/20	-	-	-	644804	38.4	25	33	20	16 800	28 500	15 000
-	-	-	RNA 4904	-	4644904	50.8	25	37	17	11 912	16 594	14 060
-	-	-	-	RNA 6904	6634904	97.7	25	37	30	26 000	43 000	14 060
-	-	NKS 25	-	-	-	65	25	38	20	25 800	31 000	16 300
-	-	-	-	-	62704	100.1	25	35	25	14 900	22 400	14 060
-	-	-	-	-	644804 K	63	25	33	30	18 800	30 500	14 060
26	NK 26/16	-	-	-	-	30	26	34	16	15 000	23 000	16 300
	NK 26/20	-	-	-	-	40	26	34	20	17 000	30 000	16 300
28	-	-	RNA 283833	-	-	99.8	28	38	33	33 000	57 000	12 000
	-	-	-	-	F 3833	99.8	28	38	33	33 000	57 000	12 000
-	-	NKS 28	-	-	-	80	28	42	20	25 900	33 500	14 600
30	NK 30/20	-	-	-	644805	57.9	30	40	20	20 600	32 000	12 066
	NK 30/30	-	-	-	-	95	30	40	30	31 500	50 000	14 500
-	-	-	RNA 4905	-	4624905	57	30	42	17	13 452	20 475	12 066
-	-	-	-	RNA 6905	6634905	106.5	30	42	30	26 300	31 750	12 066
-	-	-	-	-	624905 K	68	30	42	20	15 400	24 500	12 066
32	NK 32/20	-	-	-	624705	75.4	32	42	20	17 500	33 500	12 066
	-	-	RNA 49/28	-	46449/32 K	80	32	45	17	17 400	30 050	12 000
-	-	NKS 32	-	-	-	100	32	47	22	31 000	40 000	12 100
-	-	-	-	RNA 69/28	-	125	32	45	30	39 500	61 300	13 100
-	-	-	-	-	644906	42	32	38	11	10 750	30 500	12 000
-	-	-	-	-	644706	193	32	50	35	40 500	63 000	12 000
35	NK 35/20	-	-	-	644806	70	35	45	20	13 851	26 900	12 000
	-	-	RNA 4906	-	4624906	62.8	35	47	17	17 000	30 500	12 000
-	-	-	-	RNA 6906	6634906	116	35	47	30	35 000	67 000	12 000
-	-	-	-	-	644907	161	35	51	32	43 500	71 000	11 680
37	-	-	-	-	624706	154	37	52	22	28 500	45 500	9 027
40	NK 40/20	-	-	-	-	78.9	40	50	20	19 600	43 000	8 881
	NK 40/30	-	-	-	-	120	40	50	30	22 200	513 500	8 881
-	-	-	-	RNA 69/32	66349/32	147	40	52	36	25 500	68 500	8 881
42	NK 42/20	-	-	-	-	83	42	52	20	23 900	45 000	10 000
	NK 42/30	-	-	-	-	125	42	52	30	27 000	49 000	10 000
-	-	-	RNA 4907	-	4624907	99.3	42	55	20	19 800	41 500	8 710
-	-	-	-	RNA 6907	6634907	160	42	55	36	26 000	60 500	8 710
-	-	-	-	-	644708	148	42	65	22	31 500	51 000	8 710
43	NK 43/20	-	-	-	-	84	43	53	20	25 700	49 000	10 000
	NK 43/30	-	-	-	-	126	43	53	30	39 000	75 000	10 000

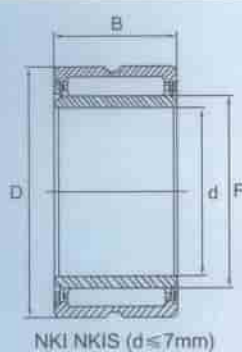
TN = plastic cage, permissible operating temperature: 120°C (Continuous operation).  
Limiting speed for oil lubrication. For grease lubrication, 60% of the values given in the table is permissible.



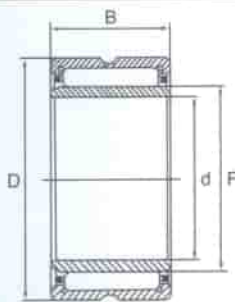
Shaft Diameter	Bearing Designation					Mass	Boundary Dimensions			Basic Load Rating		Limiting Speed
	Series				Substituted		Approx.	F <sub>w</sub>	D	C	C <sub>d</sub> Dynamic	
	mm	NK	NKS	RNA 49		RNA 69						g
45	NK 45/20	-	-	-	644808	81.5	45	55	20	19 800	46 500	7650
	-	-	-	-	624708	75.3	45	55	22	20 500	49 600	7650
	-	-	-	-	46449/38	80	45	58	20	21 600	50 500	7650
48	-	-	RNA 4908	-	4644908	132	48	62	22	31 036	63 873	8120
	-	-	-	RNA 6908	6634908	238	48	62	40	64 000	112 000	8120
50	NK 50/25	-	-	-	-	167	50	62	25	28 000	67 000	8140
	NK 50/35	-	-	-	-	236	50	62	35	32 000	70 100	8140
	-	-	-	-	624708 K	328	50	65	34	40 000	62 000	8140
52	-	-	RNA 4909	-	4624909	163	52	68	22	37 000	69 500	7625
	-	-	-	RNA 6909	6634909	308	52	68	40	61 500	123 500	7625
55	NK 55/25	-	-	-	-	167	55	68	25	30 600	60 800	7625
	-	-	-	-	624709	210	55	68	25	36 000	68 000	7625
58	-	-	RNA 4910	-	4644910	161	58	72	22	41 000	72 000	7500
	-	-	-	RNA 6910	6634910	296	58	72	40	68 000	135 000	7500
60	NK 60/25	-	-	-	-	154	60	72	25	39 000	86 000	7000
63	-	-	RNA 4911	-	4644911	241	63	80	25	50 600	96 580	6340
	-	-	-	RNA 6911	6634911	430	63	80	45	82 560	172 000	6340
68	-	-	RNA 4912	-	4644912	257	68	85	25	52 800	91 050	6100
	-	-	-	RNA 6912	6634912	436	68	85	45	88 500	186 000	6100
72	-	-	RNA 4913	-	4644913	300	72	90	25	57 500	110 500	6100
	-	-	-	RNA 6913	6634913	571	72	90	45	87 600	194 500	6100
80	-	-	RNA 4914	-	4644914	400	80	100	30	79 000	154 000	5130
	-	-	-	RNA 6914	6634914	815	80	100	54	121 000	263 000	5130
85	-	-	RNA 4915	-	4644915	472	85	105	30	82 000	158 000	5130
	-	-	-	RNA 6915	6634915	923	85	105	54	128 000	272 000	5130
90	-	-	RNA 4916	-	4644916	496	90	110	30	81 000	170 500	4927
	-	-	-	RNA 6916	6634916	978	90	110	54	130 500	280 600	4927
96	-	-	-	-	SG-421	496	96	115	29	73 000	137 000	4600
100	-	-	RNA 4917	-	4644917	608	100	120	35	98 000	207 000	4600
	-	-	-	RNA 6917	6634917	1 112	100	120	63	161 000	337 000	4600
105	-	-	RNA 4918	-	4644918	713	105	125	35	98 500	239 000	4000
	-	-	-	RNA 6918	6634918	1 250	105	125	63	174 000	380 000	4000
110	-	-	RNA 4919	-	4644919	685	110	130	35	112 000	245 000	3870
	-	-	-	RNA 6919	6634919	1 325	110	130	63	196 000	400 000	3870
115	-	-	RNA 4920	-	4624920	1 006	115	140	40	120 000	264 000	3710
125	-	-	RNA 4922	-	6634922	1 200	125	150	40	124 000	270 000	3350
130	-	-	RNA 4824	-	4644824	685	130	150	30	91 600	234 000	3000
135	-	-	RNA 4924	-	4644924	1 760	135	165	45	174 000	386 000	2920
155	-	-	RNA 4828	-	4644824	988	155	175	35	119 000	321 000	2570
160	-	-	RNA 4928	-	4644928	2 350	160	190	50	200 000	460 000	2900

TN = plastic cage, permissible operating temperature: 120°C (Continuous operation).

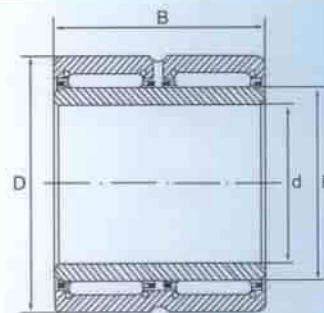
Limiting speed for oil lubrication. For grease lubrication, 60% of the values given in the table is permissible.



NKI NKIS ( $d \leq 7\text{mm}$ )



NKI ( $d \geq 9\text{mm}$ ) NKIS ( $d \geq 8\text{mm}$ )  
NA 49 NA69 ( $d \leq 30\text{mm}$ )



NA 69 ( $d \geq 32\text{mm}$ )

Shaft Diameter	Bearing Designation					Mass	Boundary Dimensions				Basic Load Rating		Limiting Speed
	Series				Substituted		Approx.	d	F	D	B	C <sub>Dynamic</sub>	
	mm	NKI	NKIS	NA 49		NA 69							g
8	-	NKIS 8	-	-	-	46	8	14	25	16	12 400	11 300	21 500
9	NKI 9/12	-	-	-	-	14.6	9	12	19	12	6 200	7 002	21 700
10	NKI 10/16	-	-	-	-	27.3	10	14	22	16	9 808	10 500	19 650
	-	-	NA 4900	-	4524900	21	10	14	22	13	8 006	9 000	23 700
12	-	-	-	NA 6900	6534900	38.4	10	14	22	22	8 281	11 612	23 700
	-	-	NA 4901	-	4524901	25.1	12	16	24	13	5 047	6 352	20 000
12	NKI 12/20	-	-	-	-	39	12	16	24	20	14 000	18 400	21 000
	-	-	-	NA 6901	6534901	44.5	12	16	24	22	11 647	17 052	20 000
15	-	NKIS 12	-	-	-	58	12	18	30	16	16 000	17 000	20 000
	NKI 15/16	-	-	-	-	38	15	19	27	16	8 847	12 853	19 100
15	NKI 15/20	-	-	-	-	45.7	15	19	27	20	12 347	19 053	19 100
	-	-	NA 4902	-	4524902	32	15	20	28	13	6 447	9 053	18 800
17	-	-	-	NA 6902	6534902	61.6	15	20	28	23	13 100	20 900	18 800
	-	NKIS 15	-	-	-	90	15	22	35	20	23 500	24 000	17 000
17	NKI 17/16	-	-	-	-	41.4	17	21	29	16	13 000	18 200	20 000
	-	-	NA 4903	-	4544903	32.8	17	22	30	13	7 010	10 010	17 000
20	-	-	-	NA 6903	6534903	68.2	17	22	30	23	14 400	24 900	17 000
	NKI 20/16	-	-	-	-	48.5	20	24	32	16	10 800	17 000	16 700
20	-	-	NA 4904	-	4524904	70.2	20	25	37	17	11 912	16 594	16 200
	-	NKIS 20	-	-	-	119	20	28	42	20	26 500	35 500	14 000
22	NKI 22/16	-	-	-	-	50	22	25	34	16	8 721	15 340	16 200
	-	-	NA 49/22	-	-	76	22	28	39	17	12 996	19 175	14 360
25	-	-	-	NA 69/22	-	130	22	28	39	30	21 375	35 750	14 360
	NKI 25/30	-	-	-	-	115	25	29	38	30	31 500	56 000	14 000
25	-	-	NA 4905	-	4524905	76	25	30	42	17	13 452	20 475	13 832
	-	-	-	NA 6905	6534905	138	25	30	42	30	19 300	31 750	13 832
28	-	NKIS 25	-	-	-	160	25	32	47	22	32 000	55 000	12 500
	-	-	NA 49/28	-	45449/28	90.7	28	32	45	17	13 900	20 100	13 832
32	-	-	-	NA 69/28	-	170	28	32	45	30	22 400	36 850	13 832
	NKI 32/20	-	-	-	-	101	32	35	45	20	13 851	26 900	12 382
32	-	-	NA 49/32	-	45449/32	150	32	40	52	20	19 000	32 600	11 134
	-	-	-	NA 69/32	66349/32	272	32	40	52	36	25 500	68 500	11 134
35	NKI 35/30	-	-	-	-	165	35	40	50	30	22 200	51 350	11 134
	-	-	NA 4907	-	4524907	151	35	42	55	20	19 800	41 500	11 134
40	-	-	-	NA 6907	6534907	301	35	42	55	36	26 000	60 500	11 134
	-	NKIS 35	-	-	-	210	35	43	58	22	33 000	56 000	9 500
40	NKI 40/20	-	-	-	-	124	40	45	55	20	22 000	48 000	10 127
	NKI 40/30	-	-	-	-	184	40	45	55	30	35 000	86 000	10 127
40	-	-	NA 4908	-	4544908	123	40	48	62	22	31 036	63 873	8 567
	-	-	-	NA 6908	6534908	401	40	48	62	40	64 000	112 000	8 567

TN = plastic cage, permissible operating temperature: 120°C (Continuous operation).

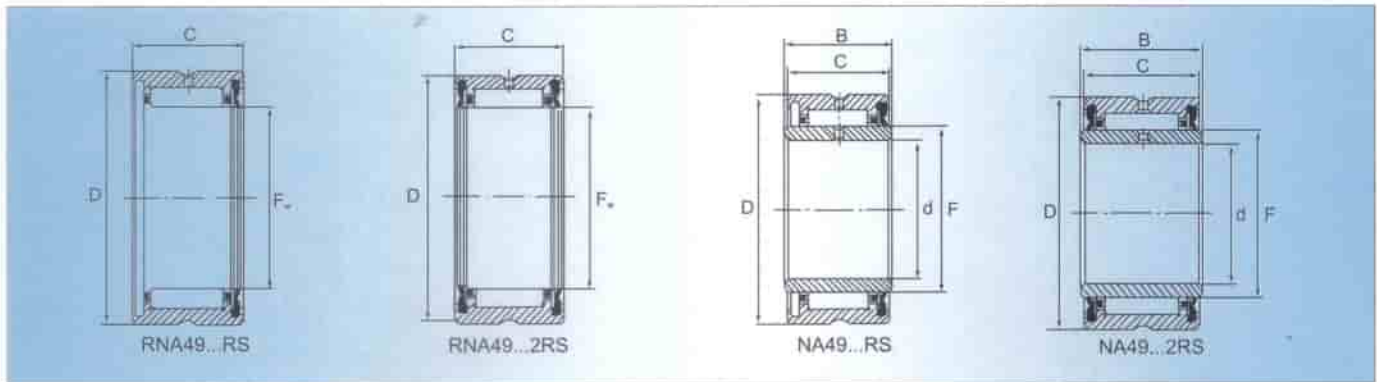
Limiting speed for oil lubrication. For grease lubrication, 60% of the values given in the table is permissible.



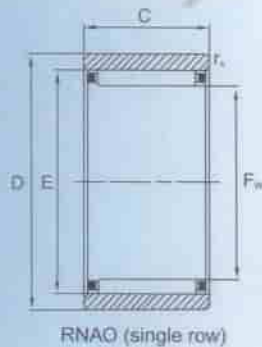
Shaft Diameter	Bearing Designation					Mass Approx g	Boundary Dimensions				Basic Load Rating		Limiting Speed Oil rpm
	Series				Substituted		d	F	D	B	C <sub>D</sub> Dynamic	C <sub>S</sub> Static	
	mm	NKI	NKIS	NA 49									
42	NKI 42/20	-	-	-	-	138	42	47	57	20	26 000	52 500	9500
45	NKI 45/25	-	-	-	-	218	45	50	62	25	36 000	70 000	8567
	NKI 45/35	-	-	-	-	289	45	50	62	35	41 500	102 000	8567
	-	-	NA 4909	-	4544909	260	45	50	68	22	37 000	69 500	8052
	-	-	-	NA 6909	6534909	479	45	50	68	40	61 500	123 500	8052
	-	NKIS 45	-	-	-	306	45	55	72	22	43 000	71 000	7500
50	NKI 50/25	-	-	-	-	262	50	55	68	25	32 000	78 000	7890
	-	-	NA 4910	-	4544910	264	50	58	72	22	41 000	72 000	7526
	-	-	-	NA 6910	6534910	457	50	58	72	40	68 000	135 000	7526
	-	NKIS 50	-	-	-	510	50	60	80	28	60 000	95 000	7200
55	NKI 55/35	-	-	-	-	357	55	60	72	35	48 000	126 800	7256
	-	-	NA 4911	-	4544911	386	55	63	80	25	50 600	96 580	7156
	-	-	-	NA 6911	6534911	760	55	63	80	45	82 560	172 000	7156
60	NKI 60/25	-	-	-	-	388	60	68	82	25	35 500	85 000	7156
	-	-	NA 4912	-	4544912	412	60	68	85	25	52 800	11 050	6022
	-	-	-	NA 6912	6534912	798	60	68	85	45	88 500	186 000	6022
	-	NKIS 60	-	-	-	550	60	70	90	28	65 000	110 000	6300
65	-	-	NA 4913	-	4544913	435	65	72	90	25	57 500	110 500	6022
	-	-	-	NA 6913	6534913	821	65	72	90	45	87 600	194 500	6022
70	-	-	NA 4914	-	4544914	712	70	80	100	30	79 000	154 000	5111
	-	-	-	NA 6914	6534914	1 326	70	80	100	54	12 100	263 000	5111
75	-	-	NA 4915	-	4544915	765	75	85	105	30	82 000	158 000	5111
	-	-	-	NA 6915	6534915	1 429	75	85	105	54	12 800	272 000	5111
80	-	-	NA 4916	-	4544916	870	80	90	110	30	81 000	170 500	5111
	-	-	-	NA 6916	6534916	1 510	80	90	110	54	130 500	280 600	5000
85	-	-	NA 4917	-	4544917	1 250	85	100	120	35	111 000	237 000	4600
	-	-	-	NA 6917	6534917	2 200	85	100	120	63	166 000	400 000	4600
90	-	-	NA 4918	-	4544918	1 312	90	105	125	35	114 000	250 000	4400
	-	-	-	NA 6918	6534918	2 310	90	105	125	63	172 000	425 000	4400
95	-	-	NA 4919	-	4544919	1 371	95	110	130	35	116 000	260 000	4200
	-	-	-	NA 6919	6534919	2 500	95	110	130	63	174 000	440 000	4200
100	-	-	NA 4920	-	4544920	1 900	100	115	140	40	120 000	274 000	4000
110	-	-	NA 4922	-	4544922	2 070	110	125	150	40	132 000	290 000	3700
	-	-	-	NA 4822	-	1 080	110	120	140	30	94 000	216 000	3900
120	-	-	NA 4924	-	4544924	2 860	120	135	165	45	181 000	390 000	3400
	-	-	-	NA 4824	-	1 170	120	130	150	30	99 000	239 000	3600
130	-	-	NA 4926	-	4544926	3 900	130	150	180	50	203 000	470 000	3100
	-	-	-	NA 4826	-	1 810	130	145	165	35	118 000	310 000	3200
140	-	-	NA 4928	-	4544928	4 150	140	160	190	50	209 000	500 000	2900
	-	-	-	NA 4828	-	1 920	140	155	175	35	120 000	325 000	3000

TN = plastic cage, permissible operating temperature: 120°C (Continuous operation).

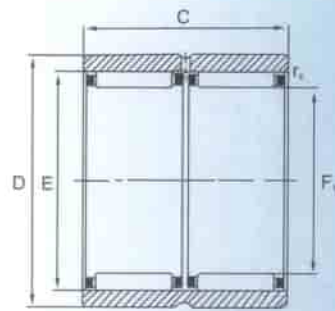
Limiting speed for oil lubrication. For grease lubrication, 60% of the values given in the table is permissible.



Shaft Diameter	Bearing Designation		Mass	Boundary Dimensions					Basic Load Rating		Limiting Speed
	Sealed on one side	Sealed on both sides		Approx	d	F F <sub>w</sub>	D	C	B	C <sub>d</sub> Dynamic	C <sub>s</sub> Static
			mm	g	mm					N	
<b>Without ring</b>											
14	RNA 4900 RS	RNA 4900.2 RS	16	-	14	22	13	-	4 560	4 660	13 000
16	RNA 4901 RS	RNA 4901.2 RS	18	-	16	24	13	-	4 950	5 800	12 000
20	RNA 4902 RS	RNA 4902.2 RS	21.5	-	20	28	13	-	5 980	9 500	10 000
22	RNA 4903 RS	RNA 4903.2 RS	23	-	22	30	13	-	6 050	10 100	9 000
25	RNA 4904 RS	RNA 4904.2 RS	56	-	25	37	17	-	14 900	17 500	7 500
30	RNA 4905 RS	RNA 4905.2 RS	60	-	30	42	17	-	16 300	21 500	6 500
35	RNA 4906 RS	RNA 4906.2 RS	69	-	35	47	17	-	20 050	24 900	5 500
42	RNA 4907 RS	RNA 4907.2 RS	107	-	42	55	20	-	22 500	37 000	4 800
48	RNA 4908 RS	RNA 4908.2 RS	154	-	48	62	22	-	33 050	50 900	4 200
52	RNA 4909 RS	RNA 4909.2 RS	157	-	52	68	22	-	34 800	56 800	3 900
58	RNA 4910 RS	RNA 4910.2 RS	160	-	58	72	22	-	37 800	61 500	3 500
<b>With ring</b>											
10	NA 4900 RS	NA 4900.2 RS	245	10	14	22	13	14	4 560	4 660	13 000
12	NA 4901 RS	NA 4901.2 RS	27.5	12	16	24	13	14	4 950	5 800	12 000
15	NA 4902 RS	NA 4902.2 RS	37	15	20	28	13	14	5 980	9 500	10 000
17	NA 4903 RS	NA 4903.2 RS	40	17	22	30	13	14	6 050	10 100	9 000
20	NA 4904 RS	NA 4904.2 RS	80	20	25	37	17	18	14 900	17 500	7 500
25	NA 4905 RS	NA 4905.2 RS	89.5	25	30	42	17	18	16 300	21 500	6 500
30	NA 4906 RS	NA 4906.2 RS	104	30	35	47	17	18	20 050	24 900	5 500
35	NA 4907 RS	NA 4907.2 RS	175	35	42	55	20	21	22 500	37 000	4 800
40	NA 4908 RS	NA 4908.2 RS	252	40	48	62	22	23	33 050	50 900	4 200
45	NA 4909 RS	NA 4909.2 RS	290	45	52	68	22	23	34 800	56 800	3 900
50	NA 4910 RS	NA 4910.2 RS	295	50	58	72	22	23	37 800	61 500	3 500



RNAO (single row)



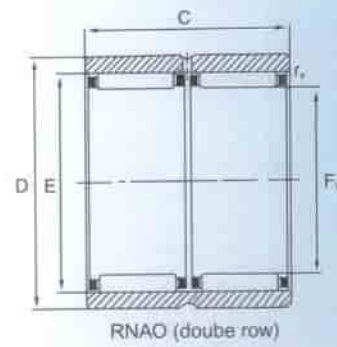
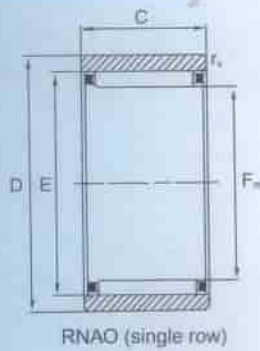
RNAO (double row)

Shaft Diameter	Bearing Designation	Mass	Boundary Dimensions				Basic Load Rating		Limiting Speed
			Approx.	F <sub>w</sub>	D	C	E	C <sub>r</sub> Dynamic	
mm		g	mm				N		rpm
5	RNAO 5×10×8 TN	2.8	5	10	8	8	2050	1720	27800
6	RNAO 6×13×8 TN	5	6	13	8	9	2300	1880	30000
7	RNAO 7×14×8 TN	5	7	14	8	10	2250	1950	31000
8	RNAO 8×15×10 TN	7.8	8	15	10	11	3050	3920	28000
10	RNAO 10×17×10 TN	9.1	10	17	10	13	3960	4500	20000
12	RNAO 12×19×13.5 TN	14	12	19	13.5	15	5400	7500	22000
	RNAO 12×22×12 TN	17.9	12	22	12	18	8950	8000	23000
15	RNAO 15×23×13	18.5	15	23	13	19	6500	8900	21100
	RNAO 16×24×13	19.8	16	24	13	20	6200	8400	21100
16	<sup>°</sup> RNAO 16×24×30	29.7	16	24	20	20	10200	14800	21100
	RNAO 16×28×12	29.7	16	28	12	22	9500	10500	18000
17	RNAO 17×25×13	21	17	25	13	21	9400	11600	18000
18	RNAO 18×30×24	65	18	30	24	24	12100	16500	17800
20	RNAO 20×28×13	24.5	20	28	13	24	7800	9600	16000
	<sup>°</sup> RNAO 20×28×26	48.1	20	28	26	24	10080	20500	16000
	RNAO 20×32×12	36.6	20	32	12	26	10100	14100	16000
22	RNAO 22×30×13	25.2	22	30	13	26	9200	12000	14000
	RNAO 22×35×16	58	22	35	16	29	10000	15500	16000
25	RNAO 25×35×17	49	25	35	17	29	10900	22000	15020
	<sup>°</sup> RNAO 25×35×26	67.8	25	35	26	29	12400	25000	15020
	RNAO 25×37×16	59.2	25	37	16	32	15000	20900	12000
	<sup>°</sup> RNAO 25×37×32	108	25	37	32	32	25000	38900	12000
26	RNAO 26×39×13	59	26	39	13	30	87600	10200	15020
30	RNAO 30×40×17	59	30	40	17	35	12600	24000	10050
	<sup>°</sup> RNAO 30×40×26	92	30	40	26	35	16000	32000	10050
	RNAO 30×42×16	49.9	30	42	16	37	13000	23200	10050
	<sup>°</sup> RNAO 30×42×32	126	30	42	32	37	29500	47000	10050

TN = plastic cage, permissible operating temperature: 120°C (Continuous operation).

Limiting speed for oil lubrication. For grease lubrication, 60% of the values given in the table is permissible.

<sup>°</sup> Double row, with lubrication groove and hole.

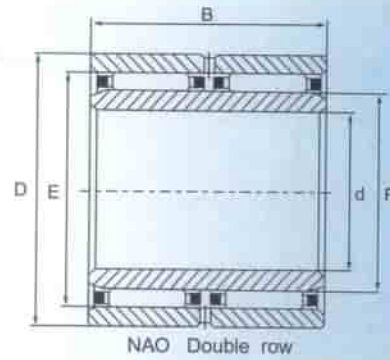
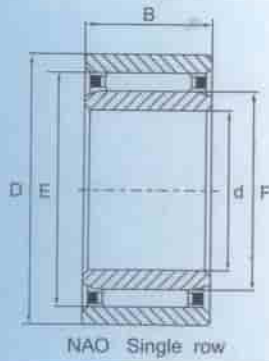


Shaft Diameter	Bearing Designation	Mass Approx	Boundary Dimensions				Basic Load Rating		Limiting Speed
			F <sub>w</sub>	D	C	E	C <sub>r</sub> Dynamic	C <sub>s</sub> Static	Oil
			mm				N		rpm
35	RNAO 35 × 45 × 13	50	35	45	13	40	10 200	22 000	10 000
	RNAO 35 × 45 × 17	60	35	45	17	40	17 800	24 500	10 000
	<sup>1</sup> RNAO 35 × 45 × 26	88	35	45	26	40	20 500	40 000	10 000
	RNAO 35 × 47 × 18	75	35	47	16	42	20 400	31 500	10 000
	RNAO 35 × 47 × 18	86	35	47	18	42	22 500	35 000	10 000
	<sup>1</sup> RNAO 35 × 47 × 32	149	35	47	32	42	32 000	55 000	10 000
37	RNAO 37 × 52 × 18	115	37	52	18	44	18 900	35 500	8 800
40	RNAO 40 × 50 × 17	72	40	50	17	45	15 400	29 880	8 800
	<sup>1</sup> RNAO 40 × 50 × 34	151	40	50	34	45	25 186	57 200	11 000
	RNAO 40 × 55 × 20	144	40	55	20	47	26 300	46 100	10 000
	<sup>1</sup> RNAO 40 × 55 × 40	268	40	55	40	48	54 700	87 000	10 000
42	RNAO 42 × 57 × 20	132	42	57	20	50	26 720	43 700	10 000
45	RNAO 45 × 55 × 17	82.5	45	55	17	50	18 000	36 000	9 000
	<sup>1</sup> RNAO 45 × 62 × 40	368	45	62	40	53	42 200	85 050	9 000
50	RNAO 50 × 62 × 20	140	50	62	20	55	20 690	46 860	7 500
	RNAO 50 × 65 × 20	162	50	65	20	58	23 200	40 540	7 000
	<sup>1</sup> RNAO 50 × 65 × 40	321	50	65	40	58	39 040	80 600	7 000
55	RNAO 55 × 68 × 20	157	55	68	20	60	22 480	52 074	6 500
60	RNAO 60 × 78 × 20	253	60	78	20	68	28 500	65 300	5 550
	<sup>1</sup> RNAO 60 × 78 × 40	368	60	78	40	68	45 000	99 000	5 550
65	RNAO 65 × 85 × 30	394	65	85	30	73	37 000	90 900	4 900
70	RNAO 70 × 90 × 30	488	70	90	30	78	40 010	105 000	5 100
80	RNAO 80 × 100 × 30	527	80	100	30	88	52 000	139 000	4 890
85	RNAO 85 × 105 × 25	449	85	105	25	93	48 600	106 000	4 900
90	RNAO 90 × 105 × 26	323	90	105	26	98	42 519	129 000	4 900
	RNAO 90 × 110 × 30	600	90	110	30	98	58 100	152 000	4 900
100	RNAO 100 × 120 × 30	671	100	120	30	108	50 000	158 000	3 100

TN = plastic cage, permissible operating temperature: 120°C (Continuous operation).

Limiting speed for oil lubrication. For grease lubrication, 60% of the values given in the table is permissible.

<sup>1</sup> Double row, with lubrication groove and hole.

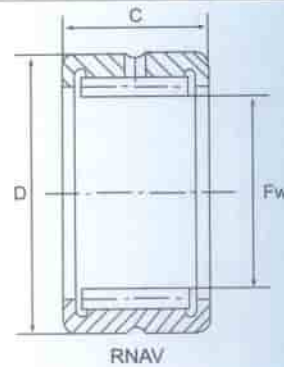
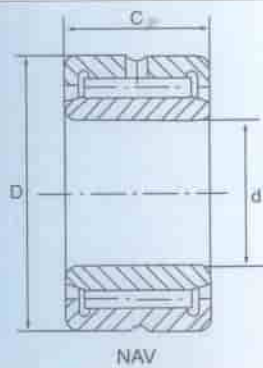


Shaft Diameter	Bearing Designation	Mass Approx	Boundary Dimensions					Basic Load Rating		Limiting Speed
			d	D	B	F	E	C <sub>r</sub> Dynamic	C <sub>r</sub> Static	Oil
			mm					N		rpm
6	NAO 6 × 17 × 10 TN	13	6	17	10	10	13	3 950	5 000	17 080
9	NAO 9 × 22 × 12 TN	22	9	22	12	12	18	8 800	7 900	12 090
12	NAO 12 × 24 × 3	29	12	24	13	16	20	8 000	16 000	15 020
	*NAO 12 × 24 × 20	43	12	24	20	16	20	10 300	16 800	20 000
15	NAO 12 × 28 × 12	38.6	12	28	12	16	22	9 850	10 500	19 000
	NAO 15 × 28 × 13	27.8	15	28	13	20	24	7 800	10 300	20 600
17	NAO 15 × 32 × 12	48.1	15	32	12	20	26	10 400	14 020	20 000
	NAO 17 × 30 × 13	39	17	30	13	22	26	9 860	15 000	20 000
20	NAO 17 × 35 × 16	70	17	35	16	22	29	16 800	20 050	10 090
	NAO 20 × 35 × 17	72	20	35	17	25	29	12 600	20 200	16 000
25	NAO 20 × 37 × 18	81	20	37	18	25	32	10 000	18 000	12 700
	NAO 25 × 40 × 17	78.9	25	40	17	30	35	10 600	24 000	10 500
30	NAO 25 × 42 × 16	83	25	42	16	30	37	13 100	23 500	10 500
	*NAO 25 × 42 × 32	189	25	42	32	30	37	26 500	47 000	10 500
	NAO 30 × 45 × 13	73	30	45	13	35	40	11 200	25 000	11 207
35	NAO 30 × 45 × 17	100	30	45	17	35	40	12 800	28 500	11 207
	*NAO 30 × 45 × 26	150	30	45	26	35	40	17 500	32 900	11 207
	NAO 30 × 47 × 16	99.8	30	47	16	35	42	14 400	17 500	11 207
	NAO 30 × 47 × 18	109	30	47	18	35	42	20 000	33 000	11 207
	NAO 30 × 52 × 18	172	30	52	18	37	44	18 000	25 500	10 900
40	NAO 35 × 50 × 17	103	35	50	17	40	45	20 800	40 506	10 900
	NAO 35 × 55 × 20	175	35	55	20	40	47	28 500	41 000	10 000
50	NAO 35 × 57 × 20.5	206	35	57	20.5	42	50	26 000	49 000	10 000
	NAO 40 × 55 × 17	118	40	55	17	45	50	12 500	36 000	9 000
70	NAO 40 × 65 × 20	269	40	65	20	50	58	35 000	61 200	8 000
	NAO 50 × 68 × 20	219	50	68	20	55	60	24 500	62 000	7 500
75	NAO 50 × 78 × 20	400	50	78	20	60	68	33 500	65 000	6 500
	NAO 70 × 100 × 30	829	70	100	30	80	88	52 600	129 000	4 000
80	NAO 75 × 105 × 25	676	75	105	25	85	93	42 000	106 000	3 900
90	NAO 80 × 110 × 30	892	80	110	30	90	98	49 020	112 000	4 200
90	NAO 90 × 120 × 30	1 004	90	120	30	100	108	51 000	128 000	3 900

TN = plastic cage, permissible operating temperature: 120°C (Continuous operation).

Limiting speed for oil lubrication. For grease lubrication, 60% of the values given in the table is permissible.

\* Double row, with lubrication groove and hole.



Shaft Diameter	Bearing Designation		Mass	Boundary Dimensions			Basic Load Rating		Limiting Speed
	Current	Substituted		Approx	$F_w$	D	C	$C_d$ Dynamic	$C_s$ Static
			g	mm			N		rpm
<b>Without ring</b>									
21.87	RNAV 4002	4084102	45	21.87	32	17	10 800	29 800	4 500
24.3	RNAV 4003	4084103	62	24.3	35	18	17 900	37 900	4 300
28.7	RNAV 4004	4084104	114	28.7	42	22	28 150	60 900	3 900
33.5	RNAV 4005	4084105	129	33.5	47	22	33 800	70 800	3 700
40.1	RNAV 4006	4084106	193	40.1	55	25	49 900	96 500	3 500
45.9	RNAV 4007	4084107	259	45.9	62	27	47 600	122 800	3 100
51.6	RNAV 4008	4084108	304	51.6	68	28	49 900	137 900	2 700
57.4	RNAV 4009	4084109	390	57.4	75	30	52 500	153 500	2 600
62.1	RNAV 4010	4084110	426	62.1	80	30	55 700	166 000	2 500
69.8	RNAV 4011	4084111	645	69.8	90	35	68 500	225 800	2 300
74.6	RNAV 4012	4084112	677	74.6	95	35	75 400	239 000	2 100
80.3	RNAV 4013	4084113	692	80.3	100	35	79 500	256 900	1 900
88	RNAV 4014	4084114	950	88	110	40	98 800	354 900	1 700
92.7	RNAV 4015	4084115	1 000	92.7	115	45	101 800	372 900	1 600
100.3	RNAV 4016	4084116	1 400	100.3	125	45	102 900	373 500	1 500
104.8	RNAV 4017	4084117	1 540	104.8	130	45	103 800	374 800	1 400
<b>With ring</b>									
15	NAV 4002	4074102	76	15	32	17	10 800	29 800	4 500
17	NAV 4003	4074103	94	17	35	18	17 900	37 900	4 300
20	NAV 4004	4074104	170	20	42	22	28 150	60 900	3 900
25	NAV 4005	4074105	195	25	47	22	33 800	70 800	3 700
30	NAV 4006	4074106	299	30	55	25	49 900	96 500	3 500
35	NAV 4007	4074107	402	35	62	27	47 600	122 800	3 100
40	NAV 4008	4074108	482	40	68	28	49 900	137 900	2 700
45	NAV 4009	4074109	617	45	75	30	52 500	153 500	2 600
50	NAV 4010	4074110	669	50	80	30	55 700	166 000	2 500
55	NAV 4011	4074111	1 030	55	90	35	68 500	225 800	2 300
60	NAV 4012	4074112	1 087	60	95	35	75 400	239 000	2 100
65	NAV 4013	4074113	1 156	65	100	35	79 500	256 900	1 900
70	NAV 4014	4074114	1 666	70	110	40	98 800	354 900	1 700
75	NAV 4015	4074115	1 762	75	115	45	101 800	372 900	1 600
80	NAV 4016	4074116	2 450	80	125	45	102 900	373 500	1 500
85	NAV 4017	4074117	2 500	85	130	45	103 800	374 800	1 400
17	-	74703	126	17	35	24.5	8 700	10 800	4 200
15	-	74802	100	15	36	24.5	8 900	11 200	4 400