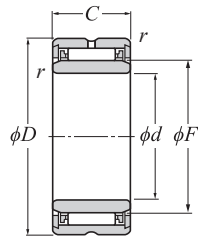


Needle Roller Bearings

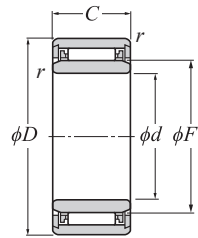
NTN

Machined-ring needle roller bearings with an inner ring

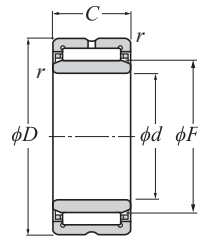
NA49 type
NA59 type
NA69 type
NK+IR type



NA49 type ($\phi d \leq 9$ mm)



NK+IR type ($\phi d \leq 9$ mm)



NA49+R type ($\phi d \geq 10$ mm)
NA59 type
NA69+R type
NK+IR type ($\phi d \geq 10$ mm)

d 5–17 mm

	Boundary dimensions					Basic load rating		Fatigue load limit N C_u	Allowable speed		Number
	mm	mm	mm	mm	mm	dynamic N C_r	static N C_{0r}		min^{-1}		
	d	D	C	$r_{s \min}^{1)}$	F $s^{2)}$				Grease lubrication	Oil lubrication	
5	13	10	0.15	7	—	2 670	2 350	287	23 000	34 000	NA495T2
	15	12	0.3	8	1.5	4 000	4 100	500	21 000	32 000	NK8/12T2+IR5×8×12
	15	16	0.3	8	2	4 850	5 200	635	21 000	32 000	NK8/16T2+IR5×8×16
6	15	10	0.15	8	—	3 150	3 000	365	21 000	32 000	NA496T2T
	16	12	0.3	9	1.5	4 550	5 000	615	20 000	30 000	NK9/12T2+IR6×9×12
	16	16	0.3	9	2	5 500	6 400	780	20 000	30 000	NK9/16T2+IR6×9×16
7	17	10	0.15	9	—	3 600	3 650	445	20 000	30 000	NA497
	17	12	0.3	10	1.5	4 550	5 100	620	19 000	28 000	NK10/12T2+IR7×10×12
	17	16	0.3	10	2	5 450	6 450	790	19 000	28 000	8E-NK10/16CT+IR7×10×16
8	19	11	0.15	10	—	5 250	5 150	630	19 000	28 000	NA498CT
9	19	12	0.3	12	1.5	5 000	6 100	740	17 000	26 000	NK12/12+IR9×12×12
	19	16	0.3	12	2	6 000	7 700	940	17 000	26 000	NK12/16+IR9×12×16
	20	11	0.3	12	—	4 850	4 900	595	17 000	26 000	NA499
10	22	13	0.3	14	0.5	8 600	9 200	1 120	16 000	24 000	NA4900R
	22	16	0.3	14	0.5	10 300	11 500	1 400	16 000	24 000	NK14/16RCT+IR10×14×16
	22	20	0.3	14	0.5	13 000	15 600	1 900	16 000	24 000	NK14/20R+IR10×14×20
12	24	13	0.3	16	0.5	9 550	10 900	1 330	15 000	23 000	NA4901R
	24	16	0.3	16	0.5	12 200	14 900	1 820	15 000	23 000	NK16/16R+IR12×16×16
	24	20	0.3	16	0.5	14 600	18 800	2 290	15 000	23 000	NK16/20R+IR12×16×20
	24	22	0.3	16	1	15 400	20 000	2 440	15 000	23 000	NA6901R
15	27	16	0.3	19	0.5	13 300	17 400	2 120	14 000	21 000	NK19/16R+IR15×19×16
	27	20	0.3	19	0.5	16 000	22 200	2 700	14 000	21 000	NK19/20R+IR15×19×20
	28	13	0.3	20	0.5	10 300	12 800	1 560	13 000	20 000	NA4902R
	28	18	0.3	20	0.5	14 100	19 100	2 330	13 000	20 000	NA5902CT
	28	23	0.3	20	1	17 600	25 300	3 100	13 000	20 000	NA6902R
17	29	16	0.3	21	0.5	13 700	18 700	2 280	13 000	19 000	NK21/16R+IR17×21×16
	29	20	0.3	21	0.5	17 400	25 400	3 100	13 000	19 000	NK21/20R+IR17×21×20
	30	13	0.3	22	0.5	11 200	14 600	1 780	12 000	18 000	NA4903R

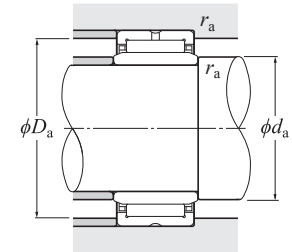
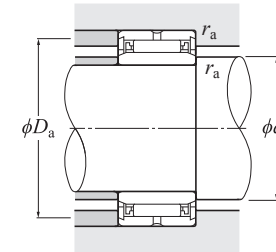
1) Smallest allowable dimension for chamfer dimension r .

2) Allowable axial movement amount of the inner ring with respect to the outer ring.

3) Largest allowable dimension for fillet radius r_a of housing and shaft.

Needle Roller Bearings

NTN



Installation-related dimensions			Mass kg (approx.)
mm	mm	mm	
d_a	D_a	$r_{as}^{3)}$	
Min.	Max.	Max.	
6.2	8.5	0.15	0.007
7	9.5	0.3	0.012
7	9.5	0.3	0.016
8	9.5	0.15	0.009
8	10.5	0.3	0.013
8	10.5	0.3	0.017
9	10.5	0.15	0.010
9	11.5	0.3	0.014
9	11.5	0.3	0.018
10	12	0.15	0.016
11	13.5	0.3	0.018
11	13.5	0.3	0.022
11	14	0.3	0.017
12	20	0.3	0.024
12	20	0.3	0.030
12	20	0.3	0.038
14	22	0.3	0.026
14	22	0.3	0.033
14	22	0.3	0.042
14	22	0.3	0.046
17	25	0.3	0.039
17	25	0.3	0.045
17	26	0.3	0.036
17	26	0.3	0.052
17	26	0.3	0.064
19	27	0.3	0.042
19	27	0.3	0.053
19	28	0.3	0.037

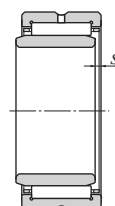
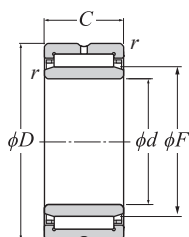
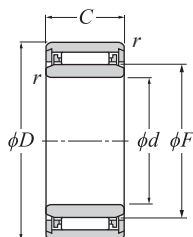
Note: The number of inner rings (IR) is composed of the IR bore diameter dimension × outside diameter dimension × width dimension.

Needle Roller Bearings

NTN

Machined-ring needle roller bearings with an inner ring

NA49 type
NA59 type
NA69 type
NK+IR type



NA49·R type
NA59 type
NA69·R type
NK·R + IR type

d 17–32 mm

Boundary dimensions						Basic load rating		Fatigue load limit N C _u	Allowable speed		Number
mm						dynamic C _T	static C _{0r}		min ⁻¹		
d	D	C	r _{s min} ¹⁾	F	s ²⁾				Grease lubrication	Oil lubrication	
17	30	18	0.3	22	0.5	15 200	21 700	2 650	12 000	18 000	NA5903
	30	23	0.3	22	1	18 200	27 200	3 300	12 000	18 000	NA6903R
20	32	16	0.3	24	0.5	15 200	22 300	2 720	11 000	17 000	NK24/16R+IR20×24×16
	32	20	0.3	24	0.5	18 600	28 800	3 500	11 000	17 000	NK24/20R+IR20×24×20
	37	17	0.3	25	0.8	21 300	25 500	3 100	11 000	16 000	NA4904RCT
	37	23	0.3	25	0.8	28 400	37 000	4 500	11 000	16 000	NA5904
	37	30	0.3	25	1	36 500	50 500	6 150	11 000	16 000	NA6904R
22	34	16	0.3	26	0.5	15 600	23 600	2 880	10 000	15 000	8E-NK26/16RCT+IR22×26×16
	34	20	0.3	26	0.5	19 100	30 500	3 700	10 000	15 000	NK26/20R+IR22×26×20
	39	17	0.3	28	0.8	23 200	29 300	3 600	9 500	14 000	NA49/22R
	39	23	0.3	28	0.8	26 400	37 500	4 600	9 500	14 000	NA59/22
	39	30	0.3	28	0.5	40 000	58 500	7 150	9 500	14 000	NA69/22R
25	38	20	0.3	29	1	22 200	34 000	4 150	9 500	14 000	NK29/20R+IR25×29×20
	38	30	0.3	29	1.5	27 500	50 500	6 150	9 500	14 000	NK29/30R+IR25×29×30
	42	17	0.3	30	0.8	24 000	31 500	3 800	8 500	13 000	NA4905R
	42	23	0.3	30	0.8	30 500	43 000	5 200	8 500	13 000	NA5905
	42	30	0.3	30	1	41 500	63 000	7 650	8 500	13 000	NA6905R
28	42	20	0.3	32	1	23 500	37 500	4 600	8 500	13 000	NK32/20R+IR28×32×20
	42	30	0.3	32	1.5	34 000	60 500	7 350	8 500	13 000	NK32/30R+IR28×32×30
	45	17	0.3	32	0.8	24 800	33 500	4 050	8 500	13 000	NA49/28RCT
	45	23	0.3	32	0.8	32 000	45 500	5 550	8 500	13 000	NA59/28
	45	30	0.3	32	1	43 000	67 000	8 150	8 500	13 000	NA69/28R
30	45	20	0.3	35	0.5	24 800	41 500	5 050	7 500	11 000	NK35/20RCT+IR30×35×20
	45	30	0.3	35	1	36 000	66 500	8 100	7 500	11 000	NK35/30R+IR30×35×30
	47	17	0.3	35	0.8	25 500	35 500	4 300	7 500	11 000	NA4906R
	47	23	0.3	35	0.8	32 500	48 500	5 950	7 500	11 000	NA5906
	47	30	0.3	35	1	42 500	67 500	8 250	7 500	11 000	NA6906R
32	47	20	0.3	37	0.5	25 300	43 500	5 300	7 500	11 000	NK37/20R+IR32×37×20
	47	30	0.3	37	1	36 500	69 500	8 500	7 500	11 000	NK37/30R+IR32×37×30
	52	20	0.6	40	0.8	31 500	47 500	5 800	6 500	10 000	NA49/32R

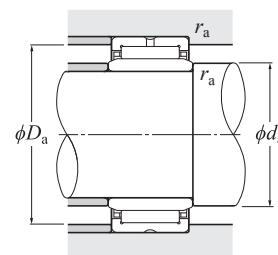
1) Smallest allowable dimension for chamfer dimension r .

2) Allowable axial movement amount of the inner ring with respect to the outer ring.

3) Largest allowable dimension for fillet radius r_a of housing and shaft.

Needle Roller Bearings

NTN



Installation-related dimensions			Mass kg (approx.)
d_a Min.	D_a Max.	$r_{as}^{3)}$ Max.	
19	28	0.3	0.056
19	28	0.3	0.069
22	30	0.3	0.049
22	30	0.3	0.061
22	35	0.3	0.074
22	35	0.3	0.115
22	35	0.3	0.141
24	32	0.3	0.046
24	32	0.3	0.064
24	37	0.3	0.080
24	37	0.3	0.134
24	37	0.3	0.154
27	36	0.3	0.079
27	36	0.3	0.123
27	40	0.3	0.088
27	40	0.3	0.139
27	40	0.3	0.162
30	40	0.3	0.096
30	40	0.3	0.146
30	43	0.3	0.098
30	43	0.3	0.142
30	43	0.3	0.179
32	43	0.3	0.112
32	43	0.3	0.171
32	45	0.3	0.101
32	45	0.3	0.152
32	45	0.3	0.185
34	45	0.3	0.117
34	45	0.3	0.170
36	48	0.6	0.157

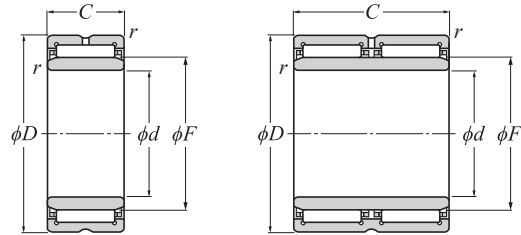
Note: The number of inner rings (IR) is composed of the IR bore diameter dimension × outside diameter dimension × width dimension.

Needle Roller Bearings

NTN

Machined-ring needle roller bearings with an inner ring

NA49 type
NA59 type
NA69 type
NK+IR type



NA49··R type
NA59 type
NK··R + IR type

NA69··R type

d 32–55 mm

Boundary dimensions						Basic load rating		Fatigue load limit	Allowable speed		Number
mm						dynamic	static	N C _u	min ⁻¹		
d	D	C	r _{s min} ¹⁾	F	s ²⁾	C _r	C _{0r}		Grease lubrication	Oil lubrication	
32	52	27	0.6	40	0.8	38 000	61 000	7 450	6 500	10 000	NA59/32
	52	36	0.6	40	0.5	47 500	82 000	10 000	6 500	10 000	NA69/32R
35	50	20	0.3	40	0.5	26 400	47 000	5 750	6 500	10 000	NK40/20R+IR35×40×20
	50	30	0.3	40	1	38 500	76 000	9 250	6 500	10 000	NK40/30R+IR35×40×30
	55	20	0.6	42	0.8	32 000	50 000	6 100	6 500	9 500	NA4907R
	55	27	0.6	42	0.8	39 000	64 500	7 850	6 500	9 500	NA5907
	55	36	0.6	42	0.5	49 000	86 500	10 500	6 500	9 500	NA6907R
38	53	20	0.3	43	0.5	27 500	51 000	6 200	6 500	9 500	NK43/20R+IR38×43×20
	53	30	0.3	43	1	40 000	82 000	10 000	6 500	9 500	NK43/30R+IR38×43×30
40	55	20	0.3	45	0.5	28 000	52 500	6 450	6 000	9 000	NK45/20R+IR40×45×20
	55	30	0.3	45	1	41 000	85 500	10 400	6 000	9 000	NK45/30RCT+IR40×45×30
	62	22	0.6	48	1	43 500	66 500	8 150	5 500	8 500	NA4908R
	62	30	0.6	48	1	53 000	92 500	11 300	5 500	8 500	NA5908
	62	40	0.6	48	0.5	67 000	116 000	14 100	5 500	8 500	NA6908R
42	57	20	0.3	47	0.5	28 800	55 500	6 800	5 500	8 500	NK47/20RCT+IR42×47×20
	57	30	0.3	47	1	42 500	91 500	11 200	5 500	8 500	NK47/30R+IR42×47×30
45	62	25	0.6	50	1.5	38 500	74 500	9 050	5 500	8 000	NK50/25RCT+IR45×50×25
	62	35	0.6	50	2	51 000	106 000	12 900	5 500	8 000	NK50/35R+IR45×50×35
	68	22	0.6	52	1	46 000	73 000	8 950	5 000	7 500	NA4909R
	68	30	0.6	52	1	56 000	101 000	12 300	5 000	7 500	NA5909
	68	40	0.6	52	0.5	70 500	127 000	15 500	5 000	7 500	NA6909R
50	68	25	0.6	55	1.5	41 000	82 000	10 000	5 000	7 500	NK55/25R+IR50×55×25
	68	35	0.6	55	2	54 000	118 000	14 300	5 000	7 500	NK55/35R+IR50×55×35
	72	22	0.6	58	1	48 000	80 000	9 750	4 700	7 000	NA4910R
	72	30	0.6	58	1	58 000	110 000	13 400	4 700	7 000	NA5910
	72	40	0.6	58	0.5	74 000	139 000	17 000	4 700	7 000	NA6910R
55	72	25	0.6	60	1.5	41 000	85 000	10 400	4 300	6 500	NK60/25R+IR55×60×25
	72	35	0.6	60	2	57 000	130 000	15 800	4 300	6 500	NK60/35R+IR55×60×35
	80	25	1	63	1.5	58 500	99 500	12 100	4 300	6 500	NA4911R

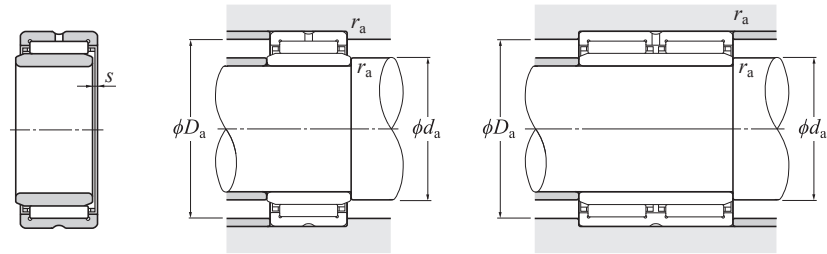
1) Smallest allowable dimension for chamfer dimension r.

2) Allowable axial movement amount of the inner ring with respect to the outer ring.

3) Largest allowable dimension for fillet radius r_a of housing and shaft.

Needle Roller Bearings

NTN



Installation-related dimensions			Mass
d _a	D _a	r _{as} ³⁾	
Min.	Max.	Max.	kg (approx.)
36	48	0.6	0.241
36	48	0.6	0.286
37	48	0.3	0.130
37	48	0.3	0.193
39	51	0.6	0.171
39	51	0.6	0.256
39	51	0.6	0.310
40	51	0.3	0.134
40	51	0.3	0.207
42	53	0.3	0.143
42	53	0.3	0.216
44	58	0.6	0.232
44	58	0.6	0.348
44	58	0.6	0.426
44	55	0.3	0.148
44	55	0.3	0.222
48	58	0.6	0.229
48	58	0.6	0.322
49	64	0.6	0.270
49	64	0.6	0.396
49	64	0.6	0.437
53	64	0.6	0.271
53	64	0.6	0.379
54	68	0.6	0.276
54	68	0.6	0.498
54	68	0.6	0.529
58	68	0.6	0.271
58	68	0.6	0.379
60	75	1	0.396

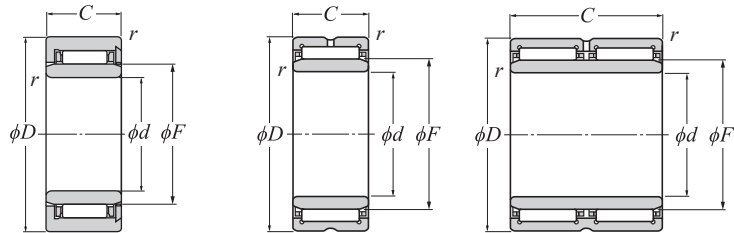
Note: The number of inner rings (IR) is composed of the IR bore diameter dimension × outside diameter dimension × width dimension.

Needle Roller Bearings

NTN

Machined-ring needle roller bearings with an inner ring

NA49 type
NA59 type
NA69 type
NK+IR type



NA49··R type
NA59 type
NK··R + IR type

NA69··R type

d 55–85 mm

Boundary dimensions						Basic load rating		Fatigue load limit	Allowable speed		Number
mm						dynamic	static	N C _u	min ⁻¹		
d	D	C	r _{s min} ¹⁾	F	s ²⁾	C _r	C _{0r}		Grease lubrication	Oil lubrication	
55	80	34	1	63	1.5	76 500	140 000	17 100	4 300	6 500	NA5911
	80	45	1	63	1.5	94 000	183 000	22 300	4 300	6 500	NA6911R
60	82	25	1	68	1	44 500	89 000	10 800	4 000	6 000	NK68/25R+IR60×68×25
	82	35	0.6	68	1	63 000	139 000	17 000	4 000	6 000	NK68/35R+IR60×68×35
	85	25	1	68	1.5	61 500	108 000	13 100	4 000	6 000	NA4912R
	85	34	1	68	1.5	80 500	153 000	18 600	4 000	6 000	NA5912
	85	45	1	68	1.5	95 500	191 000	23 200	4 000	6 000	NA6912R
65	90	25	0.6	73	1	54 000	100 000	12 200	3 700	5 500	NK73/25R+IR65×73×25
	90	25	1	72	1.5	62 500	112 000	13 700	3 700	5 500	NA4913R
	90	34	1	72	1.5	84 000	165 000	20 100	3 700	5 500	NA5913
	90	35	0.6	73	1	76 500	156 000	19 100	3 700	5 500	NK73/35R+IR65×73×35
	90	45	1	72	1.5	97 000	198 000	24 200	3 700	5 500	NA6913R
70	95	25	1	80	0.8	57 000	119 000	14 500	3 300	5 000	NK80/25R+IR70×80×25
	95	35	1	80	0.8	79 500	184 000	22 400	3 300	5 000	NK80/35R+IR70×80×35
	100	30	1	80	1.5	85 500	156 000	19 000	3 300	5 000	NA4914R
	100	40	1	80	1.5	103 000	187 000	22 800	3 300	5 000	NA5914
	100	54	1	80	1	130 000	267 000	32 500	3 300	5 000	NA6914R
75	105	25	1	85	1	70 500	123 000	15 000	3 100	4 700	NK85/25R+IR75×85×25
	105	30	1	85	1.5	87 000	162 000	19 700	3 100	4 700	NA4915R
	105	35	1	85	1	100 000	193 000	23 600	3 100	4 700	NK85/35R+IR75×85×35
	105	40	1	85	1.5	109 000	205 000	25 000	3 100	4 700	NA5915
	105	54	1	85	1	132 000	277 000	34 000	3 100	4 700	NA6915R
80	110	25	1	90	1	71 500	128 000	15 600	2 900	4 400	NK90/25R+IR80×90×25
	110	30	1	90	1.5	90 500	174 000	21 200	2 900	4 400	NA4916R
	110	35	1	90	1	104 000	208 000	25 400	2 900	4 400	NK90/35R+IR80×90×35
	110	40	1	90	1.5	115 000	223 000	27 200	2 900	4 400	NA5916
	110	54	1	90	1.5	138 000	298 000	36 500	2 900	4 400	NA6916R
85	115	26	1	95	1.5	74 500	137 000	16 600	2 800	4 200	NK95/26R+IR85×95×26
	115	36	1	95	1.5	108 000	223 000	27 000	2 800	4 200	NK95/36R+IR85×95×36

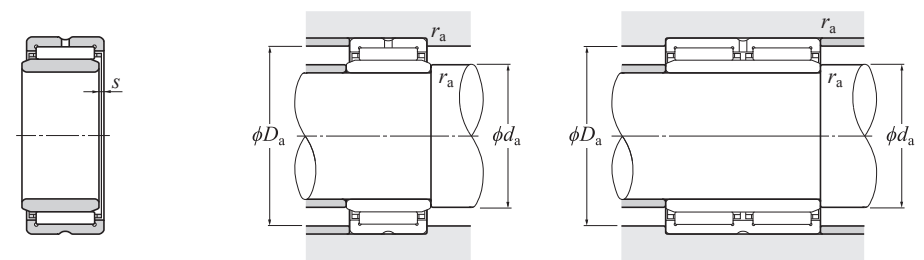
1) Smallest allowable dimension for chamfer dimension r.

2) Allowable axial movement amount of the inner ring with respect to the outer ring.

3) Largest allowable dimension for fillet radius r_a of housing and shaft.

Needle Roller Bearings

NTN



Installation-related dimensions			Mass
d _a	D _a	r _{as} ³⁾	
Min.	Max.	Max.	kg (approx.)
60	75	1	0.559
60	75	1	0.726
65	77	0.6	0.393
64	78	0.6	0.551
65	80	1	0.427
65	80	1	0.614
65	80	1	0.758
69	86	0.6	0.466
70	85	1	0.454
70	85	1	0.655
69	86	0.6	0.660
70	85	1	0.779
75	90	1	0.525
75	90	1	0.738
75	95	1	0.727
75	95	1	1.06
75	95	1	1.34
80	100	1	0.642
80	100	1	0.776
80	100	1	0.853
80	100	1	1.13
80	100	1	1.45
85	105	1	0.680
85	105	1	0.820
85	105	1	0.959
85	105	1	1.15
85	105	1	1.53
90	110	1	0.644
90	110	1	1.05

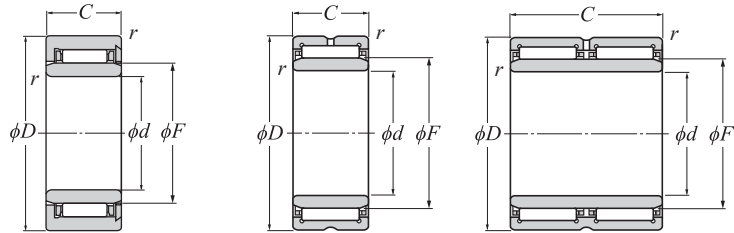
Note: The number of inner rings (IR) is composed of the IR bore diameter dimension × outside diameter dimension × width dimension.

Needle Roller Bearings

NTN

Machined-ring needle roller bearings with an inner ring

NA48 type
NA49 type
NA59 type
NA69 type
NK+IR type



NA49··R type
NA59 type
NK··R + IR type

NA69··R type

d 85–130 mm

Boundary dimensions						Basic load rating		Fatigue load limit	Allowable speed		Number
mm						dynamic	static	N C _u	min ⁻¹		
d	D	C	r _{s min} ¹⁾	F	s ²⁾	C _r	C _{0r}		Grease lubrication	Oil lubrication	
85	120	35	1.1	100	1	112 000	237 000	28 400	2 700	4 000	NA4917R
	120	46	1.1	100	1.5	137 000	290 000	34 500	2 700	4 000	NA5917
	120	63	1.1	100	1	169 000	400 000	48 000	2 700	4 000	NA6917R
90	120	26	1	100	1.5	73 500	137 000	16 400	2 700	4 000	NK100/26R+IR90×100×26
	120	36	1	100	1.5	107 000	223 000	26 700	2 700	4 000	NK100/36R+IR90×100×36
	125	35	1.1	105	1	116 000	252 000	29 800	2 500	3 800	NA4918R
	125	46	1.1	105	1	143 000	310 000	37 000	2 500	3 800	NA5918
	125	63	1.1	105	1	175 000	425 000	50 500	2 500	3 800	NA6918R
95	125	26	1	105	1.5	76 500	147 000	17 300	2 500	3 800	NK105/26R+IR95×105×26
	125	36	1	105	1.5	111 000	238 000	28 100	2 500	3 800	NK105/36R+IR95×105×36
	130	35	1.1	110	1	118 000	260 000	30 500	2 400	3 600	NA4919R
	130	46	1.1	110	1	149 000	335 000	39 000	2 400	3 600	NA5919
	130	63	1.1	110	1	177 000	440 000	51 000	2 400	3 600	NA6919R
100	130	30	1.1	110	1.5	97 500	204 000	23 800	2 400	3 600	NK110/30R+IR100×110×30
	130	40	1.1	110	2	129 000	292 000	34 000	2 400	3 600	NK110/40R+IR100×110×40
	140	40	1.1	115	2	127 000	260 000	29 900	2 300	3 500	NA4920
	140	54	1.1	115	2	182 000	395 000	45 500	2 300	3 500	NA5920
110	140	30	1	120	0.8	95 000	214 000	24 400	2 200	3 300	NA4822
	140	40	1.1	120	—	114 000	271 000	31 000	2 200	3 300	NK120/40+IR110×120×40
	150	40	1.1	125	2	131 000	279 000	31 500	2 100	3 200	NA4922
	150	54	1.1	125	2	193 000	440 000	49 500	2 100	3 200	NA5922
120	150	30	1	130	0.8	101 000	237 000	26 400	2 100	3 100	NA4824
	150	40	1.1	130	—	117 000	287 000	32 000	2 100	3 100	NK130/40+IR120×130×40
	165	45	1.1	135	2	180 000	380 000	41 500	2 000	3 000	NA4924
	165	60	1.1	135	2	246 000	530 000	57 500	2 000	3 000	NA5924
130	165	35	1.1	145	1	120 000	310 000	33 000	1 900	2 800	NA4826
	170	32	1.5	145	—	111 000	238 000	25 600	1 900	2 800	NK145/32+IR130×145×32
	170	42	1.5	145	—	153 000	360 000	38 500	1 900	2 800	NK145/42+IR130×145×42
	180	50	1.5	150	1.5	202 000	455 000	48 000	1 800	2 700	NA4926
	180	67	1.5	150	1.5	296 000	690 000	73 000	1 800	2 700	NA5926

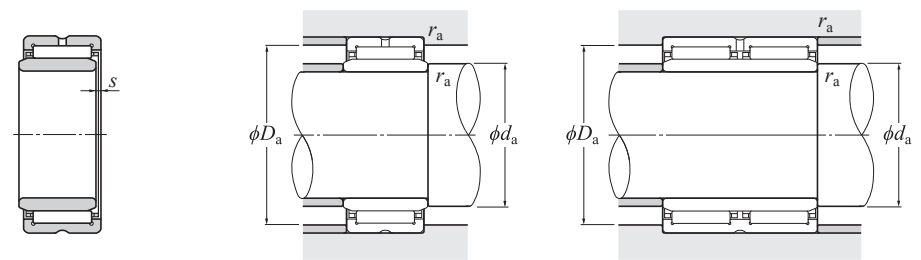
1) Smallest allowable dimension for chamfer dimension r.

2) Allowable axial movement amount of the inner ring with respect to the outer ring.

3) Largest allowable dimension for fillet radius r_a of housing and shaft.

Needle Roller Bearings

NTN



Installation-related dimensions			Mass
d _a	D _a	r _{as} ³⁾	
Min.	Max.	Max.	kg (approx.)
91.5	113.5	1	1.24
91.5	113.5	1	1.76
91.5	104	1.1	2.25
95	115	1	0.781
95	115	1	1.09
96.5	118.5	1	1.84
96.5	118.5	1	2.44
96.5	109	1.1	2.37
100	120	1	0.819
100	120	1	1.15
101.5	123.5	1	1.36
101.5	123.5	1	1.98
101.5	123.5	1	2.63
106.5	123.5	1	0.990
106.5	123.5	1	1.34
106.5	133.5	1	1.93
106.5	133.5	1	2.85
115	135	1	1.11
116.5	133.5	1	1.49
116.5	143.5	1	2.08
116.5	143.5	1	2.98
125	145	1	1.17
126.5	143.5	1	1.57
126.5	158.5	1	2.84
126.5	158.5	1	3.92
136.5	158.5	1	1.60
138	162.5	1.5	1.90
138	162.5	1.5	2.54
138	172	1.5	3.90
138	172	1.5	5.60

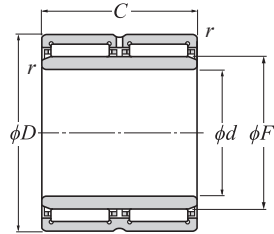
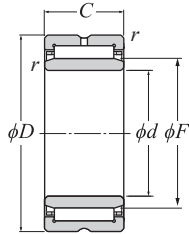
Note: The number of inner rings (IR) is composed of the IR bore diameter dimension × outside diameter dimension × width dimension.

Needle Roller Bearings

NTN

Machined-ring needle roller bearings with an inner ring

NA48 type
NA49 type
NA59 type
NA69 type
NK+IR type



NA48 type
NA49··R type, NA49 type
NA59 type
NK··R + IR type, NK + IR type
NKS + IR type ($\phi d \geq 100$ mm)

NA69··R type

d 140–280 mm

Boundary dimensions						Basic load rating		Fatigue load limit N C _u	Allowable speed		Number
mm						dynamic N C _r	static C _{0r}		min ⁻¹		
d	D	C	r _{s min} ¹⁾	F	s ²⁾				Grease lubrication	Oil lubrication	
140	175	35	1.1	155	1	121 000	315 000	33 500	1 700	2 600	NA4828
	180	32	1.5	155	—	114 000	252 000	26 500	1 700	2 600	NK155/32+IR140×155×32
	180	42	1.5	155	—	156 000	380 000	40 000	1 700	2 600	NK155/42+IR140×155×42
	190	50	1.5	160	1.5	209 000	485 000	50 500	1 700	2 500	NA4928
	190	67	1.5	160	1.5	315 000	760 000	79 000	1 700	2 500	NA5928
150	190	32	1.5	165	—	117 000	265 000	27 500	1 600	2 400	NK165/32+IR150×165×32
	190	40	1.1	165	1.5	152 000	390 000	40 500	1 600	2 400	NA4830
	190	42	1.5	165	—	160 000	400 000	41 000	1 600	2 400	NK165/42+IR150×165×42
	210	60	2	170	1.5	261 000	610 000	62 500	1 600	2 400	NA4930
160	200	40	1.1	175	1.5	160 000	425 000	43 500	1 500	2 300	NA4832
	220	60	2	180	1.5	270 000	650 000	65 500	1 500	2 200	NA4932
170	215	45	1.1	185	1.5	185 000	495 000	49 500	1 500	2 200	NA4834
	230	60	2	190	1.5	279 000	690 000	68 500	1 400	2 100	NA4934
180	225	45	1.1	195	1.5	195 000	540 000	53 500	1 400	2 100	NA4836
	250	69	2	205	1.5	375 000	890 000	86 000	1 300	2 000	NA4936
190	240	50	1.5	210	1.5	227 000	680 000	65 500	1 300	1 900	NA4838
	260	69	2	215	1.5	390 000	945 000	90 500	1 300	1 900	NA4938
200	250	50	1.5	220	1.5	231 000	705 000	67 000	1 200	1 800	NA4840
	280	80	2.1	225	1.5	505 000	1 180 000	111 000	1 200	1 800	NA4940
220	270	50	1.5	240	1.5	244 000	780 000	72 500	1 100	1 700	NA4844
	300	80	2.1	245	1.5	525 000	1 270 000	116 000	1 100	1 600	NA4944
240	300	60	2	265	2	365 000	1 090 000	98 500	1 000	1 500	NA4848
	320	80	2.1	265	2	540 000	1 350 000	121 000	1 000	1 500	NA4948
260	320	60	2	285	2	375 000	1 170 000	103 000	950	1 400	NA4852
	360	100	2.1	290	2	810 000	1 920 000	166 000	950	1 400	NA4952
280	350	69	2	305	2.5	455 000	1 300 000	112 000	850	1 300	NA4856
	380	100	2.1	310	2.5	840 000	2 050 000	175 000	850	1 300	NA4956

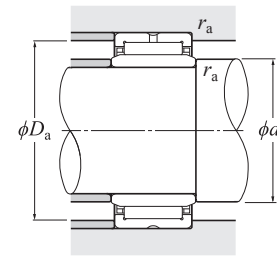
1) Smallest allowable dimension for chamfer dimension r .

2) Allowable axial movement amount of the inner ring with respect to the outer ring.

3) Largest allowable dimension for fillet radius r_a of housing and shaft.

Needle Roller Bearings

NTN



Installation-related dimensions			Mass
d_a Min.	D_a Max.	$r_{as}^{3)}$ Max.	kg (approx.)
146.5	168.5	1	1.82
148	172	1.5	2.04
148	172	1.5	2.69
148	182	1.5	4.05
148	182	1.5	6.18
158	182	1.5	2.32
156.5	183.5	1	2.72
158	182	1.5	2.84
159	201	2	5.33
166.5	193.5	1	2.90
169	211	2	5.60
176.5	208.5	1	3.99
179	221	2	5.87
186.5	218.5	1	4.19
189	241	2	8.58
198	232	1.5	5.62
199	251	2	8.68
208	242	1.5	5.84
211	269	2	12.2
228	262	1.5	6.37
231	289	2	13.5
249	291	2	10.0
251	309	2	14.7
269	311	2	10.8
271	349	2	25.9
289	341	2	15.5
291	369	2	27.5

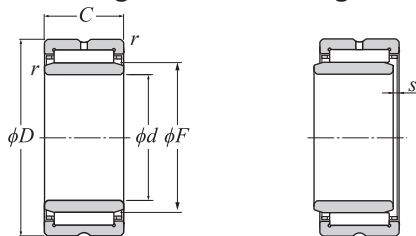
Note: The number of inner rings (IR) is composed of the IR bore diameter dimension × outside diameter dimension × width dimension.

Needle Roller Bearings

NTN

Machined-ring needle roller bearings with an inner ring

NA48 type
NA49 type
NA59 type
NK+IR type



d 300–440 mm

Boundary dimensions						Basic load rating		Fatigue load limit	Allowable speed		Number
mm						dynamic	static	N C _u	min ⁻¹		
d	D	C	r _{s min} ¹⁾	F	s ²⁾	C _r	C _{0r}		Grease lubrication	Oil lubrication	
300	380	80	2.1	330	2	625 000	1 770 000	149 000	800	1 200	NA4860
	420	118	3	340	2	1 080 000	2 640 000	219 000	800	1 200	NA4960
320	400	80	2.1	350	2	640 000	1 850 000	153 000	750	1 100	NA4864
	440	118	3	360	2	1 120 000	2 820 000	230 000	750	1 100	NA4964
340	420	80	2.1	370	2	655 000	1 940 000	158 000	750	1 100	NA4868
	460	118	3	380	2	1 160 000	3 000 000	242 000	750	1 100	NA4968
360	440	80	2.1	390	2	665 000	2 020 000	162 000	650	1 000	NA4872
	480	118	3	400	2	1 200 000	3 200 000	253 000	650	1 000	NA4972
380	480	100	2.1	415	2	1 000 000	2 840 000	223 000	650	950	NA4876
	520	140	4	430	2	1 400 000	3 750 000	292 000	650	950	NA4976
400	540	140	4	450	2.5	1 450 000	4 000 000	305 000	600	900	NA4980
420	560	140	4	470	2.5	1 500 000	4 250 000	320 000	550	850	NA4984
440	600	160	4	490	2.5	1 750 000	4 600 000	340 000	550	800	NA4988

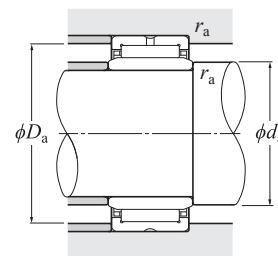
1) Smallest allowable dimension for chamfer dimension r.

2) Allowable axial movement amount of the inner ring with respect to the outer ring.

3) Largest allowable dimension for fillet radius r_a of housing and shaft.

Needle Roller Bearings

NTN



Installation-related dimensions			Mass
d _a Min.	D _a Max.	r _{as} ³⁾ Max.	
mm			kg
			(approx.)
311	369	2	22.0
313	407	2.5	42.5
331	389	2	23.2
333	427	2.5	45.2
351	409	2	24.1
353	447	2.5	47.3
371	429	2	25.7
373	467	2.5	49.0
391	469	2	44.5
396	504	3	73.6
416	524	3	76.6
436	544	3	89.8
456	584	3	123

Note: The number of inner rings (IR) is composed of the IR bore diameter dimension × outside diameter dimension × width dimension.