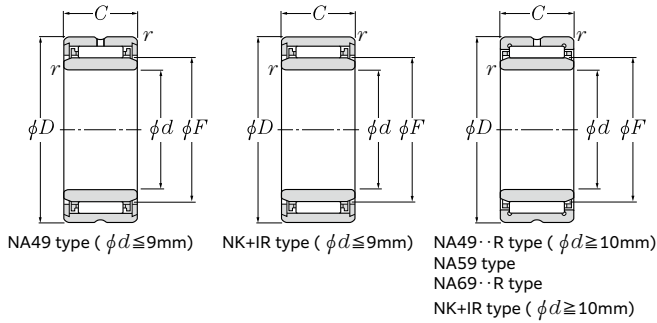


# Needle Roller Bearings



Machined-ring needle roller bearings with an inner ring

NA49 type  
NA59 type  
NA69 type  
NK+IR type

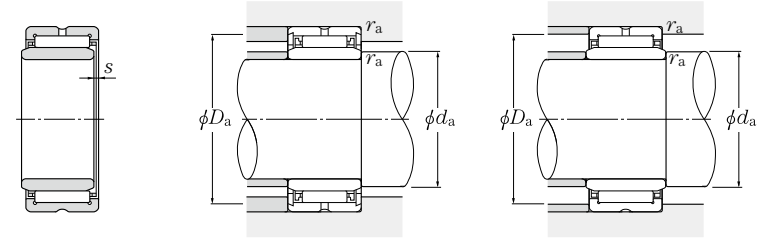


d 5 ~ 17mm

Boundary dimensions mm	Basic load rating		Fatigue load limit N $C_U$	Allowable speed min <sup>-1</sup>		Number					
	dynamic $C_T$	static $C_{0r}$		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
	19	12	0.3	12	1.5	5 000	6 100	740	17 000	26 000	NK12/12+IR9×12×12
9	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



Installation-related dimensions mm	Mass kg	
	Min.	Max.
$d_a$	6.2	8.5
$D_a$	7	9.5
$r_{as}$ <sup>3)</sup>	0.15	0.3
(approx.)	0.007	0.012
	0.016	0.009
	0.013	0.010
	0.017	0.014
	0.018	0.018
	0.017	0.010
	0.014	0.014
	0.018	0.018
	0.017	0.016
	0.024	0.016
	0.030	0.018
	0.038	0.022
	0.026	0.017
	0.033	0.014
	0.042	0.018
	0.046	0.024
	0.039	0.033
	0.045	0.042
	0.036	0.046
	0.052	0.039
	0.064	0.045
	0.042	0.052
	0.053	0.064
	0.037	0.042

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