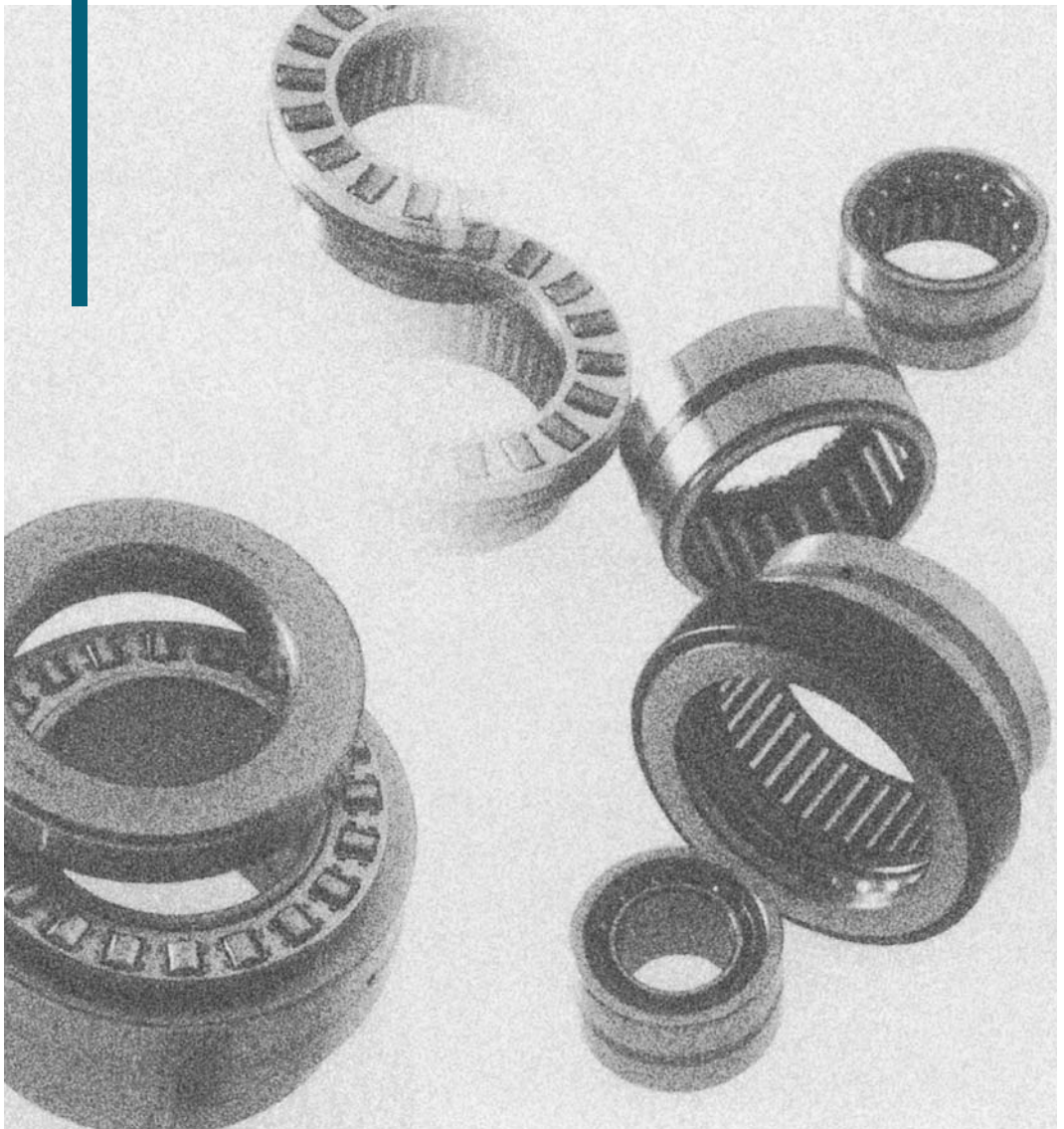


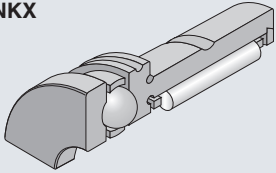
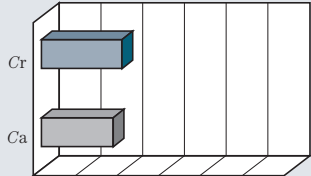
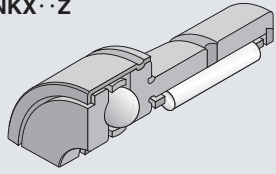
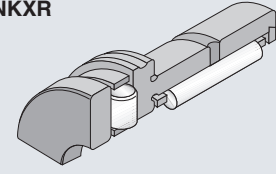
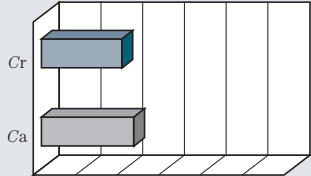
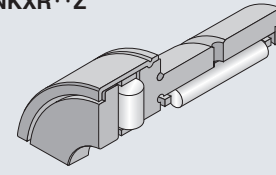
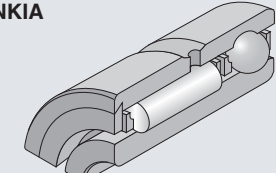
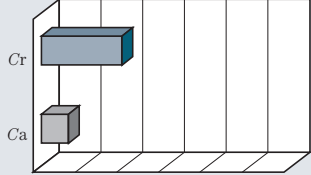
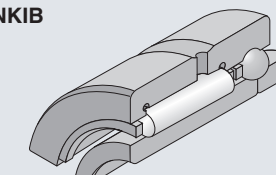
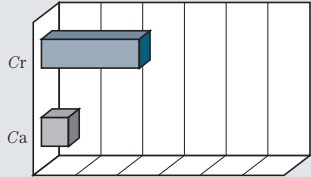
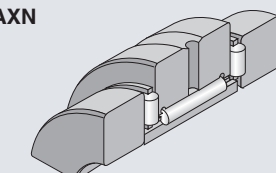
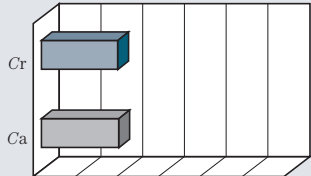
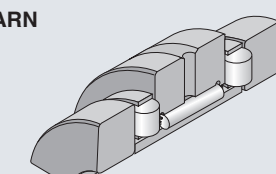
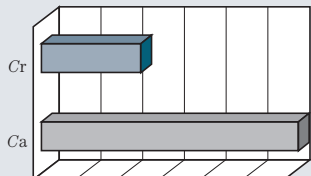
# Complex Bearings




## Complex Bearings

NTN complex bearing is comprised of a needle roller bearing of supporting radial load and a thrust bearing for supporting axial load which are assembled integrally. Comparing with individual use of a radial bearing and a

thrust bearing for the same purpose, this complex bearing saves the required installation space and thereby can contribute to making the overall construction of an equipment more compact.

Bearing type	Applicable shaft diameter (mm)	Load capacity	Composition of bearing number
<b>Type NKX</b> 	$\phi 10 - \phi 70$		<b>NKX 20 T2</b> NKX: Type code 20: Dimension code (shaft diameter) T2: Suffix T2: Resin cage
<b>Type NKX·Z</b> 			<b>NKX 20 T2 Z</b> NKX: Type code 20: Dimension code (shaft diameter) T2: Suffix T2: Resin cage Z: with dust-proof cover
<b>Type NKXR</b> 	$\phi 15 - \phi 50$		<b>NKXR 20 T2</b> NKXR: Type code 20: Dimension code (shaft diameter) T2: Suffix T2: Resin cage
<b>Type NKXR·Z</b> 			<b>NKXR 20 T2Z</b> NKXR: Type code 20: Dimension code (shaft diameter) T2: Suffix T2: Resin cage Z: with dust-proof cover
<b>Type NKIA</b> 	$\phi 15 - \phi 70$		<b>NKIA 59 04</b> NKIA: Type code 59: Dimension series code 04: Bore diameter code
<b>Type NKIB</b> 	$\phi 15 - \phi 70$		<b>NKIB 59 04 R</b> NKIB: Type code 59: Dimension series code 04: Bore diameter code R: Suffix R: outer ring with rib
<b>Type AXN</b> 	$\phi 20 - \phi 50$		<b>AXN 20 52</b> AXN: Type code 20: Bore diameter code 52: Outer diameter code
<b>Type ARN</b> 	$\phi 20 - \phi 70$		<b>ARN 20 62</b> ARN: Type code 20: Bore diameter code 62: Outer diameter code

※Each listed load capacity is subject to reference bearing bore diameter of  $\phi 20$ .

Bearing components	Handling characteristic	Features
Inscribed circle diameter (shaft dia.) : $\phi 20$ Radial bearing : Needle roller type Iron cage Thrust bearing : Ball type Resin cage Dust-proof cover : without Thrust plate : Separable	 Separable thrust plate Without dust-proof cover	Can be applied to high speed running under light axial load, due to use of ball type thrust bearing.
Inscribed circle diameter (shaft dia.) : $\phi 20$ Radial bearing : Needle roller type Iron cage Thrust bearing : Ball type Resin cage Dust-proof cover : with Thrust plate : Non-separable, integral type	 Integral thrust plate With dust-proof cover	This type is identical to Type NKX except in that the thrust bearing is protected with a dust cover. Furthermore, the handling characteristic is good because the dust cover makes the thrust plate non-separable integral.
Inscribed circle diameter (shaft dia.) : $\phi 20$ Radial bearing : Needle roller type Iron cage Thrust bearing : Cylindrical roller type Resin cage Dust-proof cover : without Thrust plate : Separable	 Separable thrust plate Without dust-proof cover	Due to the use of needle roller bearing as its thrust bearing, this type can support greater axial load than NKX.
Inscribed circle diameter (shaft dia.) : $\phi 20$ Radial bearing : Needle roller type Iron cage Thrust bearing : Cylindrical roller type Resin cage Dust-proof cover : with Thrust plate : Non-separable, integral type	 Integral thrust plate With dust-proof cover	This type is identical to NKXR, but its thrust bearing is provided with dust-proof cover to prevent grease scattering. Furthermore, the handling characteristic is good because the dust-proof cover makes the thrust plate non-separable and integral.
Inscribed circle diameter (shaft dia.) : $\phi 20$ Radial bearing : Needle roller type Thrust bearing : Angular type	 Integral angular bearing Inner ring separable	This type is composed of needle roller bearing and angular bearing which were integrated into one unit. The angular bearing supports axial load. Hence, this type can support one-way axial load only. Best-suited to high speed and light load application.
Inscribed circle diameter (shaft dia.) : $\phi 20$ Radial bearing : Needle roller type Outer ring with rib Thrust bearing : Three-point contact angular type	 Double inner ring type Inner ring separable	This type is composed of needle roller bearing and three-point contact angular bearing which were integrated into one unit. Unlike KN1A, this type can support bi-directional axial load.
Inscribed circle diameter (shaft dia.) : $\phi 20$ Outer ring outer diameter : 52 Radial bearing : Needle roller type Thrust bearing : Needle roller type	 Separable	This type is a special-purposed bearing to support a precision ball screw. This type uses the side face of the radial bearing as the raceway surface of thrust bearing. This can support axial load from both directions.
Inscribed circle diameter (shaft dia.) : $\phi 20$ Outer ring outer diameter : 62 Radial bearing : Needle roller type Thrust bearing : Cylindrical roller type	 Separable	This type is a special-purposed bearing to support a precision ball screw. This can support bi-directional axial load. This type is identical to AXN, but its axial load capacity is greater.

### Bearing Accuracy

Regarding the dimensional tolerances for radial needle roller bearing, refer to **Table 4.3** of 4. "Bearing Tolerances" (page A-26) for others than the characteristics described in Dimensions Table and to **Table 4.4** (page A-26) for thrust bearing tolerances respectively. Manufacture of bearing **Type AXN** and **ARN** is limited to those of JIS accuracy class-5 and -4 only. (Allowable radial run-out values for Type AXN and ARN is as specified in **Table 1**.)

**Table 1 Allowable radial run-out values for Type AXN and ARN**  
Unit:  $\mu\text{m}$

Nominal bearing bore dia. $d$ or nominal bearing outer dia. $D$ (mm)		Radial runout of radial inner ring <sup>①</sup>		Allowable radial run-out for outer ring <sup>②</sup>	
Over	Incl.	$K_{ia}$		$K_{ea}$	
		Class 5	Class 4	Class 5	Class 4
18	30	4	3	—	—
30	50	5	4	—	—
50	80	5	4	8	5
80	120	—	—	10	6
120	150	—	—	11	7

- ① To be determined based on "d".
- ② To be determined based on "D".

### Radial internal clearance

The radial internal clearance of **Type NKX+IR**, **NKXR+IR** and **NKIA** is in accordance with the interchangeable clearance information in **Table 5.1(1)** in Sec. 5.1 "Bearing radial internal clearance" (page A-30). The standard bearings are manufactured subject to the regular clearances.

The radial internal clearance of **Types AXN** and **ARN** is unique to this type, and the clearance value specific to an intended bearing is found in the relevant dimension table.

### Bearing fits

Radial needle roller bearings shall be fitted on shaft/in housing in compliance with **Table 2**. The thrust bearing washers of **Type NKX** and **NKXR** shall be fitted in a housing with hole diameter larger by 0.5mm or over than the washer outer diameter  $D_1$  or  $D_2$ . For **Type NKIA** and **NKIB** it is not allowed to make the interference greater than k5/M6.

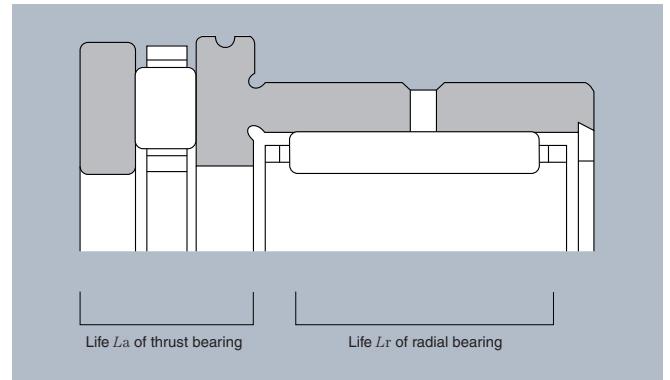
**Table 2 Bearing fit on shaft and in housing (recommended)**

Bearing type	Shaft	Housing
Series NKX, NKXR	k5	K6 (M6)
Series NKIA, NKIB	k5	M6
Series AXN, ARN	j5	J6

Remarks: The parenthesized housing code is applied, where high rigidity is required.

### Calculation of rating life

The rating life ( $L$ ) of any complex bearing is determined as follows. Determine individually the rating life ( $L_r$ ) of radial needle roller bearing from radial load acting thereon and the rating life ( $L_a$ ) of thrust bearing from axial load acting thereon. And determine the rating life ( $L$ ) from these determined rating lives ( $L_r, L_a$ ) using the following formula.



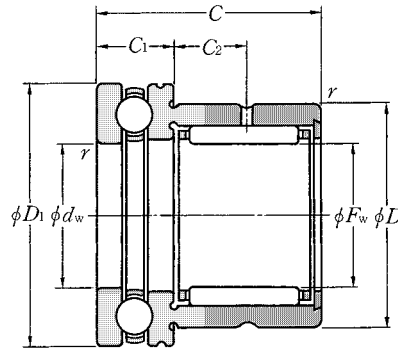
Rating life  $L$  of complex bearing

$$L = \frac{1}{\left(\frac{1}{L_r^{1.1}} + \frac{1}{L_a^{1.1}}\right)^{0.91}} \dots\dots\dots(1)$$

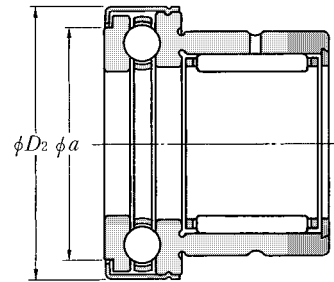


## Without inner ring

Type NKX  
Type NKX · Z



Type NKX  
(Open type)



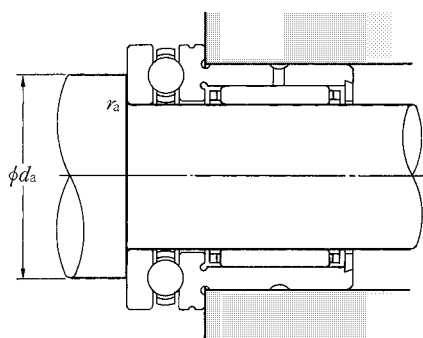
Type NKX · Z  
(With cover)

$F_w$  10~70mm

$F_w$	$d_w$	$D$	Boundary dimensions								Basic load ratings					
			$D_1$	mm		$C$	$C_1$	$C_2$	$a$	$r_s \text{ min}^1)$	dynamic N	static	dynamic kgf	static		
				$D_2$	$C$										$C_1$	$C_2$
10	$\begin{matrix} +0.022 \\ +0.013 \end{matrix}$	10	$\begin{matrix} +0.040 \\ +0.025 \end{matrix}$	19	24	25	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	9	6.5	19.7	0.3	5 450	6 450	555	660
12	$\begin{matrix} +0.027 \\ +0.016 \end{matrix}$	12	$\begin{matrix} +0.050 \\ +0.032 \end{matrix}$	21	26	27	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	9	6.5	21.7	0.3	6 000	7 700	615	785
15	$\begin{matrix} +0.027 \\ +0.016 \end{matrix}$	15	$\begin{matrix} +0.050 \\ +0.032 \end{matrix}$	24	28	29	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	9	6.5	23.7	0.3	8 250	10 200	840	1 040
17	$\begin{matrix} +0.027 \\ +0.016 \end{matrix}$	17	$\begin{matrix} +0.050 \\ +0.032 \end{matrix}$	26	30	31	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	9	8	25.7	0.3	10 400	14 400	1 060	1 460
20	$\begin{matrix} +0.033 \\ +0.020 \end{matrix}$	20	$\begin{matrix} +0.061 \\ +0.040 \end{matrix}$	30	35	36	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	10	10.5	30.7	0.3	16 400	27 100	1 670	2 760
25	$\begin{matrix} +0.033 \\ +0.020 \end{matrix}$	25	$\begin{matrix} +0.061 \\ +0.040 \end{matrix}$	37	42	43	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	11	9.5	37.7	0.6	14 200	24 000	1 450	2 450
30	$\begin{matrix} +0.033 \\ +0.020 \end{matrix}$	30	$\begin{matrix} +0.061 \\ +0.040 \end{matrix}$	42	47	48	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	11	9.5	42.7	0.6	22 300	39 500	2 280	4 000
35	$\begin{matrix} +0.041 \\ +0.025 \end{matrix}$	35	$\begin{matrix} +0.075 \\ +0.050 \end{matrix}$	47	52	53	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	12	9	47.7	0.6	20 000	36 000	2 040	3 650
40	$\begin{matrix} +0.041 \\ +0.025 \end{matrix}$	40	$\begin{matrix} +0.075 \\ +0.050 \end{matrix}$	52	60	61	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	13	10	55.7	0.6	25 900	52 500	2 650	5 350
45	$\begin{matrix} +0.041 \\ +0.025 \end{matrix}$	45	$\begin{matrix} +0.075 \\ +0.050 \end{matrix}$	58	65	66.5	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	14	9	60.5	0.6	27 600	59 000	2 810	6 000
50	$\begin{matrix} +0.041 \\ +0.025 \end{matrix}$	50	$\begin{matrix} +0.075 \\ +0.050 \end{matrix}$	62	70	71.5	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	14	10	65.5	0.6	27 900	62 000	2 850	6 300
60	$\begin{matrix} +0.049 \\ +0.030 \end{matrix}$	60	$\begin{matrix} +0.090 \\ +0.060 \end{matrix}$	72	85	86.5	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	17	12	80.5	1	29 800	71 500	3 050	7 300
70	$\begin{matrix} +0.049 \\ +0.030 \end{matrix}$	70	$\begin{matrix} +0.090 \\ +0.060 \end{matrix}$	85	95	96.5	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	$\begin{matrix} 0 \\ -0.20 \end{matrix}$	18	11	90.5	1	36 500	86 000	3 700	8 750

Note 1) Allowable minimum chamfer dimension  $r_s$ .

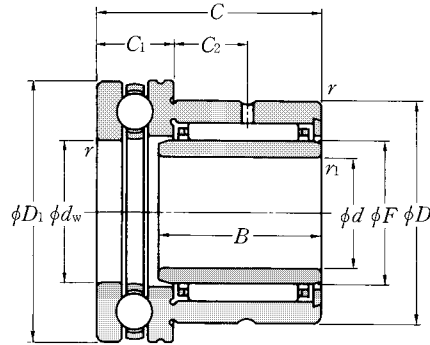
2) Max. allowable dimension of radius  $r_a$  for corner roundness on shaft/housing.



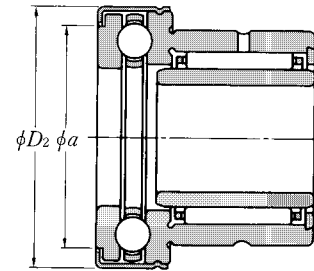
dynamic N	Basic load ratings				Limiting dimensions		Bearing numbers		Abutment dimensions		Mass (approx.)	
	Ca	C <sub>oa</sub>	kgf		grease	oil	Type NKX	Type NKX·Z	d <sub>a</sub> min	r <sub>as</sub> <sup>2)</sup> max	Type NKX	Type NKX·Z
			static	dynamic								
10 000	14 000	1 020	1 420	6 700	9 500	NKX10T2	NKX10T2Z	18	0.3	0.037	0.039	
10 300	15 400	1 050	1 570	6 400	9 200	NKX12T2	NKX12T2Z	20	0.3	0.042	0.044	
10 500	16 800	1 070	1 710	6 200	8 800	NKX15T2	NKX15T2Z	23	0.3	0.044	0.048	
10 800	18 200	1 100	1 850	6 000	8 500	NKX17T2	NKX17T2Z	25	0.3	0.051	0.056	
14 200	24 700	1 450	2 520	5 200	7 500	NKX20T2	NKX20T2Z	29	0.3	0.085	0.090	
19 600	37 000	1 990	3 800	4 600	6 500	NKX25T2	NKX25T2Z	35	0.6	0.125	0.132	
20 400	42 000	2 080	4 300	4 300	6 200	NKX30T2	NKX30T2Z	40	0.6	0.140	0.148	
20 400	44 500	2 080	4 550	3 900	5 600	NKX35T2	NKX35T2Z	45	0.6	0.167	0.175	
26 900	63 000	2 740	6 400	3 500	5 000	NKX40	NKX40Z	52	0.6	0.216	0.225	
27 900	69 000	2 840	7 050	3 200	4 600	NKX45	NKX45Z	57	0.6	0.252	0.265	
28 800	75 500	2 930	7 700	3 100	4 500	NKX50	NKX50Z	62	0.6	0.302	0.318	
41 500	113 000	4 200	11 500	2 600	3 700	NKX60	NKX60Z	75	1	0.465	0.484	
43 000	127 000	4 400	12 900	2 400	3 400	NKX70	NKX70Z	85	1	0.612	0.635	

## With inner ring

Type NKX+IR  
Type NKX·Z+IR



Type NKX+IR  
(Open type)



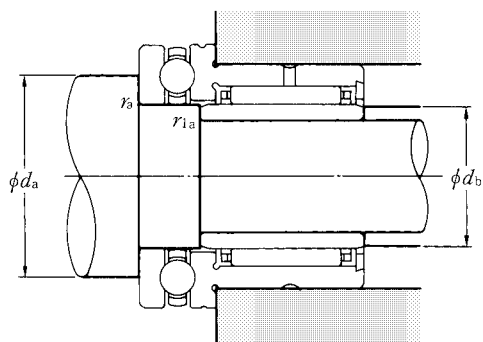
Type NKX·Z+IR  
(With cover)

d 7~60mm

Boundary dimensions													Basic load ratings								
d	dw	D	D1	D2	B	C	C1	C2	F	a	rs min <sup>1)</sup>	r1s min <sup>1)</sup>	dynamic	static	dynamic	static	dynamic	static	dynamic	static	
													Radial				Axial				
													N	N	kgf	kgf	N	N	kgf	kgf	
													Cr	Cor	Cr	Cor	Ca	Coa	Ca	Coa	
7	10	<sup>+0.040</sup> / <sub>+0.025</sub>	19	24	25	16	23	9	6.5	10	19.7	0.3	0.3	5 450	6 450	555	660	10 000	14 000	1 020	1 420
9	12	<sup>+0.050</sup> / <sub>+0.032</sub>	21	26	27	16	23	9	6.5	12	21.7	0.3	0.3	6 000	7 700	615	785	10 300	15 400	1 050	1 570
12	15	<sup>+0.050</sup> / <sub>+0.032</sub>	24	28	29	16	23	9	6.5	15	23.7	0.3	0.3	8 250	10 200	840	1 040	10 500	16 800	1 070	1 710
14	17	<sup>+0.050</sup> / <sub>+0.032</sub>	26	30	31	17	25	9	8	17	25.7	0.3	0.3	10 400	14 400	1 060	1 460	10 800	18 200	1 100	1 850
17	20	<sup>+0.061</sup> / <sub>+0.040</sub>	30	35	36	20	30	10	10.5	20	30.7	0.3	0.3	16 400	27 100	1 670	2 760	14 200	24 700	1 450	2 520
20	25	<sup>+0.061</sup> / <sub>+0.040</sub>	37	42	43	20	30	11	9.5	25	37.7	0.6	0.3	14 200	24 000	1 450	2 450	19 600	37 000	1 990	3 800
25	30	<sup>+0.061</sup> / <sub>+0.040</sub>	42	47	48	20	30	11	9.5	30	42.7	0.6	0.3	22 300	39 500	2 280	4 000	20 400	42 000	2 080	4 300
30	35	<sup>+0.075</sup> / <sub>+0.050</sub>	47	52	53	20	30	12	9	35	47.7	0.6	0.3	20 000	36 000	2 040	3 650	20 400	44 500	2 080	4 550
35	40	<sup>+0.075</sup> / <sub>+0.050</sub>	52	60	61	20	32	13	10	40	55.7	0.6	0.3	25 900	52 500	2 650	5 350	26 900	63 000	2 740	6 400
40	45	<sup>+0.075</sup> / <sub>+0.050</sub>	58	65	66.5	20	32	14	9	45	60.5	0.6	0.3	27 600	59 000	2 810	6 000	27 900	69 000	2 840	7 050
45	50	<sup>+0.075</sup> / <sub>+0.050</sub>	62	70	71.5	25	35	14	10	50	65.5	0.6	0.6	27 900	62 000	2 850	6 300	28 800	75 500	2 930	7 700
50	60	<sup>+0.090</sup> / <sub>+0.060</sub>	72	85	86.5	25	40	17	12	60	80.5	1	1	29 800	71 500	3 050	7 300	41 500	113 000	4 200	11 500
60	70	<sup>+0.090</sup> / <sub>+0.060</sub>	85	95	96.5	25	40	18	11	70	90.5	1	1	36 500	86 000	3 700	8 750	43 000	127 000	4 400	12 900

Note 1) Allowable minimum chamfer dimension r'. 2) Max. allowable dimension of radius r'a or r'1a for corner roundness on shaft/housing.  
Remarks: Nominal code number of inner ring comprises IR. Bore diameter×outer diameter×width.

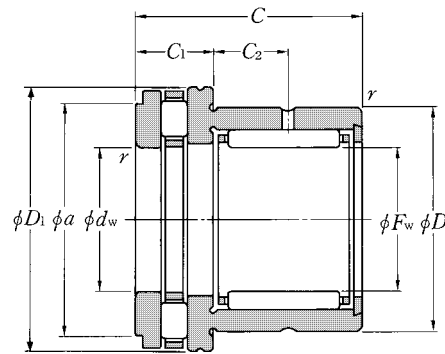




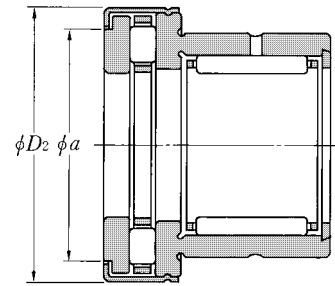
Limiting dimensions min <sup>-1</sup>		Bearing numbers		Abutment dimensions mm				Mass (approx.) kg	
				<i>d</i> <sub>a</sub> min	<i>d</i> <sub>b</sub> min	<i>r</i> <sub>as</sub> <sup>(2)</sup> max	<i>r</i> <sub>ias</sub> <sup>(2)</sup> max	Type NKX+IR	Type NKX·Z+IR
grease	oil	Type NKX+IR	Type NKX·Z+IR						
6 700	9 500	NKX10T2+IR 7×10×16	NKX10T2Z+IR 7×10×16	18	9	0.3	0.3	0.042	0.044
6 400	9 200	NKX12T2+IR 9×12×16	NKX12T2Z+IR 9×12×16	20	11	0.3	0.3	0.048	0.050
6 200	8 800	NKX15T2+IR12×15×16	NKX15T2Z+IR12×15×16	23	14	0.3	0.3	0.052	0.056
6 000	8 500	NKX17T2+IR14×17×17	NKX17T2Z+IR14×17×17	25	16	0.3	0.3	0.061	0.066
5 200	7 500	NKX20T2+IR17×20×20	NKX20T2Z+IR17×20×20	29	19	0.3	0.3	0.099	0.104
4 600	6 500	NKX25T2+IR20×25×20	NKX25T2Z+IR20×25×20	35	22	0.6	0.3	0.152	0.159
4 300	6 200	NKX30T2+IR25×30×20	NKX30T2Z+IR25×30×20	40	27	0.6	0.3	0.173	0.181
3 900	5 600	NKX35T2+IR30×35×20	NKX35T2Z+IR30×35×20	45	32	0.6	0.3	0.205	0.213
3 500	5 000	NKX40 +IR35×40×20	NKX40Z +IR35×40×20	52	37	0.6	0.3	0.260	0.269
3 200	4 600	NKX45 +IR40×45×20	NKX45Z +IR40×45×20	57	42	0.6	0.3	0.293	0.316
3 100	4 500	NKX50 +IR45×50×25	NKX50Z +IR45×50×25	62	48	0.6	0.6	0.373	0.389
2 600	3 700	NKX60 +IR50×60×25	NKX60Z +IR50×60×25	75	55	1	1	0.635	0.654
2 400	3 400	NKX70 +IR60×70×25	NKX70Z +IR60×70×25	85	65	1	1	0.814	0.837

## Without inner ring

Type NKXR  
Type NKXR··Z



Type NKXR  
(Open type)



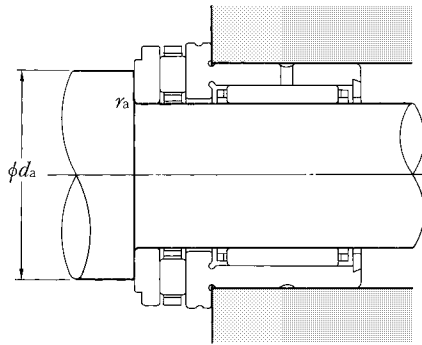
Type NKXR··Z  
(With cover)

$F_w$  15~50mm

$F_w$	Boundary dimensions										Basic load ratings			
	$d_w$	$D$	$D_1$	mm						$r_s \text{ min}^{1)}$	dynamic N	static N	dynamic kgf	static kgf
				$D_2$	$C$ 0 -0.25	$C_1$ 0 -0.20	$C_2$	$a$	Radial $C_r$					
15 +0.027 +0.016	15 +0.050 +0.032	24	28	29	23	9	6.5	23.7	0.3	8 250	10 200	840	1 040	
17 +0.027 +0.016	17 +0.050 +0.032	26	30	31	25	9	8	25.7	0.3	10 400	14 400	1 060	1 460	
20 +0.033 +0.020	20 +0.061 +0.040	30	35	36	30	10	10.5	30.7	0.3	16 400	27 100	1 670	2 760	
25 +0.033 +0.020	25 +0.061 +0.040	37	42	43	30	11	9.5	37.7	0.6	14 200	24 000	1 450	2 450	
30 +0.033 +0.020	30 +0.061 +0.040	42	47	48	30	11	9.5	42.7	0.6	22 300	39 500	2 280	4 000	
35 +0.041 +0.025	35 +0.075 +0.050	47	52	53	30	12	9	47.7	0.6	20 000	36 000	2 040	3 650	
40 +0.041 +0.025	40 +0.075 +0.050	52	60	61	32	13	10	55.7	0.6	25 900	52 500	2 650	5 350	
45 +0.041 +0.025	45 +0.075 +0.050	58	65	66.5	32	14	9	60.5	0.6	27 600	59 000	2 810	6 000	
50 +0.041 +0.025	50 +0.075 +0.050	62	70	71.5	35	14	10	65.5	0.6	27 900	62 000	2 850	6 300	

Note 1) Allowable minimum chamfer dimension  $r_s$ .

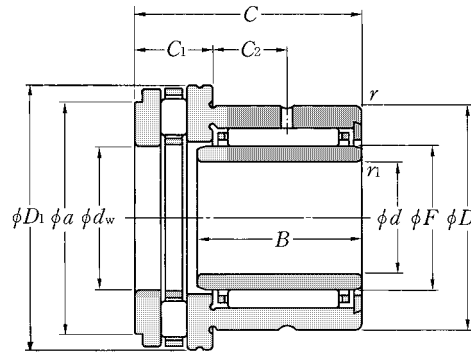
2) Max. allowable dimension of radius  $r_a$  for corner roundness on shaft/housing.



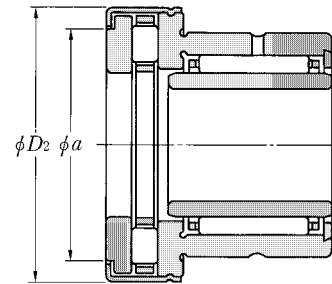
dynamic $C_a$	Basic load ratings				Limiting dimensions $\text{min}^{-1}$ grease oil		Bearing numbers		Abutment dimensions mm		Mass (approx.) kg	
	N	static $C_{oa}$	dynamic kgf				Type NKXR	Type NKXR · Z	$d_a$ min	$r_{as}^{(2)}$ max	Type NKXR	Type NKXR · Z
			Axial $C_a$	static $C_{oa}$								
12 200	26 800	1 250	2 730	2 800	11 000	NKXR15T2	NKXR15T2Z	25	0.3	0.048	0.052	
12 700	29 000	1 300	2 960	2 500	10 000	NKXR17T2	NKXR17T2Z	27	0.3	0.050	0.053	
20 200	46 500	2 060	4 700	2 100	8 500	NKXR20T2	NKXR20T2Z	32	0.3	0.090	0.095	
27 300	68 000	2 790	6 900	1 800	7 000	NKXR25T2	NKXR25T2Z	39	0.6	0.128	0.135	
27 800	72 500	2 840	7 400	1 500	6 000	NKXR30T2	NKXR30T2Z	44	0.6	0.162	0.169	
31 000	87 000	3 150	8 900	1 400	5 500	NKXR35T2	NKXR35T2Z	49	0.6	0.184	0.195	
43 000	121 000	4 350	12 400	1 200	4 800	NKXR40T2	NKXR40T2Z	56	0.6	0.226	0.237	
45 500	135 000	4 650	13 800	1 100	4 400	NKXR45T2	NKXR45T2Z	61	0.6	0.267	0.286	
48 500	150 000	4 900	15 300	1 000	4 000	NKXR50T2	NKXR50T2Z	66	0.6	0.309	0.329	

## With inner ring

Type NKXR+IR  
Type NKXR·Z+IR



Type NKXR+IR  
(Open type)

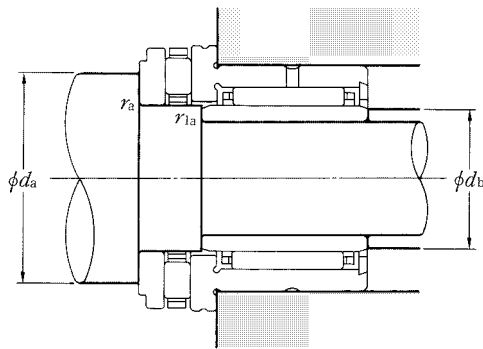


Type NKXR·Z+IR  
(With cover)

d 12~45mm

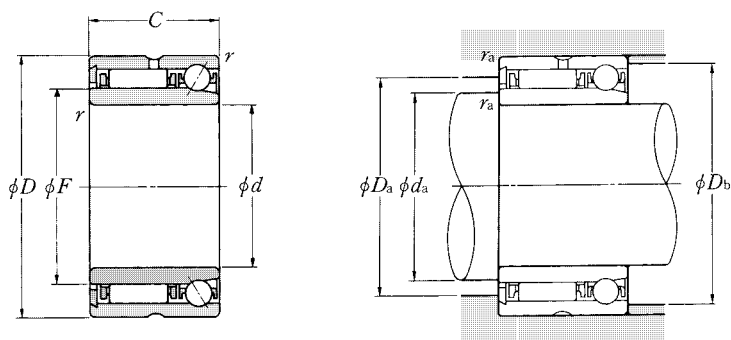
Boundary dimensions													Basic load ratings								
d	d <sub>w</sub>	D	D <sub>1</sub>	D <sub>2</sub>	B	mm				F	a	r <sub>s min</sub> <sup>1)</sup>	r <sub>1s min</sub> <sup>1)</sup>	dynamic	static	dynamic	static	dynamic	static	dynamic	static
						C	C <sub>1</sub>	C <sub>2</sub>	F					N	N	kgf	kgf	N	N	kgf	kgf
						0 -0.25	0 -0.20							Radial		Axial					
12	15 <sup>+0.050 +0.032</sup>	24	28	29	16	23	9	6.5	15	23.7	0.3	0.3	8 250	10 200	840	1 040	12 200	26 800	1 250	2 730	
14	17 <sup>+0.050 +0.032</sup>	26	30	31	17	25	9	8	17	25.7	0.3	0.3	10 400	14 400	1 060	1 460	12 700	29 000	1 300	2 960	
17	20 <sup>+0.061 +0.040</sup>	30	35	36	20	30	10	10.5	20	30.7	0.3	0.3	16 400	27 100	1 670	2 760	20 200	46 500	2 060	4 700	
20	25 <sup>+0.061 +0.040</sup>	37	42	43	20	30	11	9.5	25	37.7	0.6	0.3	14 200	24 000	1 450	2 450	27 300	68 000	2 790	6 900	
25	30 <sup>+0.061 +0.040</sup>	42	47	48	20	30	11	9.5	30	42.7	0.6	0.3	22 300	39 500	2 280	4 000	27 800	72 500	2 840	7 400	
30	35 <sup>+0.075 +0.050</sup>	47	52	53	20	30	12	9	35	47.7	0.6	0.3	20 000	36 000	2 040	3 650	31 000	87 000	3 150	8 900	
35	40 <sup>+0.075 +0.050</sup>	52	60	61	20	32	13	10	40	55.7	0.6	0.3	25 900	52 500	2 650	5 350	43 000	121 000	4 350	12 400	
40	45 <sup>+0.075 +0.050</sup>	58	65	66.5	20	32	14	9	45	60.5	0.6	0.3	27 600	59 000	2 810	6 000	45 500	135 000	4 650	13 800	
45	50 <sup>+0.075 +0.050</sup>	62	70	71.5	25	35	14	10	50	65.5	0.6	0.6	27 900	62 000	2 850	6 300	48 500	150 000	4 900	15 300	

Note 1) Allowable minimum chamfer dimension  $r$ . 2) Max. allowable dimension of radius  $r_a$  or  $r_{1a}$  for corner roundness on shaft/housing.  
Remarks: Nominal code number of inner ring comprises IR. Bore diameter×outer diameter×width.



Limiting dimensions min <sup>-1</sup>		Bearing numbers		Abutment dimensions mm				Mass (approx.) kg	
				d <sub>a</sub> min	d <sub>b</sub> min	r <sub>as</sub> <sup>(2)</sup> max	r <sub>ias</sub> <sup>(2)</sup> max	Type NKXR+IR	Type NKXR·Z+IR
grease	oil	Type NKXR+IR	Type NKXR·Z+IR						
2 800	11 000	NKXR15T2+IR12×15×16	NKXR15T2Z+IR12×15×16	25	14	0.3	0.3	0.056	0.060
2 500	10 000	NKXR17T2+IR14×17×17	NKXR17T2Z+IR14×17×17	27	16	0.3	0.3	0.060	0.063
2 100	8 500	NKXR20T2+IR17×20×20	NKXR20T2Z+IR17×20×20	32	19	0.3	0.3	0.105	0.110
1 800	7 000	NKXR25T2+IR20×25×20	NKXR25T2Z+IR20×25×20	39	22	0.6	0.3	0.155	0.162
1 500	6 000	NKXR30T2+IR25×30×20	NKXR30T2Z+IR25×30×20	44	27	0.6	0.3	0.197	0.202
1 400	5 500	NKXR35T2+IR30×35×20	NKXR35T2Z+IR30×35×20	49	32	0.6	0.3	0.224	0.235
1 200	4 800	NKXR40T2+IR35×40×20	NKXR40T2Z+IR35×40×20	56	37	0.6	0.3	0.270	0.281
1 100	4 400	NKXR45T2+IR40×45×20	NKXR45T2Z+IR40×45×20	61	42	0.6	0.3	0.318	0.337
1 000	4 000	NKXR50T2+IR45×50×25	NKXR50T2Z+IR45×50×25	66	48	0.6	0.6	0.379	0.400

## Type NKIA59



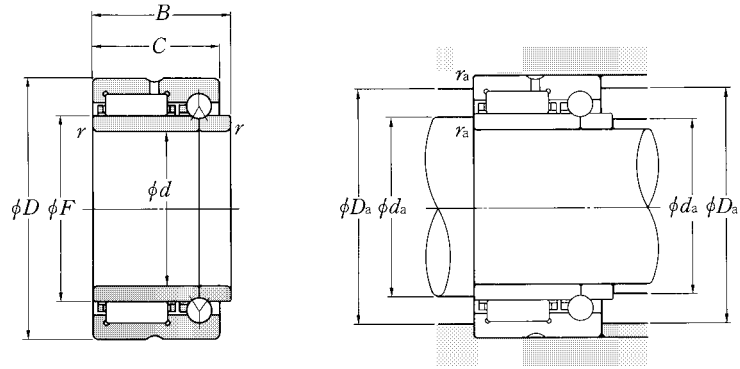
**d** 15~70mm

Boundary dimensions					Basic load ratings								Limiting dimensions	
mm					N				kgf				min <sup>-1</sup>	
d	D	C	F	r <sub>s</sub> min <sup>1)</sup>	Radial				Axial				grease	oil
					C <sub>r</sub>	C <sub>or</sub>	C <sub>r</sub>	C <sub>or</sub>	C <sub>a</sub>	C <sub>oa</sub>	C <sub>a</sub>	C <sub>oa</sub>		
15	28	18	20	0.3	9 500	13 400	970	1 370	2 340	3 050	239	310	13 000	20 000
17	30	18	22	0.3	10 100	14 900	1 030	1 520	2 530	3 550	258	360	12 000	18 000
20	37	23	25	0.3	16 500	22 100	1 680	2 250	4 700	6 150	480	625	11 000	16 000
22	39	23	28	0.3	17 500	24 800	1 790	2 530	4 900	6 750	500	690	9 500	14 000
25	42	23	30	0.3	18 600	27 400	1 900	2 790	5 100	7 350	520	750	8 500	13 000
30	47	23	35	0.3	19 400	30 500	1 980	3 100	5 400	8 550	550	870	7 500	11 000
35	55	27	42	0.6	25 700	46 000	2 630	4 700	7 400	12 300	755	1 260	6 500	9 500
40	62	30	48	0.6	31 000	61 000	3 150	6 250	7 750	14 000	790	1 430	5 500	8 500
45	68	30	55	0.6	33 000	69 500	3 350	7 100	8 500	17 100	870	1 740	5 000	7 500
50	72	30	60	0.6	33 500	73 500	3 450	7 500	8 800	18 700	900	1 910	4 300	6 500
55	80	34	63	1	44 500	95 500	4 500	9 700	14 300	33 000	1 460	3 350	4 300	6 500
60	85	34	68	1	45 500	101 000	4 600	10 300	14 800	36 000	1 510	3 650	4 000	6 000
65	90	34	75	1	46 000	106 000	4 700	10 800	15 200	39 000	1 550	4 000	3 700	5 500
70	100	40	80	1	62 500	146 000	6 350	14 900	18 600	47 500	1 890	4 850	3 300	5 000

Note 1) Allowable minimum chamfer dimension *r*. 2) Max. allowable dimension of radius *r<sub>a</sub>* for corner roundness on shaft/housing.  
Remarks: Nominal code number of inner ring comprises IR. Bore diameter×outer diameter×width.

Bearing numbers	Abutment dimensions mm				Mass kg (approx.)
	$d_a$ min	$D_a$ max	$D_b$ max	$r_{as}^{2)}$ max	
NKIA 5902A	17.5	22	25.5	0.3	0.050
NKIA 5903A	19.5	24	27.5	0.3	0.056
NKIA 5904A	22.5	28	34.5	0.3	0.111
NKIA59/22A	24.5	31	36.5	0.3	0.120
NKIA 5905A	27.5	33	39.5	0.3	0.130
NKIA 5906A	32.5	38	44.5	0.3	0.147
NKIA 5907A	40	45	50	0.6	0.243
NKIA 5908A	45	51	57	0.6	0.347
NKIA 5909A	50	58	63	0.6	0.401
NKIA 5910A	55	63	67	0.6	0.410
NKIA 5911A	61	66.5	74	1	0.590
NKIA 5912A	66	71.5	79	1	0.632
NKIA 5913A	71	78.5	84	1	0.708
NKIA 5914A	76	84	94	1	1.05

## Type NKIB 59



d 15~70mm

Boundary dimensions						Basic load ratings								Limiting dimensions	
d	D	mm			$r_s \text{ min}^{-1}$	dynamic		static		dynamic		static		grease	oil
		B	C	F		N	kgf	N	kgf						
		$\begin{matrix} 0 \\ -0.3 \end{matrix}$					Radial				Axial				
						$C_r$	$C_{or}$	$C_r$	$C_{or}$	$C_a$	$C_{oa}$	$C_a$	$C_{oa}$		
15	28	20	18	20	0.3	10 800	13 600	1 100	1 390	2 750	4 200	280	430	13 000	20 000
17	30	20	18	22	0.3	11 200	14 600	1 140	1 490	2 960	4 900	300	495	12 000	18 000
20	37	25	23	25	0.3	21 300	25 500	2 170	2 600	4 650	7 400	475	755	11 000	16 000
22	39	25	23	28	0.3	23 200	29 300	2 360	2 990	5 000	8 650	510	880	9 500	14 000
25	42	25	23	30	0.3	24 000	31 500	2 450	3 200	5 150	9 250	525	945	8 500	13 000
30	47	25	23	35	0.3	25 500	35 500	2 600	3 600	5 600	11 200	570	1 140	7 500	11 000
35	55	30	27	42	0.6	32 000	50 000	3 300	5 100	7 050	14 900	720	1 520	6 500	9 500
40	62	34	30	48	0.6	43 500	66 500	4 450	6 800	8 700	19 400	890	1 980	5 500	8 500
45	68	34	30	52	0.6	46 000	73 000	4 700	7 450	9 100	21 400	925	2 180	5 000	7 500
50	72	34	30	58	0.6	48 000	80 000	4 900	8 150	9 600	24 300	980	2 480	4 300	6 500
55	80	38	34	63	1	58 500	99 500	6 000	10 100	11 400	29 400	1 170	3 000	4 300	6 500
60	85	38	34	68	1	61 500	108 000	6 250	11 000	11 800	32 000	1 200	3 250	4 000	6 000
65	90	38	34	72	1	62 500	112 000	6 350	11 400	12 100	34 000	1 240	3 500	3 700	5 500
70	100	45	40	80	1	85 500	156 000	8 750	15 900	15 900	44 500	1 620	4 550	3 300	5 000

Note 1) Allowable minimum chamfer dimension  $r$ . 2) Max. allowable dimension of radius  $r_a$  for corner roundness on shaft/housing.

Remarks: 1. This complex can support bi-directional axial load.

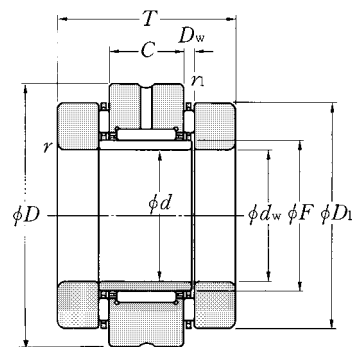
2. The ball bearing of this complex bearing is complete with a synthetic resin cage, and the allowable operating temperature shall be 120°C and, under continuous running, 100°C or less.

3. This bearing type is the imported product from INA, Germany.



Bearing numbers	Abutment dimensions			Mass kg (approx.)
	$d_a$ min	$D_a$ max	$r_{as}^{(2)}$ max	
NKIB 5902R	17.5	25.5	0.3	0.052
NKIB 5903R	19.5	27.5	0.3	0.058
NKIB 5904R	22.5	34.5	0.3	0.107
NKIB59/22R	24.5	36.5	0.3	0.122
NKIB 5905R	27.5	39.5	0.3	0.134
NKIB 5906R	32.5	44.5	0.3	0.151
NKIB 5907R	40	50	0.6	0.247
NKIB 5908R	45	57	0.6	0.320
NKIB 5909R	50	63	0.6	0.380
NKIB 5910R	55	67	0.6	0.385
NKIB 5911R	61	74	1	0.555
NKIB 5912R	66	79	1	0.595
NKIB 5913R	71	84	1	0.640
NKIB 5914R	76	94	1	0.985

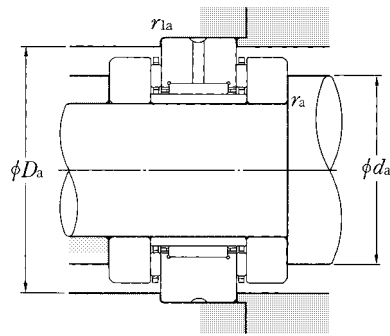
Type AXN



d 20~50mm

Boundary dimensions										Basic load ratings													
d	d <sub>w</sub>	D	mm					r <sub>s min</sub> <sup>1)</sup>	r <sub>1s min</sub> <sup>1)</sup>	dynamic	static	dynamic	static	dynamic	static	dynamic	static	dynamic	static				
			D <sub>1</sub>	T	C	F	D <sub>w</sub>													Radial		Axial	
			$\begin{matrix} -0.20 \\ 0 \\ -0.50 \end{matrix}$	$\begin{matrix} 0 \\ -0.370 \end{matrix}$	$\begin{matrix} 0 \\ -0.130 \end{matrix}$															C <sub>r</sub>	C <sub>or</sub>	C <sub>a</sub>	C <sub>oa</sub>
20	20 <sup>+0.061</sup> / <sub>+0.040</sub>	52	42	40	16	25	2	0.6	0.6	15 100	22 400	1 540	2 280	14 600	58 000	1 490	5 900						
25	25 <sup>+0.061</sup> / <sub>+0.040</sub>	57	47	44	20	30	2	0.6	0.6	22 100	34 000	2 260	3 500	16 300	69 500	1 660	7 100						
30	30 <sup>+0.061</sup> / <sub>+0.040</sub>	62	52	44	20	35	2	0.6	0.6	24 800	41 500	2 520	4 250	17 800	81 500	1 820	8 300						
35	35 <sup>+0.075</sup> / <sub>+0.050</sub>	70	60	48	20	40	3	1	0.6	26 400	47 000	2 700	4 800	27 400	110 000	2 790	11 300						
40	40 <sup>+0.075</sup> / <sub>+0.050</sub>	75	65	48	20	45	3	1	0.6	28 000	52 500	2 860	5 400	29 800	128 000	3 050	13 100						
45	45 <sup>+0.075</sup> / <sub>+0.050</sub>	80	70	54	25	50	3	1	0.6	38 500	74 500	3 950	7 550	31 500	143 000	3 250	14 500						
50	50 <sup>+0.075</sup> / <sub>+0.050</sub>	90	78	54	25	55	3	1	0.6	41 000	82 000	4 150	8 400	38 000	186 000	3 850	19 000						

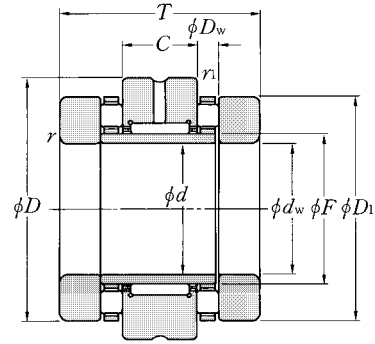
Note 1) Allowable minimum chamfer dimension r or r<sub>1</sub>.



Limiting dimensions min <sup>-1</sup>		Bearing numbers	Radial clearance μm		Abutment dimensions mm				Preload		Starting torque <sup>2)</sup>		Mass kg (approx.)
grease	oil		min	max	da min	Da max	ras <sup>2)</sup> max	ras <sup>2)</sup> max	N	kgf	N·mm	kgf·mm	
1 800	7 000	<b>AXN2052</b>	10	30	39	46	0.6	0.6	1 300	130	330	33	0.400
1 500	6 000	<b>AXN2557</b>	10	30	44	51	0.6	0.6	1 450	145	400	40	0.520
1 400	5 500	<b>AXN3062</b>	10	40	50	56	0.6	0.6	1 600	160	550	55	0.590
1 200	4 700	<b>AXN3570</b>	10	40	56	64	1	0.6	2 450	245	900	90	0.800
1 100	4 300	<b>AXN4075</b>	10	40	62	69	1	0.6	2 650	265	1 050	105	0.890
1 000	3 900	<b>AXN4580</b>	10	40	67	74	1	0.6	2 800	280	1 200	120	1.00
900	3 500	<b>AXN5090</b>	15	50	75	83	1	0.6	3 400	340	1 600	160	1.42

Note 2) Max. allowable dimension of radius  $r_a$  for corner roundness on shaft/housing.  
 3) Starting torque subject to standard preload.

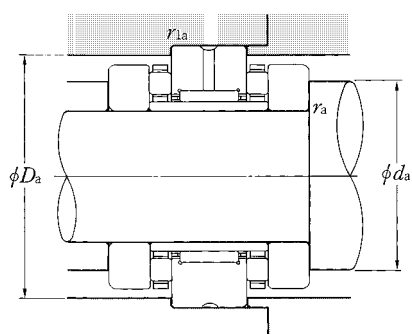
Type ARN



d 20~70mm

Boundary dimensions										Basic load ratings							
d	dw	D	mm					rs min <sup>1)</sup>	r1s min <sup>1)</sup>	dynamic		static		dynamic		static	
			D1	T	C	F	Dw			N		kgf		N		kgf	
										Cr	Cor	Cr	Cor	Ca	Coa	Ca	Coa
20	20 <sup>+0.061</sup> / <sub>+0.040</sub>	52	42	46	16	25	5	0.6	0.6	15 100	22 400	1 540	2 280	27 300	68 000	2 790	6 900
20	20 <sup>+0.061</sup> / <sub>+0.040</sub>	62	52	60	20	30	7.5	1	0.6	22 100	34 000	2 260	3 500	53 500	129 000	5 450	13 100
25	25 <sup>+0.061</sup> / <sub>+0.040</sub>	57	47	50	20	30	5	0.6	0.6	22 100	34 000	2 260	3 500	27 800	72 500	2 840	7 400
25	25 <sup>+0.061</sup> / <sub>+0.040</sub>	72	62	60	20	35	7.5	1	0.6	24 800	41 500	2 520	4 250	54 500	139 000	5 550	14 200
30	30 <sup>+0.061</sup> / <sub>+0.040</sub>	62	52	50	20	35	5	0.6	0.6	24 800	41 500	2 520	4 250	31 000	87 000	3 150	8 900
30	30 <sup>+0.061</sup> / <sub>+0.040</sub>	80	68	66	20	40	9	1	0.6	26 400	47 000	2 700	4 800	74 500	190 000	7 600	19 400
35	35 <sup>+0.075</sup> / <sub>+0.050</sub>	70	60	54	20	40	6	1	0.6	26 400	47 000	2 700	4 800	43 000	121 000	4 350	12 400
35	35 <sup>+0.075</sup> / <sub>+0.050</sub>	85	73	66	20	45	9	1	0.6	28 000	52 500	2 860	5 400	82 000	222 000	8 350	22 600
40	40 <sup>+0.075</sup> / <sub>+0.050</sub>	75	65	54	20	45	6	1	0.6	28 000	52 500	2 860	5 400	45 500	135 000	4 650	13 800
40	40 <sup>+0.075</sup> / <sub>+0.050</sub>	90	78	75	25	50	9	1	0.6	38 500	74 500	3 950	7 550	85 000	238 000	8 650	24 200
45	45 <sup>+0.075</sup> / <sub>+0.050</sub>	80	70	60	25	50	6	1	0.6	38 500	74 500	3 950	7 550	48 500	150 000	4 900	15 300
45	45 <sup>+0.075</sup> / <sub>+0.050</sub>	105	90	82	25	55	11	1	0.6	41 000	82 000	4 150	8 400	121 000	340 000	12 300	34 500
50	50 <sup>+0.075</sup> / <sub>+0.050</sub>	90	78	60	25	55	6	1	0.6	41 000	82 000	4 150	8 400	62 500	215 000	6 350	21 900
50	50 <sup>+0.075</sup> / <sub>+0.050</sub>	110	95	82	25	60	11	1.1	0.6	41 000	85 000	4 200	8 700	125 000	365 000	12 800	37 000
55	55 <sup>+0.090</sup> / <sub>+0.060</sub>	115	100	82	25	65	11	1.1	0.6	45 000	98 000	4 550	10 000	130 000	385 000	13 200	39 500
60	60 <sup>+0.090</sup> / <sub>+0.060</sub>	120	105	82	25	70	11	1.1	0.6	45 000	91 500	4 600	9 350	134 000	410 000	13 700	42 000
65	65 <sup>+0.090</sup> / <sub>+0.060</sub>	125	110	82	25	75	11	1.1	0.6	55 000	104 000	5 600	10 600	138 000	435 000	14 100	44 500
70	70 <sup>+0.090</sup> / <sub>+0.060</sub>	130	115	82	25	80	11	1.1	0.6	57 000	119 000	5 800	12 200	142 000	460 000	14 500	47 000

Note 1) Allowable minimum chamfer dimension r' or r1.



Limiting dimensions min <sup>-1</sup>		Bearing numbers	Radial clearance μm		Abutment dimensions mm				Preload		Starting torque <sup>2)</sup>		Mass kg (approx.)
grease	oil		min	max	da min	Da max	r <sub>ass</sub> <sup>2)</sup> max	r <sub>lass</sub> <sup>2)</sup> max	N	kgf	N·mm	kgf·mm	
1 800	7 000	<b>ARN2052T2</b>	10	30	39	46	0.6	0.6	2 500	250	430	43	0.440
1 500	6 000	<b>ARN2062</b>	10	30	48	56	1	0.6	4 950	495	1 150	115	0.910
1 500	6 000	<b>ARN2557T2</b>	10	30	44	51	0.6	0.6	2 600	260	500	50	0.560
1 200	4 900	<b>ARN2572</b>	10	40	56	66	1	0.6	5 050	505	1 400	140	1.22
1 400	5 500	<b>ARN3062T2</b>	10	40	49	56	0.6	0.6	2 900	290	650	65	0.630
1 100	4 400	<b>ARN3080</b>	10	40	63	73	1	0.6	6 900	690	2 100	210	1.54
1 200	4 800	<b>ARN3570T2</b>	10	40	56	64	1	0.6	3 950	395	1 050	105	0.850
1 000	4 100	<b>ARN3585</b>	10	40	68	77	1	0.6	7 600	760	2 500	250	1.67
1 100	4 400	<b>ARN4075T2</b>	10	40	61	69	1	0.6	4 200	420	1 250	125	0.930
950	3 800	<b>ARN4090</b>	10	40	73	87	1	0.6	7 850	785	2 850	285	2.15
1 000	4 000	<b>ARN4580T2</b>	10	40	66	74	1	0.6	4 450	445	1 550	155	1.16
850	3 300	<b>ARN45105</b>	15	50	83	96	1	0.6	11 200	1 120	4 350	435	3.16
900	3 600	<b>ARN5090</b>	15	50	75	83	1	0.6	5 800	580	2 050	205	1.48
800	3 100	<b>ARN50110</b>	15	50	88	101	1	0.6	11 600	1 160	4 900	490	3.38
750	2 900	<b>ARN55115</b>	15	50	93	106	1	0.6	12 000	1 200	5 500	550	3.61
700	2 700	<b>ARN60120</b>	15	50	98	111	1	0.6	12 400	1 240	6 000	600	3.81
650	2 600	<b>ARN65125</b>	15	50	103	116	1	0.6	12 800	1 280	6 500	650	4.00
650	2 500	<b>ARN70130</b>	15	50	106	121	1	0.6	13 200	1 320	7 000	700	4.25

Note 2) Max. allowable dimension of radius  $r_a$  for corner roundness on shaft/housing.

3) Starting torque subject to standard preload.