MACHINED TYPE NEEDLE ROLLER BEARINGS

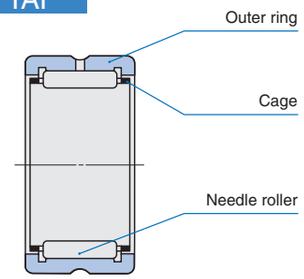
●Machined Type Caged Needle Roller Bearings
●Machined Type Guide Needle Roller Bearings

Structure and Features

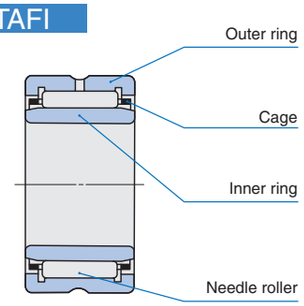
IKO Machined Type Needle Roller Bearings are bearings with a low sectional height and large load ratings. The outer ring has high rigidity and can easily be used even for light alloy housings. These bearings are available in metric series and inch series, both of which have the caged type and the full complement type. It is therefore possible to select a suitable bearing for use under various conditions such as heavy loads and high-speed or low-speed rotations. In addition, there are bearings with and without an inner ring. As the type without inner ring uses a shaft as the raceway surface, a compact design is possible.

Structures of Machined Type Needle Roller Bearings

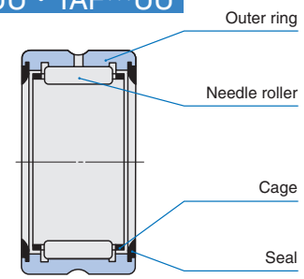
RNA49・TAF



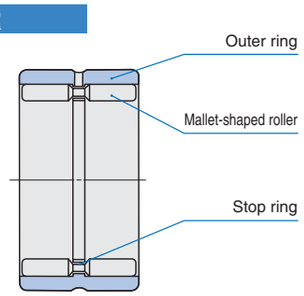
NA49・TAFI



RNA49···UU・TAF···UU



GTR



Types

Machined Type Needle Roller Bearings are available in various types shown in Table 1.

Table 1.1 Type of bearing (Standard type)

Series \ Type		Caged Needle Roller Bearings		Guide Needle Roller Bearings	
		Without inner ring	With inner ring	Without inner ring	With inner ring
Metric series	Dimension series 49	RNA 49	NA 49	GTR	GTRI
	Dimension series 69	RNA 69	NA 69		
	Dimension series 48	RNA 48	NA 48		
	For heavy duty	TR	TRI		
	For light duty	TAF	TAFI		
Inch series		BR	BRI	GBR	GBRI

Table 1.2 Type of bearing (With seal)

Series \ Type			Caged Needle Roller Bearings		Guide Needle Roller Bearings	
			Without inner ring	With inner ring	Without inner ring	With inner ring
Metric series	Dimension series 49	Two side seals	RNA 49···UU	NA 49···UU	—	—
		One side seal	RNA 49···U	NA 49···U		
	Dimension series 69	Two side seals	RNA 69···UU	NA 69···UU		
		One side seal	RNA 69···U	NA 69···U		
Inch series		Two side seals	BR ···UU	BRI ···UU	GBR···UU	GBRI···UU
		One side seal	BR ···U	BRI ···U	GBR···U	GBRI···U

Caged Needle Roller Bearings

This type of bearing combines a collared outer ring with the IKO's unique lightweight rigid cage and needle rollers. During operation, needle rollers are guided precisely by the cage, and an ideal load distribution is obtained.
The metric series consists of the NA48 and NA49 series of ISO Standard, NA69 and TAFI series which are based on the international dimension series, and the heavy duty TRI series which is widely used in Japan. The TAFI series has a sectional height as low as that of the shell type and is used for light loads.
The inch series or BRI series is based on the specifications of ANSI Standard of USA.

Caged Needle Roller Bearings without Inner Ring
As shown in the section "Design of shaft and housing" on page A44, any desired radial clearance can be selected by assembling this type of bearing with a shaft which is heat-treated and finished by grinding.
These bearings are free from the effects on dimensional accuracy caused by assembling an inner ring, so that the rotational accuracy is improved. Also, the shaft rigidity can be improved as the shaft diameter can be increased by an amount corresponding to the inner ring thickness.

Caged Needle Roller Bearings with Inner Ring
This type of bearing is used when the shaft cannot be heat-treated and finished by grinding. The outer and inner rings are separable and a small relief clearance is provided on both sides of the inner ring raceway to facilitate bearing mounting. In the TRI and BRI series, the width of the inner ring is larger than that of the outer ring.
Due to heat expansion during operation or mounting errors, the inner or outer ring may be shifted axially and the whole length of the rollers may not be in contact with the raceway. Therefore, attention should be paid to the allowable axial shift S as shown in the table of dimensions.

Needle Roller Bearings with Seal
These bearings are sealed types of the NA49, NA69 and BRI series bearings, in which a seal is installed on one side (type with one seal) or both sides (type with two seals) of the bearing. The seal is made of special synthetic rubber and effectively prevents dust penetration and grease leakage.

Guide Needle Roller Bearings

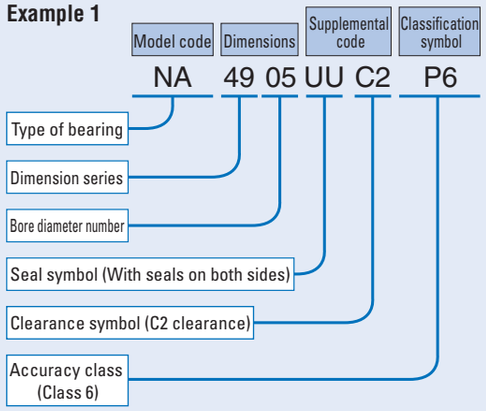
These bearings are full complement type bearings and use mallet-shaped rollers which are guided accurately by the guide rail located at the center of the outer ring raceway and the guide groove of the mallet-shaped roller. This minimizes skewing (tilting of the roller from its rotating axis), which is normally a weak point of full complement bearings, and improves the rotational accuracy. This type of bearing is especially suitable for heavy loads, shock loads and oscillating motions.
The bearings are available in metric and inch series. Bearings with and without inner rings are available in both series. In bearings with an inner ring, the width of the inner ring is larger than that of the outer ring.
The GBRI series of the inch series includes types with a seal or seals which are incorporated on one or both sides.

Identification Number

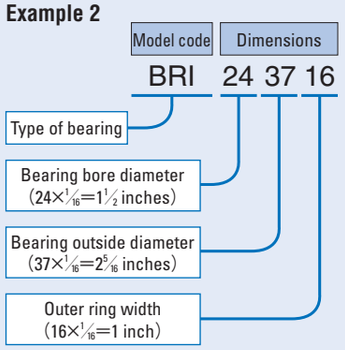
The identification number of Machined Type Needle Roller Bearings consists of a model code, dimensions, any supplemental codes and a classification symbol. Examples are shown below.

Examples of identification number

Example 1



Example 2



Accuracy

Machined Type Needle Roller Bearings are manufactured based on JIS (See page A31.). The tolerances for the smallest single roller set bore diameter of bearings without inner ring are based on Table 14 on page A33. For BR and BRI series, the accuracy is based on Table 2 and the tolerances for the smallest single roller set bore diameter are based on Table 3.

Table 2 Accuracy of inner and outer rings of inch series BR and BRII (1)

unit: μm

d or D Nominal bearing bore dia. or outside dia. mm		Δ_{dmp} Single plane mean bore diameter deviation		Δ_{Dmp} Single plane mean outside diameter deviation		Δ_{Bs} (Δ_{Cs}) Deviation of a single inner (or outer) ring width		K_{ia} Radial runout of assembled bearing inner ring	K_{ea} Radial runout of assembled bearing outer ring
Over	Incl.	High	Low	High	Low	High	Low	Max.	Max.
—	19.050	0	− 10	—	—	0	− 130	10	—
19.050	30.162	0	− 13	0	− 13	0	− 130	13	15
30.162	50.800	0	− 13	0	− 13	0	− 130	15	20
50.800	82.550	0	− 15	0	− 15	0	− 130	20	25
82.550	120.650	0	− 20	0	− 20	0	− 130	25	35
120.650	184.150	—	—	0	− 25	0	− 130	30	45

Remark d for Δ_{dmp}, Δ_{Bs}, Δ_{Cs} and K_{ia}, and D for Δ_{Dmp} and K_{ea}
Note(1) For GBR, GBRI, refer to Metric series tables on pages A31 and A32.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Table 3 Tolerances for smallest single roller set bore diameter $F_{ws\,min}$ of inch series BR(1) unit: μm

F_w Nominal roller set bore diameter mm		$\Delta_{Fws\,min}$ Deviation of smallest single roller set bore diameter	
Over	Incl.	High	Low
—	18.034	+ 43	+ 20
18.034	30.226	+ 46	+ 23
30.226	41.910	+ 48	+ 25
41.910	50.038	+ 51	+ 25
50.038	70.104	+ 53	+ 28
70.104	80.010	+ 58	+ 28
80.010	102.108	+ 61	+ 31

Note(1) For GBR, refer to Metric series tables on page A33.

Clearance

Radial internal clearances of Machined Type Needle Roller Bearings are made to the CN clearance shown in Table 18 on page A37. Radial internal clearances of BRI series are based on Table 4.

Table 4 Radial internal clearance of inch series BRI(1) unit: μm

F_w Nominal roller set bore diameter mm		Radial internal clearance	
Over	Incl.	Min.	Max.
—	18.034	33	66
18.034	25.908	41	76
25.908	30.226	46	82
30.226	35.052	48	86
35.052	41.910	50	89
41.910	50.038	50	92
50.038	70.104	56	99
70.104	80.010	56	104
80.010	100.076	63	117
100.076	102.108	68	127

Note(1) For GBRI, refer to Metric series tables on page A37.

Table 5 Bearings with prepacked grease ○ : With prepacked grease × : Without prepacked grease

Bearing type			Standard type	With seals on both sides	With a seal on one side
Caged Needle Roller Bearings	Metric series	RNA, NA	×	○	×
		TR, TRI	×	—	—
		TAF, TAFI, TAF/SG	×	—	—
	Inch series	BR, BRI	×	○	×
Guide Needle Roller Bearings	Metric series	GTR, GTRI	×	—	—
	Inch series	GBR, GBRI	×	○	×

Fit

The recommended fits for Machined Type Needle Roller Bearings are shown in Tables 22 to 24 on pages A41 and A42.

Lubrication

Bearings with prepacked grease are shown in Table 5. ALVANIA GREASE S2 (SHOWA SHELL SEKIYU K.K.) is prepacked as the lubricating grease.
In the case of bearings without prepacked grease, perform proper lubrication. Operating them without lubrication will increase the wear of the rolling contact surfaces and shorten their lives.

Oil Hole

Table 6.1 shows the number of oil holes of the outer ring and Table 6.2 shows the number of oil holes of the inner ring.
When an outer ring with an oil hole is especially required for the type without an oil hole, add "−OH" before the clearance symbol in the identification number. When an outer ring with an oil hole and an oil groove is required for the type without an oil hole, attach "−OG" before the clearance symbol.
Example: TAFI 203216 − OH C2 P6
When an outer ring with multiple oil holes or an inner ring with an oil hole(s) is required, please consult IKO.

Table 6.1 Number of oil holes of the outer ring

Bearing type				Number of oil holes of the outer ring		
			Nominal roller set bore diameter F_w mm	Standard type	With seals on both sides	With a seal on one side
Caged Needle Roller Bearings	Metric series	RNA, NA		1	1	1
		TR, TRI		1	—	—
		TAF, TAFI	$F_w \leqq 26$	0	—	—
			$26 < F_w$	1	—	—
	Inch series	BR, BRI	$F_w \leqq 69.850$	1	1	1
			$69.850 < F_w$	2	1	1
Guide Needle Roller Bearings	Metric series	GTR, GTRI		1	—	—
	Inch series	GBR, GBRI		1	1	1

Remark The type with an oil hole(s) is provided with an oil groove.

Table 6.2 Number of oil holes of the inner ring

Bearing type				Number of oil holes of the inner ring		
			Nominal bearing bore diameter d mm	Standard type	With seals on both sides	With a seal on one side
Caged Needle Roller Bearings	Metric series	NA		0	0	0
		TRI		0	0	0
		TAFI		0	—	—
	Inch series	BRI	$d \leqq 76.200$	1	1	1
			$76.200 < d$	2	1	1
Guide Needle Roller Bearings	Metric series	GTRI		0	—	—
	Inch series	GBRI		0	0	0

Remark The type with an oil hole(s) is provided with an oil groove.

Matched Set Bearings

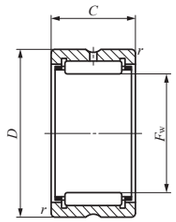
When using two or more Machined Type Needle Roller Bearings adjacent to each other on the same shaft, it is necessary to obtain an even load distribution. On request, a set of bearings is available, in which bearings are matched to obtain an even load distribution.

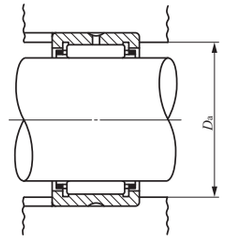
Mounting

Mounting dimensions for Machined Type Needle Roller Bearings are shown in the table of dimensions.

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring





RNA49 TAF
RNA69 ($F_w \leqq 35$)

Shaft dia. 5 — 15mm

Shaft dia. mm	Identification number RNA 49	RNA 69	RNA 48	TAF	TR	GTR	Mass (Ref.) g
5	—	—	—	**TAF 51010**	—	—	3.4
	—	—	—	**TAF 51012**	—	—	4.2
	RNA 493	—	—	—	—	—	4.6
6	**RNA 494**	—	—	—	—	—	5.3
	—	—	—	**TAF 61212**	—	—	6.4
7	**RNA 495**	—	—	—	—	—	5.9
	—	—	—	**TAF 71410**	—	—	6.9
	—	—	—	**TAF 71412**	—	—	8.3
8	**RNA 496**	—	—	—	—	—	7.4
	—	—	—	**TAF 81512**	—	—	9.1
	—	—	—	**TAF 81516**	—	—	12.9
9	—	—	—	**TAF 91612**	—	—	9.8
	—	—	—	**TAF 91616**	—	—	13.2
	RNA 497	—	—	—	—	—	9.3
10	—	—	—	**TAF 101712**	—	—	10.7
	—	—	—	**TAF 101716**	—	—	14.3
	RNA 498	—	—	—	—	—	12.6
12	—	—	—	**TAF 121912**	—	—	12.2
	—	—	—	**TAF 121916**	—	—	16.3
	RNA 499	—	—	—	—	—	13.6
14	**RNA 4900**	—	—	—	—	—	16.5
	—	—	—	**TAF 142216**	—	—	21
	—	—	—	**TAF 142220**	—	—	26.5
15	—	—	—	**TAF 152316**	—	—	22.5
	—	—	—	**TAF 152320**	—	—	28

Boundary dimensions mm F_w	D	C	$r_{s\,min}$ (1)	Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (2) rpm
5	10	10	0.2	8.4	2 420	1 950	80 000
5	10	12	0.2	8.4	3 080	2 660	80 000
5	11	10	0.15	9.8	2 420	1 950	80 000
6	12	10	0.15	10.8	2 700	2 320	70 000
6	12	12	0.2	10.4	3 440	3 170	70 000
7	13	10	0.15	11.8	2 960	2 690	60 000
7	14	10	0.2	12.4	3 600	2 960	60 000
7	14	12	0.2	12.4	4 610	4 050	60 000
8	15	10	0.15	13.8	3 960	3 420	50 000
8	15	12	0.2	13.4	5 060	4 690	50 000
8	15	16	0.2	13.4	7 080	7 220	50 000
9	16	12	0.2	14.4	5 490	5 330	45 000
9	16	16	0.2	14.4	7 680	8 210	45 000
9	17	10	0.15	15.8	4 530	3 650	45 000
10	17	12	0.2	15.4	5 880	5 970	40 000
10	17	16	0.2	15.4	8 230	9 190	40 000
10	19	11	0.2	17.4	6 180	5 030	40 000
12	19	12	0.3	17	6 610	7 260	35 000
12	19	16	0.3	17	9 250	11 200	35 000
12	20	11	0.3	18	6 600	6 310	35 000
14	22	13	0.3	20	9 230	10 100	30 000
14	22	16	0.3	20	11 700	13 700	30 000
14	22	20	0.3	20	14 800	18 600	30 000
15	23	16	0.3	21	12 300	14 900	30 000
15	23	20	0.3	21	15 600	20 200	30 000

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. TAF series with a roller set bore diameter F_w of 26 mm or less have no oil hole. In others, the outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring

Shaft dia. 16 — 22mm

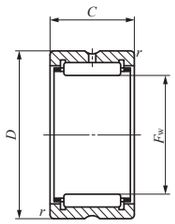
Shaft dia. mm	Identification number RNA 49	RNA 69	RNA 48	TAF	TR	GTR	Mass (Ref.) g
16	**RNA 4901**	—	—	—	—	—	18.1
	—	—	—	**TAF 162416**	—	—	23
	—	—	—	**TAF 162420**	—	—	29
	—	**RNA 6901**	—	—	—	—	30
17	—	—	—	**TAF 172516**	—	—	24.5
	—	—	—	**TAF 172520**	—	—	30.5
18	**RNA 49/14**	—	—	—	—	—	19.9
	—	—	—	**TAF 182616**	—	—	25.5
	—	—	—	**TAF 182620**	—	—	32
19	—	—	—	**TAF 192716**	—	—	27
	—	—	—	**TAF 192720**	—	—	34
20	**RNA 4902**	—	—	—	—	—	21.5
	—	—	—	**TAF 202816**	—	—	27.5
	—	—	—	**TAF 202820**	—	—	35.5
	—	**RNA 6902**	—	—	—	—	37
	—	—	—	—	**TR 203320**	—	59.5
	—	—	—	—	—	**GTR 203320**	69
21	—	—	—	**TAF 212916**	—	—	29
	—	—	—	**TAF 212920**	—	—	36
22	**RNA 4903**	—	—	—	—	—	23.5
	—	—	—	**TAF 223016**	—	—	30
	—	—	—	**TAF 223020**	—	—	37.5
	—	**RNA 6903**	—	—	—	—	40.5
	—	—	—	—	**TR 223425**	—	73.5
	—	—	—	—	—	**GTR 223425**	87

Notes([1]) Minimum allowable value of chamfer dimension r

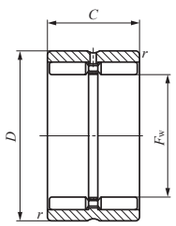
([2]) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.

Remarks1. TAF series with a roller set bore diameter F_w of 26 mm or less have no oil hole. In others, the outer ring has an oil groove and an oil hole.

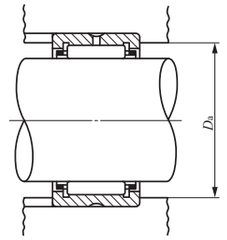
2. No grease is prepacked. Perform proper lubrication.



RNA49 TAF TR
RNA69 ($F_w \leqq 35$)



GTR

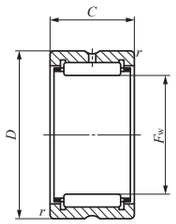


Boundary dimensions mm F_w	D	C	$r_{s\,min}$ [1]	Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed[2] rpm
16	24	13	0.3	22	9 660	11 100	25 000
16	24	16	0.3	22	12 300	15 100	25 000
16	24	20	0.3	22	15 500	20 400	25 000
16	24	22	0.3	22	17 100	23 000	25 000
17	25	16	0.3	23	12 900	16 300	25 000
17	25	20	0.3	23	16 300	22 000	25 000
18	26	13	0.3	24	10 600	12 800	20 000
18	26	16	0.3	24	13 400	17 500	20 000
18	26	20	0.3	24	17 000	23 600	20 000
19	27	16	0.3	25	14 000	18 700	20 000
19	27	20	0.3	25	17 700	25 300	20 000
20	28	13	0.3	26	10 900	13 800	20 000
20	28	16	0.3	26	13 900	18 800	20 000
20	28	20	0.3	26	17 600	25 400	20 000
20	28	23	0.3	26	19 300	28 800	20 000
20	33	20	0.3	31	24 300	26 500	20 000
20	33	20	0.3	31	29 200	37 200	7 500
21	29	16	0.3	27	14 400	20 000	19 000
21	29	20	0.3	27	18 200	27 100	19 000
22	30	13	0.3	28	11 700	15 600	18 000
22	30	16	0.3	28	14 900	21 200	18 000
22	30	20	0.3	28	18 900	28 700	18 000
22	30	23	0.3	28	20 800	32 500	18 000
22	34	25	0.3	32	29 100	36 800	18 000
22	34	25	0.3	32	37 900	57 800	7 000

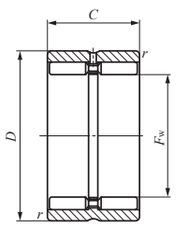
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

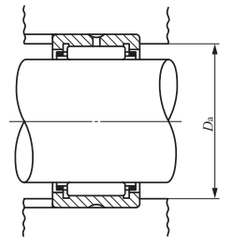
Without Inner Ring



RNA49 TAF TR
RNA69 ($F_w \leqq 35$)



GTR



Shaft dia. 24 — 30mm

Shaft dia. mm	Identification number RNA 49	RNA 69	RNA 48	TAF	TR	GTR	Mass (Ref.) g
24	—	—	—	TAF 243216	—	—	32
	—	—	—	TAF 243220	—	—	40.5
25	—	—	—	TAF 253316	—	—	33.5
	—	—	—	TAF 253320	—	—	42
	RNA 4904	—	—	—	—	—	55.5
	—	RNA 6904	—	—	—	—	95.5
	—	—	—	—	TR 253820	—	71
	—	—	—	—	TR 253825	—	89
	—	—	—	—	—	GTR 253820	81.5
	—	—	—	—	—	GTR 253825	104
26	—	—	—	TAF 263416	—	—	34.5
	—	—	—	TAF 263420	—	—	43.5
28	—	—	—	TAF 283720	—	—	51.5
	—	—	—	TAF 283730	—	—	83.5
	RNA 49/22	—	—	—	—	—	56.5
	—	RNA 69/22	—	—	—	—	97.5
29	—	—	—	TAF 293820	—	—	57
	—	—	—	TAF 293830	—	—	85
30	—	—	—	TAF 304020	—	—	64.5
	—	—	—	TAF 304030	—	—	97.5
	RNA 4905	—	—	—	—	—	64
	—	RNA 6905	—	—	—	—	111
	—	—	—	—	TR 304425	—	115
	—	—	—	—	—	GTR 304425	133

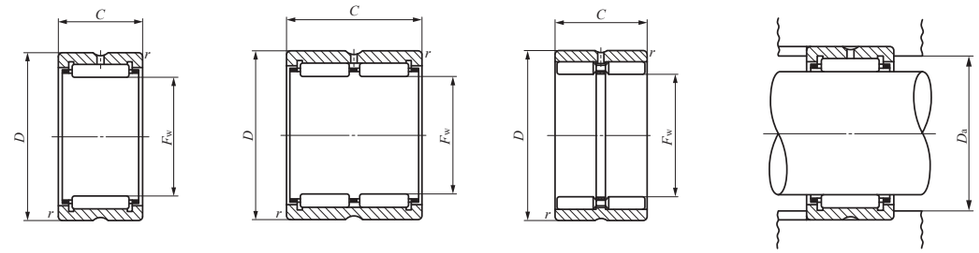
Boundary dimensions mm F_w	D	C	$r_{s\,min}$ (1)	Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (2) rpm
24	32	16	0.3	30	15 300	22 500	17 000
24	32	20	0.3	30	19 400	30 500	17 000
25	33	16	0.3	31	15 800	23 700	16 000
25	33	20	0.3	31	20 000	32 100	16 000
25	37	17	0.3	35	21 000	25 000	16 000
25	37	30	0.3	35	35 400	48 900	16 000
25	38	20	0.3	36	28 900	35 000	16 000
25	38	25	0.3	36	34 800	44 400	16 000
25	38	20	0.3	36	33 300	46 500	6 000
25	38	25	0.3	36	42 400	63 700	6 000
26	34	16	0.3	32	16 300	24 900	15 000
26	34	20	0.3	32	20 600	33 800	15 000
28	37	20	0.3	35	21 700	37 100	14 000
28	37	30	0.3	35	31 100	58 900	14 000
28	39	17	0.3	37	21 400	28 900	14 000
28	39	30	0.3	37	36 300	56 900	14 000
29	38	20	0.3	36	21 600	37 200	14 000
29	38	30	0.3	36	30 900	59 100	14 000
30	40	20	0.3	38	25 100	40 100	13 000
30	40	30	0.3	38	36 000	63 900	13 000
30	42	17	0.3	40	23 700	30 700	13 000
30	42	30	0.3	40	42 100	64 300	13 000
30	44	25	0.3	42	37 900	52 100	13 000
30	44	25	0.3	42	47 000	76 500	5 000

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. TAF series with a roller set bore diameter F_w of 26 mm or less have no oil hole. In others, the outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring



RNA49 TAF TR
RNA69 ($F_w \leqq 35$)

RNA69

GTR

Shaft dia. 32 — 40mm

Shaft dia. mm	Identification number RNA 49	RNA 69	RNA 48	TAF	TR	GTR	Mass (Ref.) g
32	—	—	—	**TAF 324220**	—	—	68
	—	—	—	**TAF 324230**	—	—	102
	RNA 49/28	—	—	—	—	—	76.5
	—	**RNA 69/28**	—	—	—	—	133
	—	—	—	—	—	**GTR 324530**	152
35	—	—	—	**TAF 354520**	—	—	73.5
	—	—	—	**TAF 354530**	—	—	112
	RNA 4906	—	—	—	—	—	72.5
	—	**RNA 6906**	—	—	—	—	125
	—	—	—	—	**TR 354830**	—	139
	—	—	—	—	—	**GTR 354830**	163
37	—	—	—	**TAF 374720**	—	—	77.5
	—	—	—	**TAF 374730**	—	—	117
38	—	—	—	**TAF 384820**	—	—	79
	—	—	—	**TAF 384830**	—	—	119
	—	—	—	—	**TR 385230**	—	168
	—	—	—	—	—	**GTR 385230**	195
40	—	—	—	**TAF 405020**	—	—	83
	—	—	—	**TAF 405030**	—	—	125
	RNA 49/32	—	—	—	—	—	96
	—	**RNA 69/32**	—	—	—	—	172
	—	—	—	—	**TR 405520**	—	129
	—	—	—	—	—	**GTR 405520**	144

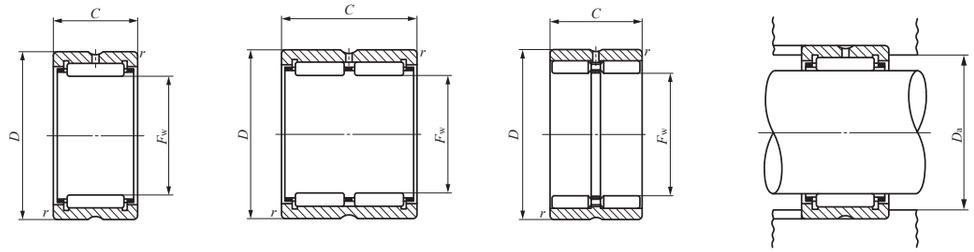
Boundary dimensions mm F_w	D	C	$r_{s\,min}$ (1)	Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed(2) rpm
32	42	20	0.3	40	25 700	42 200	12 000
32	42	30	0.3	40	36 800	67 200	12 000
32	45	17	0.3	43	24 500	32 700	12 000
32	45	30	0.3	43	41 800	64 800	12 000
32	45	30	0.3	43	58 000	101 000	4 500
35	45	20	0.3	43	26 900	46 200	11 000
35	45	30	0.3	43	38 600	73 600	11 000
35	47	17	0.3	45	25 200	34 700	11 000
35	47	30	0.3	45	43 000	69 000	11 000
35	48	30	0.3	46	47 400	72 300	11 000
35	48	30	0.3	46	61 100	110 000	4 500
37	47	20	0.3	45	28 200	50 100	11 000
37	47	30	0.3	45	40 500	79 800	11 000
38	48	20	0.3	46	28 100	50 200	11 000
38	48	30	0.3	46	40 300	80 000	11 000
38	52	30	0.6	48	50 800	81 100	11 000
38	52	30	0.6	48	64 200	121 000	4 000
40	50	20	0.3	48	29 400	54 100	10 000
40	50	30	0.3	48	42 300	86 200	10 000
40	52	20	0.6	48	31 200	47 800	10 000
40	52	36	0.6	48	53 500	95 700	10 000
40	55	20	0.6	51	37 400	55 700	10 000
40	55	20	0.6	51	44 300	73 600	3 500

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring



RNA49 TAF TR　　RNA69　　GTR

Shaft dia. 42 — 50mm

Shaft dia. mm	Identification number RNA 49	RNA 69	RNA 48	TAF	TR	GTR	Mass (Ref.) g
42	—	—	—	**TAF 425220**	—	—	86.5
	—	—	—	**TAF 425230**	—	—	130
	RNA 4907	—	—	—	—	—	113
	—	**RNA 6907**	—	—	—	—	200
	—	—	—	—	**TR 425630**	—	183
	—	—	—	—	—	**GTR 425630**	210
43	—	—	—	**TAF 435320**	—	—	88.5
	—	—	—	**TAF 435330**	—	—	133
45	—	—	—	**TAF 455520**	—	—	92
	—	—	—	**TAF 455530**	—	—	138
	RNA 49/38	—	—	—	—	—	120
	—	—	—	—	**TR 455930**	—	193
	—	—	—	—	—	**GTR 455930**	225
47	—	—	—	**TAF 475720**	—	—	95
	—	—	—	**TAF 475730**	—	—	144
48	**RNA 4908**	—	—	—	—	—	152
	—	—	—	—	**TR 486230**	—	205
	—	**RNA 6908**	—	—	—	—	275
	—	—	—	—	—	**GTR 486230**	240
50	—	—	—	**TAF 506225**	—	—	159
	—	—	—	**TAF 506235**	—	—	225
	—	—	—	—	**TR 506430**	—	210
	RNA 49/42	—	—	—	—	—	174
	—	—	—	—	—	**GTR 506430**	245

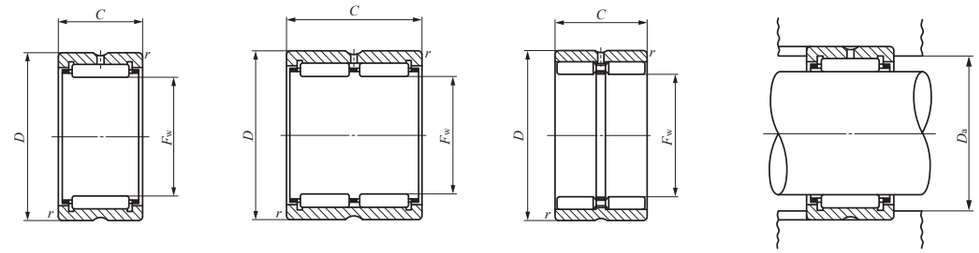
Boundary dimensions mm F_w	D	C	$r_{s\,min}$ (1)	Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (2) rpm
42	52	20	0.3	50	29 900	56 200	9 500
42	52	30	0.3	50	43 000	89 400	9 500
42	55	20	0.6	51	32 000	50 100	9 500
42	55	36	0.6	51	54 900	100 000	9 500
42	56	30	0.6	52	53 800	90 100	9 500
42	56	30	0.6	52	67 500	133 000	3 500
43	53	20	0.3	51	30 500	58 200	9 500
43	53	30	0.3	51	43 800	92 600	9 500
45	55	20	0.3	53	31 000	60 200	9 000
45	55	30	0.3	53	44 600	95 800	9 000
45	58	20	0.6	54	33 600	54 600	9 000
45	59	30	0.6	55	55 100	94 800	9 000
45	59	30	0.6	55	70 300	142 000	3 500
47	57	20	0.3	55	31 500	62 200	8 500
47	57	30	0.3	55	45 200	99 100	8 500
48	62	22	0.6	58	41 600	67 400	8 500
48	62	30	0.6	58	56 300	99 500	8 500
48	62	40	0.6	58	71 300	135 000	8 500
48	62	30	0.6	58	72 700	154 000	3 000
50	62	25	0.3	60	43 000	85 300	8 000
50	62	35	0.3	60	58 000	125 000	8 000
50	64	30	0.6	60	57 700	104 000	8 000
50	65	22	0.6	61	42 500	70 300	8 000
50	64	30	0.6	60	74 600	158 000	3 000

Notes(1) Minimum allowable value of chamfer dimension *r*
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring



RNA49 TAF TR　　RNA69　　GTR

Shaft dia. 52 — 68mm

Shaft dia. mm	Identification number RNA 49	RNA 69	RNA 48	TAF	TR	GTR	Mass (Ref.) g
52	**RNA 4909**	—	—	—	—	—	197
	—	**RNA 6909**	—	—	—	—	355
55	—	—	—	**TAF 556825**	—	—	193
	—	—	—	**TAF 556835**	—	—	255
	RNA 49/48	—	—	—	—	—	188
58	**RNA 4910**	—	—	—	—	—	179
	—	**RNA 6910**	—	—	—	—	320
	—	—	—	—	**TR 587745**	—	515
	—	—	—	—	—	**GTR 587745**	590
60	—	—	—	**TAF 607225**	—	—	187
	—	—	—	**TAF 607235**	—	—	260
	RNA 49/52	—	—	—	—	—	205
62	—	—	—	—	**TR 628138**	—	460
	—	—	—	—	—	**GTR 628138**	520
63	**RNA 4911**	—	—	—	—	—	265
	—	**RNA 6911**	—	—	—	—	475
65	—	—	—	**TAF 657825**	—	—	225
	—	—	—	**TAF 657835**	—	—	315
	RNA 49/58	—	—	—	—	—	275
68	—	—	—	**TAF 688225**	—	—	250
	—	—	—	**TAF 688235**	—	—	350
	RNA 4912	—	—	—	—	—	285
	—	**RNA 6912**	—	—	—	—	510

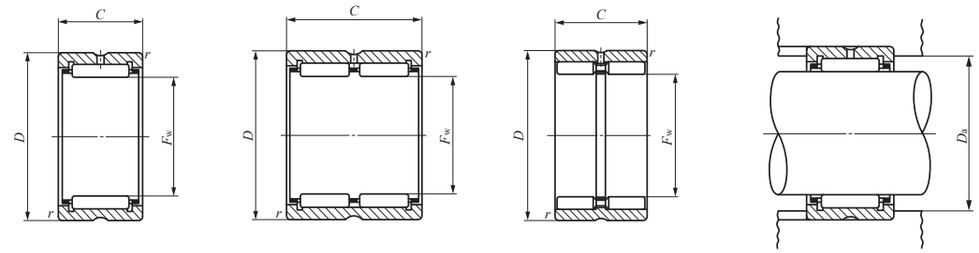
Boundary dimensions mm F_w	D	C	$r_{s\,min}$ (1)	Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (2) rpm
52	68	22	0.6	64	43 500	73 300	7 500
52	68	40	0.6	64	74 600	147 000	7 500
55	68	25	0.3	66	45 400	94 000	7 500
55	68	35	0.3	66	61 200	138 000	7 500
55	70	22	0.6	66	44 300	76 300	7 500
58	72	22	0.6	68	46 200	82 100	7 000
58	72	40	0.6	68	79 200	164 000	7 000
58	77	45	1	72	104 000	191 000	7 000
58	77	45	1	72	135 000	280 000	2 500
60	72	25	0.3	70	47 500	103 000	6 500
60	72	35	0.3	70	64 100	151 000	6 500
60	75	22	0.6	71	47 100	85 100	6 500
62	81	38	1	76	92 000	166 000	6 500
62	81	38	1	76	118 000	241 000	2 500
63	80	25	1	75	57 600	97 200	6 500
63	80	45	1	75	98 700	194 000	6 500
65	78	25	0.6	74	49 600	112 000	6 000
65	78	35	0.6	74	67 000	164 000	6 000
65	82	25	1	77	58 900	101 000	6 000
68	82	25	0.6	78	54 800	117 000	6 000
68	82	35	0.6	78	72 000	166 000	6 000
68	85	25	1	80	60 200	105 000	6 000
68	85	45	1	80	103 000	211 000	6 000

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring



RNA49 TAF TR　　RNA69　　GTR

Shaft dia. 70 — 85mm

Shaft dia. mm	Identification number RNA 49	RNA 69	RNA 48	TAF	TR	GTR	Mass (Ref.) g
70	—	—	—	**TAF 708525**	—	—	280
	—	—	—	**TAF 708535**	—	—	395
	RNA 49/62	—	—	—	—	—	320
	—	—	—	—	**TR 708945**	—	605
	—	—	—	—	—	**GTR 708945**	690
72	**RNA 4913**	—	—	—	—	—	325
	—	**RNA 6913**	—	—	—	—	585
73	—	—	—	**TAF 739025**	—	—	335
	—	—	—	**TAF 739035**	—	—	475
75	—	—	—	**TAF 759225**	—	—	345
	—	—	—	**TAF 759235**	—	—	485
	RNA 49/68	—	—	—	—	—	470
80	—	—	—	**TAF 809525**	—	—	315
	—	—	—	**TAF 809535**	—	—	445
	RNA 4914	—	—	—	—	—	495
	—	**RNA 6914**	—	—	—	—	910
83	—	—	—	—	**TR 8310845**	—	995
	—	—	—	—	—	**GTR 8310845**	1 090
85	—	—	—	**TAF 8510525**	—	—	435
	RNA 4915	—	—	—	—	—	525
	—	—	—	**TAF 8510535**	—	—	610
	—	**RNA 6915**	—	—	—	—	960

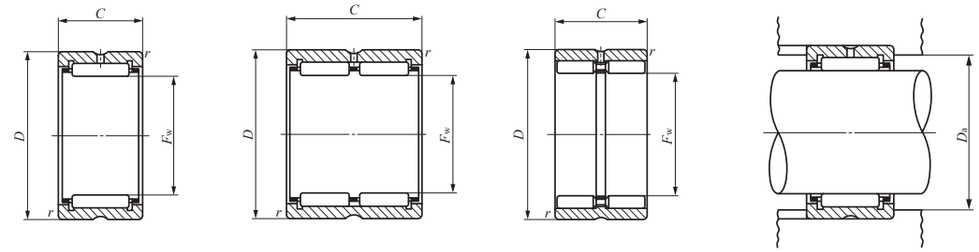
Boundary dimensions mm F_w	D	C	$r_{s\,min}$ (1)	Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (2) rpm
70	85	25	0.6	81	55 500	120 000	5 500
70	85	35	0.6	81	73 000	171 000	5 500
70	88	25	1	83	61 500	109 000	5 500
70	89	45	1	84	114 000	228 000	5 500
70	89	45	1	84	147 000	336 000	2 000
72	90	25	1	85	62 700	113 000	5 500
72	90	45	1	85	108 000	227 000	5 500
73	90	25	1	85	61 100	127 000	5 500
73	90	35	1	85	80 400	181 000	5 500
75	92	25	1	87	62 100	131 000	5 500
75	92	35	1	87	81 700	186 000	5 500
75	95	30	1	90	79 900	147 000	5 500
80	95	25	1	90	59 400	137 000	5 000
80	95	35	1	90	78 100	195 000	5 000
80	100	30	1	95	83 200	158 000	5 000
80	100	54	1	95	134 000	311 000	5 000
83	108	45	1	103	146 000	270 000	5 000
83	108	45	1	103	190 000	396 000	1 800
85	105	25	1	100	76 300	145 000	4 500
85	105	30	1	100	86 200	169 000	4 500
85	105	35	1	100	102 000	210 000	4 500
85	105	54	1	100	138 000	331 000	4 500

Notes(1) Minimum allowable value of chamfer dimension *r*
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring



RNA49 TAF TR　　RNA69　　GTR

Shaft dia. 90 — 105mm

Shaft dia. mm	Identification number RNA 49	RNA 69	RNA 48	TAF	TR	GTR	Mass (Ref.) g
90	—	—	—	**TAF 9011025**	—	—	455
	RNA 4916	—	—	—	—	—	550
	—	—	—	**TAF 9011035**	—	—	640
	—	**RNA 6916**	—	—	—	—	1 010
93	—	—	—	—	**TR 9311850**	—	1 210
	—	—	—	—	—	**GTR 9311850**	1 340
95	—	—	—	**TAF 9511526**	—	—	495
	RNA 49/82	—	—	—	—	—	575
	—	—	—	**TAF 9511536**	—	—	690
	—	—	—	—	**TR 9512045**	—	1 120
	—	—	—	—	—	**GTR 9512045**	1 230
100	—	—	—	**TAF 10012026**	—	—	525
	RNA 4917	—	—	—	—	—	705
	—	—	—	**TAF 10012036**	—	—	725
	—	**RNA 6917**	—	—	—	—	1 300
	—	—	—	—	**TR 10012550**	—	1 290
	—	—	—	—	—	**GTR 10012550**	1 440
105	—	—	—	**TAF 10512526**	—	—	545
	RNA 4918	—	—	—	—	—	740
	—	—	—	**TAF 10512536**	—	—	760
	—	**RNA 6918**	—	—	—	—	1 360

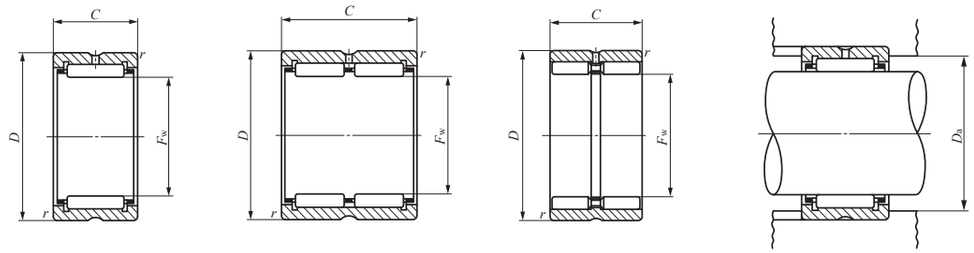
Boundary dimensions mm F_w	D	C	$r_{s\,min}$ (1)	Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed(2) rpm
90	110	25	1	105	77 300	150 000	4 500
90	110	30	1	105	87 300	175 000	4 500
90	110	35	1	105	103 000	217 000	4 500
90	110	54	1	105	143 000	351 000	4 500
93	118	50	1	113	165 000	329 000	4 500
93	118	50	1	113	224 000	509 000	1 600
95	115	26	1	110	79 700	159 000	4 000
95	115	30	1	110	90 000	186 000	4 000
95	115	36	1	110	106 000	231 000	4 000
95	120	45	1.5	112	155 000	305 000	4 000
95	120	45	1.5	112	204 000	455 000	1 600
100	120	26	1	115	82 400	168 000	4 000
100	120	35	1.1	113.5	110 000	244 000	4 000
100	120	36	1	115	110 000	244 000	4 000
100	120	63	1.1	113.5	173 000	467 000	4 000
100	125	50	1.5	117	172 000	355 000	4 000
100	125	50	1.5	117	234 000	549 000	1 500
105	125	26	1	120	84 700	178 000	4 000
105	125	35	1.1	118.5	113 000	258 000	4 000
105	125	36	1	120	113 000	258 000	4 000
105	125	63	1.1	118.5	178 000	490 000	4 000

Notes(1) Minimum allowable value of chamfer dimension *r*
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring



RNA49 RNA48
TAF TR

RNA69

GTR

Shaft dia. 110 — 170mm

Shaft dia. mm	Identification number RNA 49	RNA 69	RNA 48	TAF	TR	GTR	Mass (Ref.) g
110	—	—	—	**TAF 11013030**	—	—	660
	RNA 4919	—	—	—	—	—	770
	—	—	—	**TAF 11013040**	—	—	880
	—	**RNA 6919**	—	—	—	—	1 420
	—	—	—	—	**TR 11013550**	—	1 400
	—	—	—	—	—	**GTR 11013550**	1 560
115	**RNA 4920**	—	—	—	—	—	1 190
	—	—	—	—	**TR 11515350**	—	2 350
	—	—	—	—	—	**GTR 11515350**	2 600
120	—	—	**RNA 4822**	—	—	—	790
125	**RNA 4922**	—	—	—	—	—	1 280
130	—	—	**RNA 4824**	—	—	—	850
135	**RNA 4924**	—	—	—	—	—	1 930
140	—	—	—	—	**TR 14017860**	—	3 320
	—	—	—	—	—	**GTR 14017860**	3 730
145	—	—	**RNA 4826**	—	—	—	1 100
150	**RNA 4926**	—	—	—	—	—	2 360
	—	—	—	—	**TR 15018860**	—	3 540
	—	—	—	—	—	**GTR 15018860**	3 970
155	—	—	**RNA 4828**	—	—	—	1 170
160	**RNA 4928**	—	—	—	—	—	2 500
165	—	—	**RNA 4830**	—	—	—	1 750
170	**RNA 4930**	—	—	—	—	—	4 090

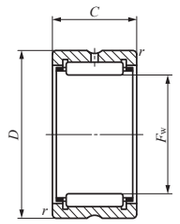
Notes(1) Minimum allowable value of chamfer dimension *r*
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

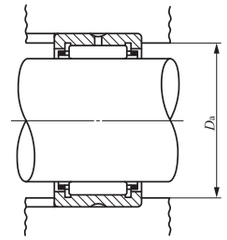
Boundary dimensions mm F_w	D	C	$r_{s\,min}$ (1)	Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed(2) rpm
110	130	30	1	125	106 000	240 000	3 500
110	130	35	1.1	123.5	116 000	271 000	3 500
110	130	40	1	125	134 000	324 000	3 500
110	130	63	1.1	123.5	182 000	514 000	3 500
110	135	50	1.5	127	183 000	395 000	3 500
110	135	50	1.5	127	245 000	603 000	1 400
115	140	40	1.1	133.5	145 000	329 000	3 500
115	153	50	1.5	145	233 000	414 000	3 500
115	153	50	1.5	145	315 000	614 000	1 300
120	140	30	1	135	93 200	239 000	3 500
125	150	40	1.1	143.5	152 000	357 000	3 000
130	150	30	1	145	96 900	259 000	3 000
135	165	45	1.1	158.5	187 000	435 000	3 000
140	178	60	1.5	170	307 000	625 000	3 000
140	178	60	1.5	170	409 000	923 000	1 100
145	165	35	1.1	158.5	116 000	340 000	3 000
150	180	50	1.5	172	215 000	540 000	2 500
150	188	60	1.5	180	320 000	675 000	2 500
150	188	60	1.5	180	423 000	989 000	1 000
155	175	35	1.1	168.5	120 000	363 000	2 500
160	190	50	1.5	182	224 000	580 000	2 500
165	190	40	1.1	183.5	168 000	446 000	2 500
170	210	60	2	201	324 000	712 000	2 500

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring





RNA49 RNA48

Shaft dia. 175 — 350mm

Shaft dia. mm	Identification number RNA 49	RNA 69	RNA 48	TAF	TR	GTR	Mass (Ref.) g
175	—	—	RNA 4832	—	—	—	1 850
180	RNA 4932	—	—	—	—	—	4 310
185	—	—	RNA 4834	—	—	—	2 700
190	RNA 4934	—	—	—	—	—	4 530
195	—	—	RNA 4836	—	—	—	2 840
205	RNA 4936	—	—	—	—	—	6 250
210	—	—	RNA 4838	—	—	—	3 380
215	RNA 4938	—	—	—	—	—	6 500
220	—	—	RNA 4840	—	—	—	3 520
225	RNA 4940	—	—	—	—	—	10 400
240	—	—	RNA 4844	—	—	—	3 820
245	RNA 4944	—	—	—	—	—	11 200
265	— RNA 4948	— —	RNA 4848 —	— —	— —	— —	5 670 12 000
285	—	—	RNA 4852	—	—	—	6 070
290	RNA 4952	—	—	—	—	—	21 200
305	—	—	RNA 4856	—	—	—	9 750
310	RNA 4956	—	—	—	—	—	22 500
330	—	—	RNA 4860	—	—	—	13 200
340	RNA 4960	—	—	—	—	—	33 400
350	—	—	RNA 4864	—	—	—	14 100

Boundary dimensions mm F_w	D	C	$r_{s\,min}$ (1)	Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed(2) rpm
175	200	40	1.1	193.5	173 000	474 000	2 500
180	220	60	2	211	337 000	761 000	1 900
185	215	45	1.1	208.5	211 000	567 000	1 900
190	230	60	2	221	347 000	810 000	1 900
195	225	45	1.1	218.5	218 000	602 000	1 900
205	250	69	2	241	434 000	989 000	1 900
210	240	50	1.5	232	249 000	726 000	1 800
215	260	69	2	251	440 000	1 020 000	1 700
220	250	50	1.5	242	255 000	766 000	1 600
225	280	80	2.1	269	518 000	1 120 000	1 600
240	270	50	1.5	262	266 000	833 000	1 500
245	300	80	2.1	289	536 000	1 200 000	1 400
265	300	60	2	291	345 000	1 150 000	1 300
265	320	80	2.1	309	565 000	1 320 000	1 300
285	320	60	2	311	354 000	1 220 000	1 100
290	360	100	2.1	349	847 000	1 900 000	1 100
305	350	69	2	341	486 000	1 550 000	950
310	380	100	2.1	369	877 000	2 040 000	950
330	380	80	2.1	369	610 000	1 900 000	900
340	420	118	3	407	1 130 000	2 650 000	850
350	400	80	2.1	389	635 000	2 040 000	750

Notes(1) Minimum allowable value of chamfer dimension *r*
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

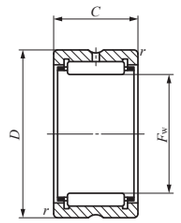
MACHINED TYPE NEEDLE ROLLER BEARINGS

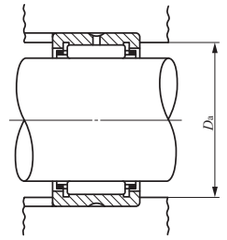
Without Inner Ring

Shaft dia. 360 — 490mm

Shaft dia. mm	Identification number RNA 49	RNA 69	RNA 48	TAF	TR	GTR	Mass (Ref.) g
360	**RNA 4964**	—	—	—	—	—	35 200
370	—	—	**RNA 4868**	—	—	—	14 800
380	**RNA 4968**	—	—	—	—	—	37 000
390	—	—	**RNA 4872**	—	—	—	15 600
400	**RNA 4972**	—	—	—	—	—	38 700
415	—	—	**RNA 4876**	—	—	—	27 900
430	**RNA 4976**	—	—	—	—	—	56 400
450	**RNA 4980**	—	—	—	—	—	58 800
470	**RNA 4984**	—	—	—	—	—	61 200
490	**RNA 4988**	—	—	—	—	—	86 900

Notes([1]) Minimum allowable value of chamfer dimension r
([2]) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.





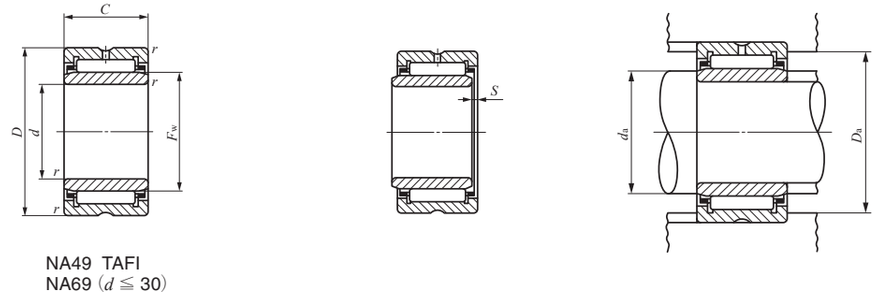
RNA49 RNA48

Boundary dimensions mm F_w	D	C	$r_{s\,min}$ ([1])	Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed([2]) rpm
360	440	118	3	427	1 170 000	2 830 000	750
370	420	80	2.1	409	651 000	2 140 000	700
380	460	118	3	447	1 220 000	3 020 000	700
390	440	80	2.1	429	680 000	2 320 000	650
400	480	118	3	467	1 260 000	3 200 000	600
415	480	100	2.1	469	951 000	2 860 000	600
430	520	140	4	504	1 540 000	4 030 000	500
450	540	140	4	524	1 590 000	4 270 000	500
470	560	140	4	544	1 640 000	4 510 000	500
490	600	160	4	584	1 910 000	5 140 000	400

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring



NA49 TAFI
NA69 ($d \leqq 30$)

Shaft dia. 5 — 12mm

Shaft dia. mm	Identification number NA 49	NA 69	NA 48	TAFI	TRI	GTRI	Mass (Ref.) g	d
5	**NA 495**	—	—	—	—	—	7.3	5
	—	—	—	**TAFI 51512**	—	—	11.9	5
	—	—	—	**TAFI 51516**	—	—	16.7	5
6	**NA 496**	—	—	—	—	—	9.1	6
	—	—	—	**TAFI 61612**	—	—	13	6
	—	—	—	**TAFI 61616**	—	—	17.5	6
7	**NA 497**	—	—	—	—	—	11.2	7
	—	—	—	**TAFI 71712**	—	—	14.3	7
	—	—	—	**TAFI 71716**	—	—	19.2	7
8	**NA 498**	—	—	—	—	—	15	8
9	—	—	—	**TAFI 91912**	—	—	16.7	9
	—	—	—	**TAFI 91916**	—	—	22.5	9
	NA 499	—	—	—	—	—	16.7	9
10	**NA 4900**	—	—	—	—	—	24	10
	—	—	—	**TAFI 102216**	—	—	30	10
	—	—	—	**TAFI 102220**	—	—	38	10
12	**NA 4901**	—	—	—	—	—	26.5	12
	—	—	—	**TAFI 122416**	—	—	33.5	12
	—	—	—	**TAFI 122420**	—	—	42.5	12
	—	**NA 6901**	—	—	—	—	44.5	12

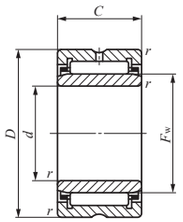
Boundary dimensions mm D	C	B	$r_{s\,min}$ (1)	F_w	S (2)	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (3) rpm	Assembled inner ring
13	10	—	0.15	7	0.5	6.2	6.7	11.8	2 960	2 690	60 000	**LRT 5710**
15	12	—	0.2	8	0.5	6.6	7.7	13.4	5 060	4 690	50 000	**LRT 5812**
15	16	—	0.2	8	0.5	6.6	7.7	13.4	7 080	7 220	50 000	**LRT 5816**
15	10	—	0.15	8	0.5	7.2	7.7	13.8	3 960	3 420	50 000	**LRT 6810**
16	12	—	0.2	9	0.5	7.6	8.7	14.4	5 490	5 330	45 000	**LRT 6912**
16	16	—	0.2	9	0.5	7.6	8.7	14.4	7 680	8 210	45 000	**LRT 6916**
17	10	—	0.15	9	0.5	8.2	8.7	15.8	4 530	3 650	45 000	**LRT 7910**
17	12	—	0.2	10	0.5	8.6	9.7	15.4	5 880	5 970	40 000	**LRT 71012**
17	16	—	0.2	10	0.5	8.6	9.7	15.4	8 230	9 190	40 000	**LRT 71016**
19	11	—	0.2	10	0.5	9.6	9.9	17.4	6 180	5 030	40 000	**LRT 81011**
19	12	—	0.3	12	0.5	11	11.5	17	6 610	7 260	35 000	**LRT 91212**
19	16	—	0.3	12	0.5	11	11.5	17	9 250	11 200	35 000	**LRT 91216**
20	11	—	0.3	12	0.5	11	11.5	18	6 600	6 310	35 000	**LRT 91211**
22	13	—	0.3	14	0.5	12	13	20	9 230	10 100	30 000	**LRT 101413**
22	16	—	0.3	14	0.5	12	13	20	11 700	13 700	30 000	**LRT 101416**
22	20	—	0.3	14	0.5	12	13	20	14 800	18 600	30 000	**LRT 101420**
24	13	—	0.3	16	0.5	14	15	22	9 660	11 100	25 000	**LRT 121613**
24	16	—	0.3	16	0.5	14	15	22	12 300	15 100	25 000	**LRT 121616**
24	20	—	0.3	16	0.5	14	15	22	15 500	20 400	25 000	**LRT 121620**
24	22	—	0.3	16	0.5	14	15	22	17 100	23 000	25 000	**LRT 121622**

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable axial shift amount of inner ring to outer ring
(3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. TAFI series with a bore diameter d of 22 mm or less have no oil hole. In others, the outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

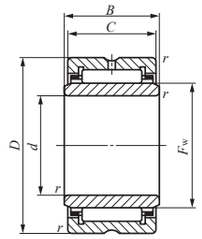
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring



NA49 TAFI
NA69 ($d \leqq 30$)



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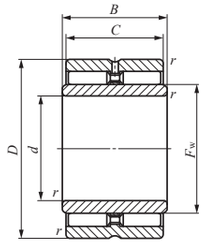
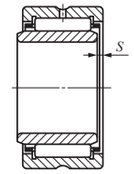
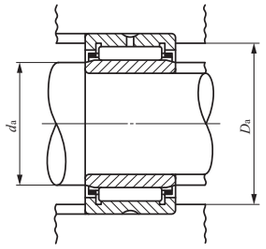


GTRI





Shaft dia. 15 — 22mm

Shaft dia. mm	Identification number NA 49	NA 69	NA 48	TAFI	TRI	GTRI	Mass (Ref.) g	d
15	—	—	—	**TAFI 152716**	—	—	39.5	15
	—	—	—	**TAFI 152720**	—	—	50	15
	NA 4902	—	—	—	—	—	35	15
	—	**NA 6902**	—	—	—	—	61	15
	—	—	—	—	**TRI 153320**	—	81	15
	—	—	—	—	—	**GTRI 153320**	90.5	15
17	—	—	—	**TAFI 172916**	—	—	43.5	17
	—	—	—	**TAFI 172920**	—	—	54	17
	NA 4903	—	—	—	—	—	39	17
	—	**NA 6903**	—	—	—	—	67	17
	—	—	—	—	**TRI 173425**	—	104	17
	—	—	—	—	—	**GTRI 173425**	117	17
20	—	—	—	**TAFI 203216**	—	—	48.5	20
	—	—	—	**TAFI 203220**	—	—	61	20
	NA 4904	—	—	—	—	—	78.5	20
	—	**NA 6904**	—	—	—	—	136	20
	—	—	—	—	**TRI 203820**	—	99	20
	—	—	—	—	**TRI 203825**	—	124	20
	—	—	—	—	—	**GTRI 203820**	110	20
	—	—	—	—	—	**GTRI 203825**	138	20
22	—	—	—	**TAFI 223416**	—	—	52	22
	—	—	—	**TAFI 223420**	—	—	67.5	22
	NA 49/22	—	—	—	—	—	87	22
	—	**NA 69/22**	—	—	—	—	152	22

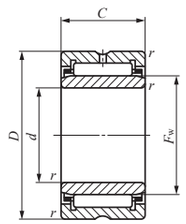
Boundary dimensions mm D	C	B	$r_{s\,min}$ (1)	F_w	S (2)	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (3) rpm	Assembled inner ring
27	16	—	0.3	19	0.5	17	18	25	14 000	18 700	20 000	**LRT 151916**
27	20	—	0.3	19	0.5	17	18	25	17 700	25 300	20 000	**LRT 151920**
28	13	—	0.3	20	0.3	17	19	26	10 900	13 800	20 000	**LRT 152013**
28	23	—	0.3	20	0.3	17	19	26	19 300	28 800	20 000	**LRT 152023**
33	20	20.5	0.3	20	0.3	17	19	31	24 300	26 500	20 000	**LRT 152020**
33	20	20.5	0.3	20	—	17	19	31	29 200	37 200	7 500	**LRTZ 152020**
29	16	—	0.3	21	0.5	19	20	27	14 400	20 000	19 000	**LRT 172116**
29	20	—	0.3	21	0.5	19	20	27	18 200	27 100	19 000	**LRT 172120**
30	13	—	0.3	22	0.3	19	21	28	11 700	15 600	18 000	**LRT 172213**
30	23	—	0.3	22	0.3	19	21	28	20 800	32 500	18 000	**LRT 172223**
34	25	25.5	0.3	22	0.5	19	21	32	29 100	36 800	18 000	**LRT 172225**
34	25	25.5	0.3	22	—	19	21	32	37 900	57 800	7 000	**LRTZ 172225**
32	16	—	0.3	24	0.5	22	23	30	15 300	22 500	17 000	**LRT 202416**
32	20	—	0.3	24	0.5	22	23	30	19 400	30 500	17 000	**LRT 202420**
37	17	—	0.3	25	0.5	22	24	35	21 000	25 000	16 000	**LRT 202517**
37	30	—	0.3	25	0.5	22	24	35	35 400	48 900	16 000	**LRT 202530**
38	20	20.5	0.3	25	0.3	22	24	36	28 900	35 000	16 000	**LRT 202520**
38	25	25.5	0.3	25	0.5	22	24	36	34 800	44 400	16 000	**LRT 202525**
38	20	20.5	0.3	25	—	22	24	36	33 300	46 500	6 000	**LRTZ 202520**
38	25	25.5	0.3	25	—	22	24	36	42 400	63 700	6 000	**LRTZ 202525**
34	16	—	0.3	26	0.5	24	25	32	16 300	24 900	15 000	**LRT 222616**
34	20	—	0.3	26	0.5	24	25	32	20 600	33 800	15 000	**LRT 222620**
39	17	—	0.3	28	1	24	27	37	21 400	28 900	14 000	**LRT 222817**
39	30	—	0.3	28	0.5	24	27	37	36 300	56 900	14 000	**LRT 222830**

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable axial shift amount of inner ring to outer ring
(3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. TAFI series with a bore diameter d of 22 mm or less have no oil hole. In others, the outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

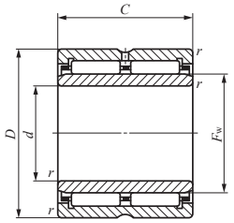
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

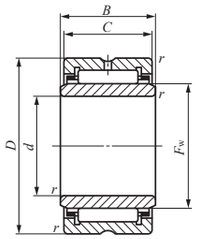
With Inner Ring



NA49 TAFI
NA69 ($d \leqq 30$)



NA69



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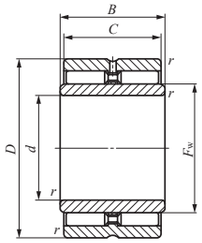
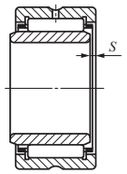
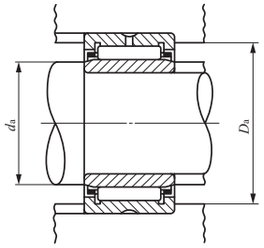


GTRI





Shaft dia. 25 — 32mm

Shaft dia. mm	Identification number NA 49	NA 69	NA 48	TAFI	TRI	GTRI	Mass (Ref.) g	d
25	—	—	—	**TAFI 253820**	—	—	82	25
	—	—	—	**TAFI 253830**	—	—	123	25
	NA 4905	—	—	—	—	—	92.5	25
	—	**NA 6905**	—	—	—	—	160	25
	—	—	—	—	**TRI 254425**	—	157	25
	—	—	—	—	—	**GTRI 254425**	175	25
28	—	—	—	**TAFI 284220**	—	—	96.5	28
	—	—	—	**TAFI 284230**	—	—	145	28
	NA 49/28	—	—	—	—	—	101	28
	—	**NA 69/28**	—	—	—	—	176	28
	—	—	—	—	—	**GTRI 284530**	196	28
30	—	—	—	**TAFI 304520**	—	—	112	30
	—	—	—	**TAFI 304530**	—	—	171	30
	NA 4906	—	—	—	—	—	106	30
	—	**NA 6906**	—	—	—	—	184	30
	—	—	—	—	**TRI 304830**	—	199	30
	—	—	—	—	—	**GTRI 304830**	225	30
32	—	—	—	**TAFI 324720**	—	—	121	32
	—	—	—	**TAFI 324730**	—	—	180	32
	NA 49/32	—	—	—	—	—	165	32
	—	—	—	—	**TRI 325230**	—	245	32
	—	**NA 69/32**	—	—	—	—	295	32
	—	—	—	—	—	**GTRI 325230**	270	32

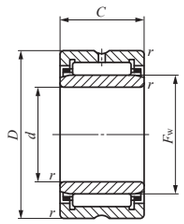
Boundary dimensions mm D	C	B	$r_{s\,min}$ (1)	F_w	S (2)	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (3) rpm	Assembled inner ring
38	20	—	0.3	29	0.5	27	28	36	21 600	37 200	14 000	**LRT 252920**
38	30	—	0.3	29	1	27	28	36	30 900	59 100	14 000	**LRT 252930**
42	17	—	0.3	30	0.5	27	29	40	23 700	30 700	13 000	**LRT 253017**
42	30	—	0.3	30	0.5	27	29	40	42 100	64 300	13 000	**LRT 253030**
44	25	25.5	0.3	30	0.5	27	29	42	37 900	52 100	13 000	**LRT 253025**
44	25	25.5	0.3	30	—	27	29	42	47 000	76 500	5 000	**LRTZ 253025**
42	20	—	0.3	32	0.5	30	31	40	25 700	42 200	12 000	**LRT 283220**
42	30	—	0.3	32	1	30	31	40	36 800	67 200	12 000	**LRT 283230**
45	17	—	0.3	32	1	30	31	43	24 500	32 700	12 000	**LRT 283217**
45	30	—	0.3	32	1	30	31	43	41 800	64 800	12 000	**LRT 283230**
45	30	30.5	0.3	32	—	30	31	43	58 000	101 000	4 500	**LRTZ 283230**
45	20	—	0.3	35	0.3	32	34	43	26 900	46 200	11 000	**LRT 303520**
45	30	—	0.3	35	0.5	32	34	43	38 600	73 600	11 000	**LRT 303530**
47	17	—	0.3	35	0.5	32	34	45	25 200	34 700	11 000	**LRT 303517**
47	30	—	0.3	35	0.5	32	34	45	43 000	69 000	11 000	**LRT 303530**
48	30	30.5	0.3	35	1	32	34	46	47 400	72 300	11 000	**LRT 303530-1**
48	30	30.5	0.3	35	—	32	34	46	61 100	110 000	4 500	**LRTZ 303530**
47	20	—	0.3	37	0.3	34	36	45	28 200	50 100	11 000	**LRT 323720**
47	30	—	0.3	37	0.5	34	36	45	40 500	79 800	11 000	**LRT 323730**
52	20	—	0.6	40	0.5	36	39	48	31 200	47 800	10 000	**LRT 324020**
52	30	30.5	0.6	38	0.5	36	37	48	50 800	81 100	11 000	**LRT 323830**
52	36	—	0.6	40	0.3	36	39	48	53 500	95 700	10 000	**LRT 324036**
52	30	30.5	0.6	38	—	36	37	48	64 200	121 000	4 000	**LRTZ 323830**

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable axial shift amount of inner ring to outer ring
(3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

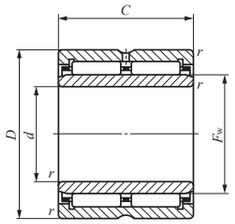
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring



NA49 TAFI



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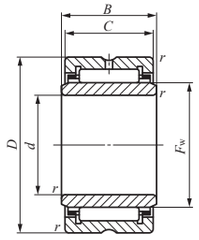

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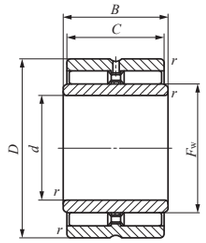

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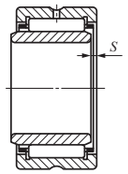
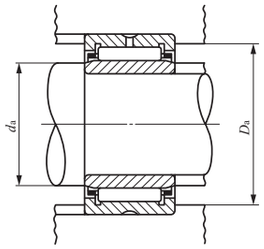




Shaft dia. 35 — 45mm

Shaft dia. mm	Identification number NA 49	NA 69	NA 48	TAFI	TRI	GTRI	Mass (Ref.) g	d
35	—	—	—	**TAFI 355020**	—	—	129	35
	—	—	—	**TAFI 355030**	—	—	192	35
	NA 4907	—	—	—	—	—	178	35
	—	**NA 6907**	—	—	—	—	320	35
	—	—	—	—	**TRI 355630**	—	280	35
	—	—	—	—	—	**GTRI 355520**	191	35
	—	—	—	—	—	**GTRI 355630**	310	35
38	—	—	—	**TAFI 385320**	—	—	136	38
	—	—	—	**TAFI 385330**	—	—	205	38
40	—	—	—	**TAFI 405520**	—	—	143	40
	—	—	—	**TAFI 405530**	—	—	215	40
	—	—	—	—	**TRI 405930**	—	270	40
	NA 4908	—	—	—	—	—	245	40
	—	**NA 6908**	—	—	—	—	440	40
	—	—	—	—	—	**GTRI 405930**	300	40
42	—	—	—	**TAFI 425720**	—	—	149	42
	—	—	—	**TAFI 425730**	—	—	225	42
	—	—	—	—	**TRI 426230**	—	305	42
	—	—	—	—	—	**GTRI 426230**	340	42
45	—	—	—	**TAFI 456225**	—	—	230	45
	—	—	—	**TAFI 456235**	—	—	320	45
	—	—	—	—	**TRI 456430**	—	300	45
	NA 4909	—	—	—	—	—	285	45
	—	**NA 6909**	—	—	—	—	520	45
	—	—	—	—	—	**GTRI 456430**	335	45

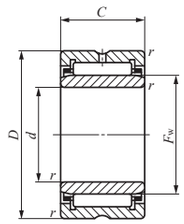
Boundary dimensions mm D	C	B	$r_{s\,min}$ (1)	F_w	S (2)	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (3) rpm	Assembled inner ring
50	20	—	0.3	40	0.3	37	39	48	29 400	54 100	10 000	**LRT 354020**
50	30	—	0.3	40	0.5	37	39	48	42 300	86 200	10 000	**LRT 354030**
55	20	—	0.6	42	0.5	39	41	51	32 000	50 100	9 500	**LRT 354220**
55	36	—	0.6	42	0.3	39	41	51	54 900	100 000	9 500	**LRT 354236**
56	30	30.5	0.6	42	0.5	39	41	52	53 800	90 100	9 500	**LRT 354230**
55	20	20.5	0.6	40	—	39	39.5	51	44 300	73 600	3 500	**LRTZ 354020**
56	30	30.5	0.6	42	—	39	41	52	67 500	133 000	3 500	**LRTZ 354230**
53	20	—	0.3	43	0.3	40	42	51	30 500	58 200	9 500	**LRT 384320**
53	30	—	0.3	43	0.5	40	42	51	43 800	92 600	9 500	**LRT 384330**
55	20	—	0.3	45	0.3	42	44	53	31 000	60 200	9 000	**LRT 404520**
55	30	—	0.3	45	0.5	42	44	53	44 600	95 800	9 000	**LRT 404530**
59	30	30.5	0.6	45	1	44	44.5	55	55 100	94 800	9 000	**LRT 404530-1**
62	22	—	0.6	48	0.5	44	47	58	41 600	67 400	8 500	**LRT 404822**
62	40	—	0.6	48	0.3	44	47	58	71 300	135 000	8 500	**LRT 404840**
59	30	30.5	0.6	45	—	44	44.5	55	70 300	142 000	3 500	**LRTZ 404530**
57	20	—	0.3	47	0.3	44	46	55	31 500	62 200	8 500	**LRT 424720**
57	30	—	0.3	47	0.5	44	46	55	45 200	99 100	8 500	**LRT 424730**
62	30	30.5	0.6	48	0.5	46	47	58	56 300	99 500	8 500	**LRT 424830**
62	30	30.5	0.6	48	—	46	47	58	72 700	154 000	3 000	**LRTZ 424830**
62	25	—	0.3	50	0.5	47	49	60	43 000	85 300	8 000	**LRT 455025**
62	35	—	0.3	50	1	47	49	60	58 000	125 000	8 000	**LRT 455035**
64	30	30.5	0.6	50	1	49	49.5	60	57 700	104 000	8 000	**LRT 455030**
68	22	—	0.6	52	0.5	49	51	64	43 500	73 300	7 500	**LRT 455222**
68	40	—	0.6	52	0.3	49	51	64	74 600	147 000	7 500	**LRT 455240**
64	30	30.5	0.6	50	—	49	49.5	60	74 600	158 000	3 000	**LRTZ 455030**

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable axial shift amount of inner ring to outer ring
(3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

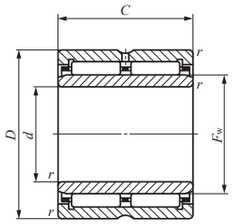
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring



NA49 TAFI



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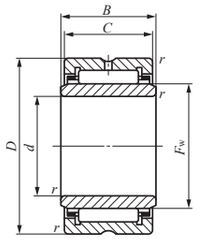

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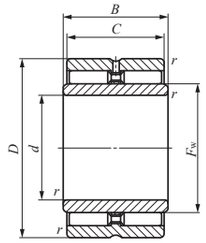

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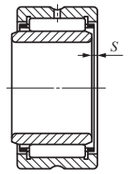
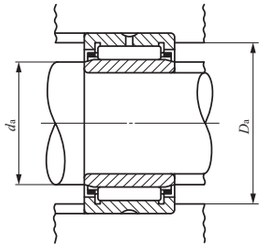




Shaft dia. 50 — 70mm

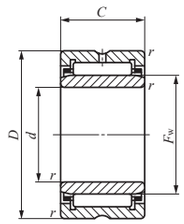
Shaft dia. mm	Identification number NA 49	NA 69	NA 48	TAFI	TRI	GTRI	Mass (Ref.) g	d	Boundary dimensions mm D	C	B	$r_{s\,min}$ (1)	F_w	S (2)	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (3) rpm	Assembled inner ring
50	—	—	—	**TAFI 506825**	—	—	270	50	68	25	—	0.3	55	0.5	52	54	66	45 400	94 000	7 500	**LRT 505525**
	—	—	—	**TAFI 506835**	—	—	365	50	68	35	—	0.3	55	1	52	54	66	61 200	138 000	7 500	**LRT 505535**
	NA 4910	—	—	—	—	—	295	50	72	22	—	0.6	58	0.5	54	57	68	46 200	82 100	7 000	**LRT 505822**
	—	**NA 6910**	—	—	—	—	530	50	72	40	—	0.6	58	0.3	54	57	68	79 200	164 000	7 000	**LRT 505840**
	—	—	—	—	**TRI 507745**	—	755	50	77	45	45.5	1	58	2	55	57	72	104 000	191 000	7 000	**LRT 505845**
	—	—	—	—	—	**GTRI 507745**	825	50	77	45	45.5	1	58	—	55	57	72	135 000	280 000	2 500	**LRTZ 505845**
55	—	—	—	**TAFI 557225**	—	—	275	55	72	25	—	0.3	60	0.5	57	59	70	47 500	103 000	6 500	**LRT 556025**
	—	—	—	**TAFI 557235**	—	—	380	55	72	35	—	0.3	60	1	57	59	70	64 100	151 000	6 500	**LRT 556035**
	NA 4911	—	—	—	—	—	410	55	80	25	—	1	63	1	60	61	75	57 600	97 200	6 500	**LRT 556325**
	—	**NA 6911**	—	—	—	—	730	55	80	45	—	1	63	0.5	60	61	75	98 700	194 000	6 500	**LRT 556345**
	—	—	—	—	**TRI 558138**	—	650	55	81	38	38.5	1	62	1.5	60	60.5	76	92 000	166 000	6 500	**LRT 556238**
	—	—	—	—	—	**GTRI 558138**	710	55	81	38	38.5	1	62	—	60	60.5	76	118 000	241 000	2 500	**LRTZ 556238**
60	—	—	—	**TAFI 608225**	—	—	395	60	82	25	—	0.6	68	0.3	64	66	78	54 800	117 000	6 000	**LRT 606825**
	—	—	—	**TAFI 608235**	—	—	560	60	82	35	—	0.6	68	1	64	66	78	72 000	166 000	6 000	**LRT 606835**
	NA 4912	—	—	—	—	—	440	60	85	25	—	1	68	1	65	66	80	60 200	105 000	6 000	**LRT 606825-1**
	—	**NA 6912**	—	—	—	—	785	60	85	45	—	1	68	0.5	65	66	80	103 000	211 000	6 000	**LRT 606845**
	—	—	—	—	**TRI 608945**	—	960	60	89	45	45.5	1	70	2	65	68	84	114 000	228 000	5 500	**LRT 607045**
	—	—	—	—	—	**GTRI 608945**	1 050	60	89	45	45.5	1	70	—	65	68	84	147 000	336 000	2 000	**LRTZ 607045**
65	**NA 4913**	—	—	—	—	—	470	65	90	25	—	1	72	1	70	70.5	85	62 700	113 000	5 500	**LRT 657225**
	—	—	—	**TAFI 659035**	—	—	710	65	90	35	—	1	73	1	70	71	85	80 400	181 000	5 500	**LRT 657335**
	—	**NA 6913**	—	—	—	—	840	65	90	45	—	1	72	0.5	70	70.5	85	108 000	227 000	5 500	**LRT 657245**
70	—	—	—	**TAFI 709525**	—	—	540	70	95	25	—	1	80	0.3	75	78	90	59 400	137 000	5 000	**LRT 708025**
	—	—	—	**TAFI 709535**	—	—	755	70	95	35	—	1	80	1	75	78	90	78 100	195 000	5 000	**LRT 708035**
	NA 4914	—	—	—	—	—	765	70	100	30	—	1	80	1.5	75	78	95	83 200	158 000	5 000	**LRT 708030**
	—	**NA 6914**	—	—	—	—	1 400	70	100	54	—	1	80	1	75	78	95	134 000	311 000	5 000	**LRT 708054**

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable axial shift amount of inner ring to outer ring
(3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

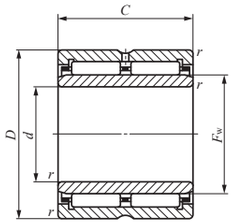
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring



NA49 TAFI



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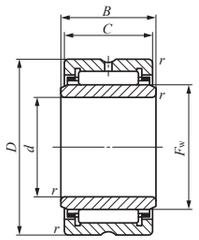

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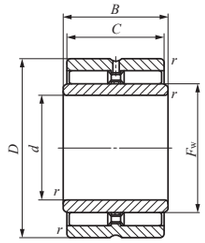

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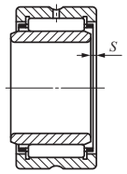
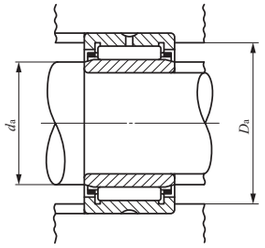




Shaft dia. 75 — 90mm

Shaft dia. mm	Identification number NA 49	NA 69	NA 48	TAFI	TRI	GTRI	Mass (Ref.) g	d
75	—	—	—	**TAFI 7510525**	—	—	675	75
	NA 4915	—	—	—	—	—	810	75
	—	—	—	**TAFI 7510535**	—	—	945	75
	—	**NA 6915**	—	—	—	—	1 480	75
	—	—	—	—	**TRI 7510845**	—	1 340	75
	—	—	—	—	—	**GTRI 7510845**	1 440	75
80	—	—	—	**TAFI 8011025**	—	—	710	80
	NA 4916	—	—	—	—	—	855	80
	—	—	—	**TAFI 8011035**	—	—	995	80
	—	**NA 6916**	—	—	—	—	1 560	80
85	—	—	—	**TAFI 8511526**	—	—	775	85
	—	—	—	**TAFI 8511536**	—	—	1 080	85
	NA 4917	—	—	—	—	—	1 280	85
	—	**NA 6917**	—	—	—	—	2 340	85
	—	—	—	—	**TRI 8511850**	—	1 640	85
	—	—	—	—	**TRI 8512045**	—	1 610	85
	—	—	—	—	—	**GTRI 8511850**	1 780	85
	—	—	—	—	—	**GTRI 8512045**	1 720	85
90	—	—	—	**TAFI 9012026**	—	—	820	90
	—	—	—	**TAFI 9012036**	—	—	1 140	90
	NA 4918	—	—	—	—	—	1 350	90
	—	—	—	—	**TRI 9012550**	—	1 870	90
	—	**NA 6918**	—	—	—	—	2 460	90
	—	—	—	—	—	**GTRI 9012550**	2 020	90

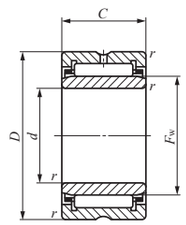
Boundary dimensions mm D	C	B	$r_{s\,min}$ (1)	F_w	S (2)	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (3) rpm	Assembled inner ring
105	25	—	1	85	0.5	80	83	100	76 300	145 000	4 500	**LRT 758525**
105	30	—	1	85	1.5	80	83	100	86 200	169 000	4 500	**LRT 758530**
105	35	—	1	85	1.5	80	83	100	102 000	210 000	4 500	**LRT 758535**
105	54	—	1	85	1	80	83	100	138 000	331 000	4 500	**LRT 758554**
108	45	45.5	1	83	2.5	80	81	103	146 000	270 000	5 000	**LRT 758345**
108	45	45.5	1	83	—	80	81	103	190 000	396 000	1 800	**LRTZ 758345**
110	25	—	1	90	0.5	85	88	105	77 300	150 000	4 500	**LRT 809025**
110	30	—	1	90	1.5	85	88	105	87 300	175 000	4 500	**LRT 809030**
110	35	—	1	90	1.5	85	88	105	103 000	217 000	4 500	**LRT 809035**
110	54	—	1	90	1	85	88	105	143 000	351 000	4 500	**LRT 809054**
115	26	—	1	95	1	90	93	110	79 700	159 000	4 000	**LRT 859526**
115	36	—	1	95	2	90	93	110	106 000	231 000	4 000	**LRT 859536**
120	35	—	1.1	100	1	91.5	98	113.5	110 000	244 000	4 000	**LRT 8510035**
120	63	—	1.1	100	0.5	91.5	98	113.5	173 000	467 000	4 000	**LRT 8510063**
118	50	50.5	1	93	3	90	91	113	165 000	329 000	4 500	**LRT 859350**
120	45	45.5	1.5	95	2.5	93	93.5	112	155 000	305 000	4 000	**LRT 859545**
118	50	50.5	1	93	—	90	91	113	224 000	509 000	1 600	**LRTZ 859350**
120	45	45.5	1.5	95	—	93	93.5	112	204 000	455 000	1 600	**LRTZ 859545**
120	26	—	1	100	1	95	98	115	82 400	168 000	4 000	**LRT 9010026**
120	36	—	1	100	2	95	98	115	110 000	244 000	4 000	**LRT 9010036**
125	35	—	1.1	105	1	96.5	103	118.5	113 000	258 000	4 000	**LRT 9010535**
125	50	50.5	1.5	100	3	98	98.5	117	172 000	355 000	4 000	**LRT 9010050**
125	63	—	1.1	105	0.5	96.5	103	118.5	178 000	490 000	4 000	**LRT 9010563**
125	50	50.5	1.5	100	—	98	98.5	117	234 000	549 000	1 500	**LRTZ 9010050**

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable axial shift amount of inner ring to outer ring
(3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

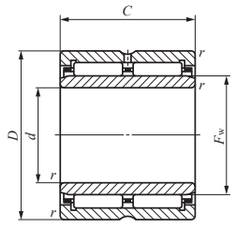
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

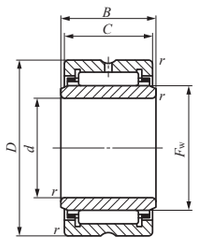
With Inner Ring



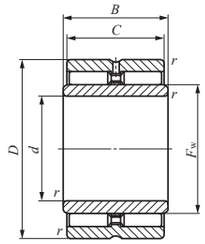
NA49 TAFI
NA48



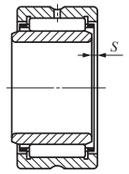
NA69

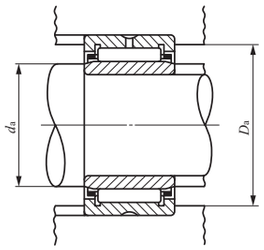


TRI



GTRI





Shaft dia. 95 — 150mm

Shaft dia. mm	Identification number NA 49	NA 69	NA 48	TAFI	TRI	GTRI	Mass (Ref.) g	d
95	—	—	—	**TAFI 9512526**	—	—	860	95
	—	—	—	**TAFI 9512536**	—	—	1 190	95
	NA 4919	—	—	—	—	—	1 420	95
	—	**NA 6919**	—	—	—	—	2 580	95
100	—	—	—	**TAFI 10013030**	—	—	1 040	100
	—	—	—	**TAFI 10013040**	—	—	1 380	100
	—	—	—	—	**TRI 10013550**	—	2 040	100
	NA 4920	—	—	—	—	—	1 960	100
	—	—	—	—	—	**GTRI 10013550**	2 200	100
105	—	—	—	—	**TRI 10515350**	—	3 020	105
	—	—	—	—	—	**GTRI 10515350**	3 270	105
110	—	—	**NA 4822**	—	—	—	1 200	110
	NA 4922	—	—	—	—	—	2 120	110
120	—	—	**NA 4824**	—	—	—	1 300	120
	NA 4924	—	—	—	—	—	2 960	120
125	—	—	—	—	**TRI 12517860**	—	4 780	125
	—	—	—	—	—	**GTRI 12517860**	5 180	125
130	—	—	**NA 4826**	—	—	—	1 960	130
	NA 4926	—	—	—	—	—	4 030	130
135	—	—	—	—	**TRI 13518860**	—	5 100	135
	—	—	—	—	—	**GTRI 13518860**	5 530	135
140	—	—	**NA 4828**	—	—	—	2 100	140
	NA 4928	—	—	—	—	—	4 290	140
150	—	—	**NA 4830**	—	—	—	2 880	150
	NA 4930	—	—	—	—	—	6 380	150

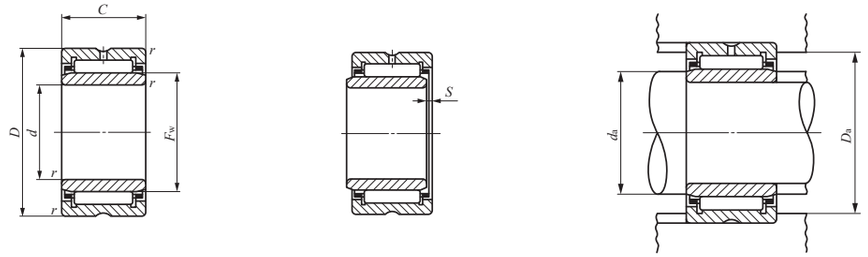
Boundary dimensions mm D	C	B	$r_{s\,min}$ (1)	F_w	S (2)	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (3) rpm	Assembled inner ring
125	26	—	1	105	1	100	103	120	84 700	178 000	4 000	**LRT 9510526**
125	36	—	1	105	2	100	103	120	113 000	258 000	4 000	**LRT 9510536**
130	35	—	1.1	110	1	101.5	108	123.5	116 000	271 000	3 500	**LRT 9511035**
130	63	—	1.1	110	0.5	101.5	108	123.5	182 000	514 000	3 500	**LRT 9511063**
130	30	—	1	110	0.5	105	108	125	106 000	240 000	3 500	**LRT 10011030**
130	40	—	1	110	1.5	105	108	125	134 000	324 000	3 500	**LRT 10011040**
135	50	50.5	1.5	110	3	108	108.5	127	183 000	395 000	3 500	**LRT 10011050**
140	40	—	1.1	115	1	106.5	113	133.5	145 000	329 000	3 500	**LRT 10011540**
135	50	50.5	1.5	110	—	108	108.5	127	245 000	603 000	1 400	**LRTZ 10011050**
153	50	50.5	1.5	115	3	113	113.5	145	233 000	414 000	3 500	**LRT 10511550**
153	50	50.5	1.5	115	—	113	113.5	145	315 000	614 000	1 300	**LRTZ 10511550**
140	30	—	1	120	1	115	118	135	93 200	239 000	3 500	**LRT 11012030**
150	40	—	1.1	125	1	116.5	123	143.5	152 000	357 000	3 000	**LRT 11012540**
150	30	—	1	130	1	125	128	145	96 900	259 000	3 000	**LRT 12013030**
165	45	—	1.1	135	2	126.5	133	158.5	187 000	435 000	3 000	**LRT 12013545**
178	60	60.5	1.5	140	2.5	133	138	170	307 000	625 000	3 000	**LRT 12514060**
178	60	60.5	1.5	140	—	133	138	170	409 000	923 000	1 100	**LRTZ 12514060**
165	35	—	1.1	145	1	136.5	143	158.5	116 000	340 000	3 000	**LRT 13014535**
180	50	—	1.5	150	2.5	138	148	172	215 000	540 000	2 500	**LRT 13015050**
188	60	60.5	1.5	150	2.5	143	148	180	320 000	675 000	2 500	**LRT 13515060**
188	60	60.5	1.5	150	—	143	148	180	423 000	989 000	1 000	**LRTZ 13515060**
175	35	—	1.1	155	1	146.5	153	168.5	120 000	363 000	2 500	**LRT 14015535**
190	50	—	1.5	160	2.5	148	158	182	224 000	580 000	2 500	**LRT 14016050**
190	40	—	1.1	165	1.5	156.5	163	183.5	168 000	446 000	2 500	**LRT 15016540**
210	60	—	2	170	3	159	168	201	324 000	712 000	2 500	**LRT 15017060**

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable axial shift amount of inner ring to outer ring
(3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring



NA49 NA48

Shaft dia. 160 — 340mm

Shaft dia. mm	Identification number NA 49	NA 69	NA 48	TAFI	TRI	GTRI	Mass (Ref.) g	d
160	—	—	NA 4832	—	—	—	3 050	160
	NA 4932	—	—	—	—	—	6 750	160
170	—	—	NA 4834	—	—	—	4 120	170
	NA 4934	—	—	—	—	—	7 110	170
180	—	—	NA 4836	—	—	—	4 340	180
	NA 4936	—	—	—	—	—	10 200	180
190	—	—	NA 4838	—	—	—	5 760	190
	NA 4938	—	—	—	—	—	10 700	190
200	—	—	NA 4840	—	—	—	6 040	200
	NA 4940	—	—	—	—	—	15 400	200
220	—	—	NA 4844	—	—	—	6 570	220
	NA 4944	—	—	—	—	—	16 700	220
240	—	—	NA 4848	—	—	—	10 200	240
	NA 4948	—	—	—	—	—	18 000	240
260	—	—	NA 4852	—	—	—	11 000	260
	NA 4952	—	—	—	—	—	31 100	260
280	—	—	NA 4856	—	—	—	15 800	280
	NA 4956	—	—	—	—	—	33 100	280
300	—	—	NA 4860	—	—	—	22 300	300
	NA 4960	—	—	—	—	—	51 400	300
320	—	—	NA 4864	—	—	—	23 700	320
	NA 4964	—	—	—	—	—	54 400	320
340	—	—	NA 4868	—	—	—	25 000	340
	NA 4968	—	—	—	—	—	57 300	340

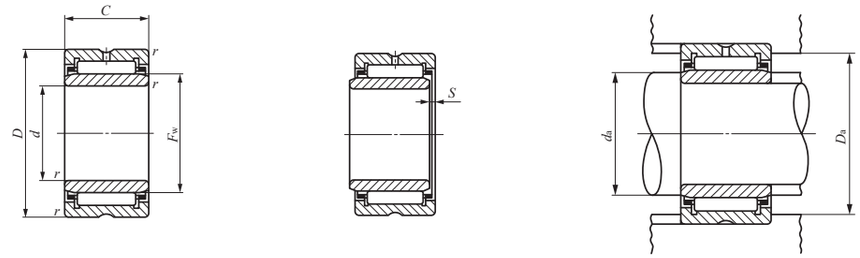
Boundary dimensions mm D	C	B	$r_{s\,min}$ (1)	F_w	S (2)	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (3) rpm	Assembled inner ring
200	40	—	1.1	175	1.5	166.5	173	193.5	173 000	474 000	2 500	**LRT 16017540**
220	60	—	2	180	3	169	178	211	337 000	761 000	1 900	**LRT 16018060**
215	45	—	1.1	185	1.5	176.5	183	208.5	211 000	567 000	1 900	**LRT 17018545**
230	60	—	2	190	3	179	188	221	347 000	810 000	1 900	**LRT 17019060**
225	45	—	1.1	195	1.5	186.5	193	218.5	218 000	602 000	1 900	**LRT 18019545**
250	69	—	2	205	3	189	203	241	434 000	989 000	1 900	**LRT 18020569**
240	50	—	1.5	210	1.5	198	208	232	249 000	726 000	1 800	**LRT 19021050**
260	69	—	2	215	3	199	213	251	440 000	1 020 000	1 700	**LRT 19021569**
250	50	—	1.5	220	1.5	208	218	242	255 000	766 000	1 600	**LRT 20022050**
280	80	—	2.1	225	4	211	223	269	518 000	1 120 000	1 600	**LRT 20022580**
270	50	—	1.5	240	1.5	228	238	262	266 000	833 000	1 500	**LRT 22024050**
300	80	—	2.1	245	4	231	243	289	536 000	1 200 000	1 400	**LRT 22024580**
300	60	—	2	265	2	249	262	291	345 000	1 150 000	1 300	**LRT 24026560**
320	80	—	2.1	265	4	251	262	309	565 000	1 320 000	1 300	**LRT 24026580**
320	60	—	2	285	2	269	282	311	354 000	1 220 000	1 100	**LRT 26028560**
360	100	—	2.1	290	4	271	287	349	847 000	1 900 000	1 100	**LRT 260290100**
350	69	—	2	305	2.5	289	302	341	486 000	1 550 000	950	**LRT 28030569**
380	100	—	2.1	310	4	291	307	369	877 000	2 040 000	950	**LRT 280310100**
380	80	—	2.1	330	2.5	311	327	369	610 000	1 900 000	900	**LRT 30033080**
420	118	—	3	340	4	313	337	407	1 130 000	2 650 000	850	**LRT 300340118**
400	80	—	2.1	350	2.5	331	347	389	635 000	2 040 000	750	**LRT 32035080**
440	118	—	3	360	4	333	357	427	1 170 000	2 830 000	750	**LRT 320360118**
420	80	—	2.1	370	2.5	351	367	409	651 000	2 140 000	700	**LRT 34037080**
460	118	—	3	380	4	353	377	447	1 220 000	3 020 000	700	**LRT 340380118**

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable axial shift amount of inner ring to outer ring
(3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring



NA49 NA48

Shaft dia. 360 — 440mm

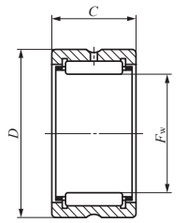
Shaft dia. mm	Identification number NA 49	NA 69	NA 48	TAFI	TRI	GTRI	Mass (Ref.) g	d	Boundary dimensions mm D	C	B	$r_{s\,min}$ (1)	F_w	S (2)	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (3) rpm	Assembled inner ring
360	—	—	**NA 4872**	—	—	—	26 400	360	440	80	—	2.1	390	2.5	371	387	429	680 000	2 320 000	650	**LRT 36039080**
	NA 4972	—	—	—	—	—	60 200	360	480	118	—	3	400	4	373	397	467	1 260 000	3 200 000	600	**LRT 360400118**
380	—	—	**NA 4876**	—	—	—	44 600	380	480	100	—	2.1	415	3	391	412	469	951 000	2 860 000	600	**LRT 380415100**
	NA 4976	—	—	—	—	—	90 300	380	520	140	—	4	430	5	396	427	504	1 540 000	4 030 000	500	**LRT 380430140**
400	**NA 4980**	—	—	—	—	—	94 400	400	540	140	—	4	450	5	416	447	524	1 590 000	4 270 000	500	**LRT 400450140**
420	**NA 4984**	—	—	—	—	—	98 500	420	560	140	—	4	470	5	436	467	544	1 640 000	4 510 000	500	**LRT 420470140**
440	**NA 4988**	—	—	—	—	—	131 000	440	600	160	—	4	490	5	456	487	584	1 910 000	5 140 000	400	**LRT 440490160**

Notes(1) Minimum allowable value of chamfer dimension *r*
(2) Allowable axial shift amount of inner ring to outer ring
(3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

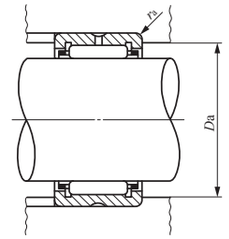
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring, Inch Series



BR



Shaft dia. 15.875 — 47.625mm

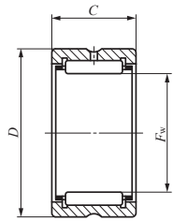
Shaft dia. mm (inch)	Identification number	Mass (Ref.) g	Boundary dimensions mm(inch) F_w	D	C	Standard mounting dimensions mm D_a Max.	$r_{as\,max}$ (1)	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (2) rpm
15.875 (5/8)	**BR 101812**	49	15.875 (5/8)	28.575 (1 1/8)	19.050 (3/4)	24.5	0.6	18 900	19 700	25 000
19.050 (3/4)	**BR 122012**	56	19.050 (3/4)	31.750 (1 1/4)	19.050 (3/4)	26.5	1	21 700	24 400	20 000
	BR 122016	75	19.050 (3/4)	31.750 (1 1/4)	25.400 (1)	26.5	1	27 600	33 100	20 000
22.225 (7/8)	**BR 142212**	63	22.225 (7/8)	34.925 (1 3/8)	19.050 (3/4)	29.7	1	23 000	27 100	18 000
	BR 142216	84.5	22.225 (7/8)	34.925 (1 3/8)	25.400 (1)	29.7	1	29 100	36 800	18 000
25.400 (1)	**BR 162412**	69	25.400 (1)	38.100 (1 1/2)	19.050 (3/4)	32.9	1	25 300	31 900	16 000
	BR 162416	92.5	25.400 (1)	38.100 (1 1/2)	25.400 (1)	32.9	1	32 100	43 300	16 000
28.575 (1 1/8)	**BR 182616**	102	28.575 (1 1/8)	41.275 (1 5/8)	25.400 (1)	36	1	34 900	49 900	14 000
	BR 182620	128	28.575 (1 1/8)	41.275 (1 5/8)	31.750 (1 1/4)	36	1	43 200	65 600	14 000
31.750 (1 1/4)	**BR 202816**	110	31.750 (1 1/4)	44.450 (1 3/4)	25.400 (1)	39.2	1	36 000	53 500	13 000
	BR 202820	138	31.750 (1 1/4)	44.450 (1 3/4)	31.750 (1 1/4)	39.2	1	44 600	70 300	13 000
34.925 (1 3/8)	**BR 223016**	119	34.925 (1 3/8)	47.625 (1 7/8)	25.400 (1)	42.4	1	38 500	60 000	11 000
	BR 223020	149	34.925 (1 3/8)	47.625 (1 7/8)	31.750 (1 1/4)	42.4	1	47 700	78 900	11 000
38.100 (1 1/2)	**BR 243316**	149	38.100 (1 1/2)	52.388 (2 1/16)	25.400 (1)	45.1	1.5	43 700	66 900	11 000
	BR 243320	187	38.100 (1 1/2)	52.388 (2 1/16)	31.750 (1 1/4)	45.1	1.5	54 200	88 200	11 000
41.275 (1 5/8)	**BR 263516**	158	41.275 (1 5/8)	55.562 (2 3/16)	25.400 (1)	48.3	1.5	44 800	70 900	9 500
	BR 263520	199	41.275 (1 5/8)	55.562 (2 3/16)	31.750 (1 1/4)	48.3	1.5	55 600	93 400	9 500
44.450 (1 3/4)	**BR 283716**	170	44.450 (1 3/4)	58.738 (2 5/16)	25.400 (1)	51.5	1.5	47 500	78 200	9 000
	BR 283720	215	44.450 (1 3/4)	58.738 (2 5/16)	31.750 (1 1/4)	51.5	1.5	58 900	103 000	9 000
	BR 283820	250	44.450 (1 3/4)	60.325 (2 3/8)	31.750 (1 1/4)	53.1	1.5	58 900	103 000	9 000
47.625 (1 7/8)	**BR 303920**	225	47.625 (1 7/8)	61.912 (2 7/16)	31.750 (1 1/4)	54.7	1.5	60 100	108 000	8 500

Notes(1) Maximum permissible corner radius of the housing
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

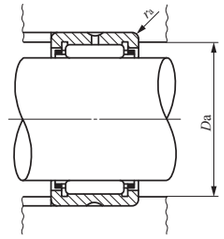
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring, Inch Series



BR



Shaft dia. 50.800 — 101.600mm

Shaft dia. mm (inch)	Identification number	Mass (Ref.) g	Boundary dimensions mm(inch) F_w	D	C	Standard mounting dimensions mm D_a Max.	$r_{as\,max}$ (1)	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (2) rpm
50.800 (2)	**BR 324116**	190	50.800 (2)	65.088 (2 9/16)	25.400 (1)	57.8	1.5	51 000	89 400	8 000
	BR 324120	240	50.800 (2)	65.088 (2 9/16)	31.750 (1 1/4)	57.8	1.5	63 200	118 000	8 000
57.150 (2 1/4)	**BR 364824**	435	57.150 (2 1/4)	76.200 (3)	38.100 (1 1/2)	69	1.5	90 300	158 000	7 000
	BR 364828	510	57.150 (2 1/4)	76.200 (3)	44.450 (1 3/4)	69	1.5	105 000	191 000	7 000
63.500 (2 1/2)	**BR 405224**	475	63.500 (2 1/2)	82.550 (3 1/4)	38.100 (1 1/2)	74.3	2	94 600	174 000	6 500
	BR 405228	555	63.500 (2 1/2)	82.550 (3 1/4)	44.450 (1 3/4)	74.3	2	110 000	210 000	6 500
69.850 (2 3/4)	**BR 445624**	510	69.850 (2 3/4)	88.900 (3 1/2)	38.100 (1 1/2)	80.7	2	98 700	189 000	5 500
	BR 445628	600	69.850 (2 3/4)	88.900 (3 1/2)	44.450 (1 3/4)	80.7	2	114 000	228 000	5 500
76.200 (3)	**BR 486024**	555	76.200 (3)	95.250 (3 3/4)	38.100 (1 1/2)	87	2	105 000	211 000	5 500
	BR 486028	650	76.200 (3)	95.250 (3 3/4)	44.450 (1 3/4)	87	2	122 000	255 000	5 500
82.550 (3 1/4)	**BR 526828**	990	82.550 (3 1/4)	107.950 (4 1/4)	44.450 (1 3/4)	99.7	2	141 000	259 000	5 000
	BR 526832	1 140	82.550 (3 1/4)	107.950 (4 1/4)	50.800 (2)	99.7	2	154 000	290 000	5 000
88.900 (3 1/2)	**BR 567232**	1 220	88.900 (3 1/2)	114.300 (4 1/2)	50.800 (2)	106.1	2	162 000	316 000	4 500
95.250 (3 3/4)	**BR 607632**	1 290	95.250 (3 3/4)	120.650 (4 3/4)	50.800 (2)	111.4	2.5	169 000	342 000	4 000
101.600 (4)	**BR 648032**	1 370	101.600 (4)	127.000 (5)	50.800 (2)	117.8	2.5	176 000	368 000	4 000

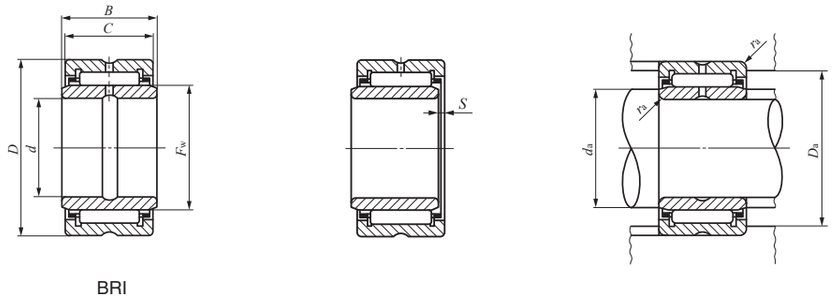
Notes(1) Maximum permissible corner radius of the housing
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.

Remarks1. In bearings with a roller set bore diameter F_w of 69.850 mm or less, the outer ring has an oil groove and an oil hole. In others, the outer ring has an oil groove and two oil holes.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring, Inch Series



BRI

Shaft dia. 9.525 — 41.275mm

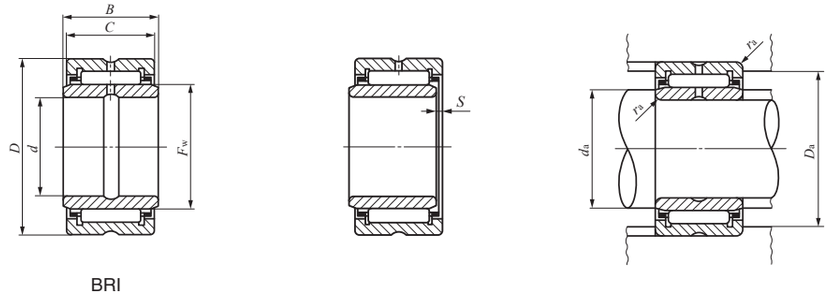
Shaft dia. mm (inch)	Identification number	Mass (Ref.) g	Boundary dimensions mm(inch) d	D	C	B	F_w	S (1)	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	$r_{as\,max}$ (2)	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (3) rpm	Assembled inner ring
9.525 (3/8)	**BRI 61812**	67.5	9.525 (3/8)	28.575 (1 1/8)	19.050 (3/4)	19.300	15.875 (5/8)	0.3	14	14.5	24.5	0.6	18 900	19 700	25 000	**LRB 61012**
12.700 (1/2)	**BRI 82012**	79.5	12.700 (1/2)	31.750 (1 1/4)	19.050 (3/4)	19.300	19.050 (3/4)	0.3	17.5	18	26.5	1	21 700	24 400	20 000	**LRB 81212**
	BRI 82016	106	12.700 (1/2)	31.750 (1 1/4)	25.400 (1)	25.650	19.050 (3/4)	0.5	17.5	18	26.5	1	27 600	33 100	20 000	**LRB 81216**
15.875 (5/8)	**BRI 102212**	91	15.875 (5/8)	34.925 (1 3/8)	19.050 (3/4)	19.300	22.225 (7/8)	0.3	21	21.2	29.7	1	23 000	27 100	18 000	**LRB 101412**
	BRI 102216	122	15.875 (5/8)	34.925 (1 3/8)	25.400 (1)	25.650	22.225 (7/8)	0.5	21	21.2	29.7	1	29 100	36 800	18 000	**LRB 101416**
19.050 (3/4)	**BRI 122412**	102	19.050 (3/4)	38.100 (1 1/2)	19.050 (3/4)	19.300	25.400 (1)	0.3	24	24.4	32.9	1	25 300	31 900	16 000	**LRB 121612**
	BRI 122416	136	19.050 (3/4)	38.100 (1 1/2)	25.400 (1)	25.650	25.400 (1)	0.5	24	24.4	32.9	1	32 100	43 300	16 000	**LRB 121616**
22.225 (7/8)	**BRI 142616**	152	22.225 (7/8)	41.275 (1 5/8)	25.400 (1)	25.650	28.575 (1 1/8)	0.5	27	27.5	36	1	34 900	49 900	14 000	**LRB 141816**
	BRI 142620	190	22.225 (7/8)	41.275 (1 5/8)	31.750 (1 1/4)	32.000	28.575 (1 1/8)	0.5	27	27.5	36	1	43 200	65 600	14 000	**LRB 141820**
25.400 (1)	**BRI 162816**	166	25.400 (1)	44.450 (1 3/4)	25.400 (1)	25.650	31.750 (1 1/4)	0.5	30.5	30.7	39.2	1	36 000	53 500	13 000	**LRB 162016**
	BRI 162820	210	25.400 (1)	44.450 (1 3/4)	31.750 (1 1/4)	32.000	31.750 (1 1/4)	0.5	30.5	30.7	39.2	1	44 600	70 300	13 000	**LRB 162020**
28.575 (1 1/8)	**BRI 183016**	182	28.575 (1 1/8)	47.625 (1 7/8)	25.400 (1)	25.650	34.925 (1 3/8)	0.5	33.5	33.9	42.4	1	38 500	60 000	11 000	**LRB 182216**
	BRI 183020	225	28.575 (1 1/8)	47.625 (1 7/8)	31.750 (1 1/4)	32.000	34.925 (1 3/8)	0.5	33.5	33.9	42.4	1	47 700	78 900	11 000	**LRB 182220**
31.750 (1 1/4)	**BRI 203316**	220	31.750 (1 1/4)	52.388 (2 1/16)	25.400 (1)	25.650	38.100 (1 1/2)	0.5	37	37.1	45.1	1.5	43 700	66 900	11 000	**LRB 202416**
	BRI 203320	275	31.750 (1 1/4)	52.388 (2 1/16)	31.750 (1 1/4)	32.000	38.100 (1 1/2)	0.5	37	37.1	45.1	1.5	54 200	88 200	11 000	**LRB 202420**
34.925 (1 3/8)	**BRI 223516**	235	34.925 (1 3/8)	55.562 (2 3/16)	25.400 (1)	25.650	41.275 (1 5/8)	0.5	40.2	40.2	48.3	1.5	44 800	70 900	9 500	**LRB 222616**
	BRI 223520	295	34.925 (1 3/8)	55.562 (2 3/16)	31.750 (1 1/4)	32.000	41.275 (1 5/8)	0.5	40.2	40.2	48.3	1.5	55 600	93 400	9 500	**LRB 222620**
38.100 (1 1/2)	**BRI 243716**	250	38.100 (1 1/2)	58.738 (2 5/16)	25.400 (1)	25.650	44.450 (1 3/4)	0.5	43.3	43.4	51.5	1.5	47 500	78 200	9 000	**LRB 242816**
	BRI 243720	315	38.100 (1 1/2)	58.738 (2 5/16)	31.750 (1 1/4)	32.000	44.450 (1 3/4)	0.5	43.3	43.4	51.5	1.5	58 900	103 000	9 000	**LRB 242820**
	BRI 243820	350	38.100 (1 1/2)	60.325 (2 3/8)	31.750 (1 1/4)	32.000	44.450 (1 3/4)	0.5	43.3	43.4	53.1	1.5	58 900	103 000	9 000	**LRB 242820**
	BRI 243920	380	38.100 (1 1/2)	61.912 (2 7/16)	31.750 (1 1/4)	32.000	47.625 (1 7/8)	0.5	43.3	43.4	54.7	1.5	60 100	108 000	8 500	**LRB 243020**
41.275 (1 5/8)	**BRI 264116**	325	41.275 (1 5/8)	65.088 (2 9/16)	25.400 (1)	25.650	50.800 (2)	0.5	48	49	57.8	1.5	51 000	89 400	8 000	**LRB 263216**
	BRI 264120	410	41.275 (1 5/8)	65.088 (2 9/16)	31.750 (1 1/4)	32.000	50.800 (2)	0.5	48	49	57.8	1.5	63 200	118 000	8 000	**LRB 263220**

Notes(1) Allowable axial shift amount of inner ring to outer ring
(2) Maximum permissible corner radius of the shaft or housing
(3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The inner ring and the outer ring each have an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring, Inch Series



BRI

Shaft dia. 44.450 — 88.900mm

Shaft dia. mm (inch)	Identification number	Mass (Ref.) g	Boundary dimensions mm(inch) d	D	C	B	F_w	S(1)	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	$r_{as\,max}$(2)	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed(3) rpm	Assembled inner ring
44.450 (1 3/4)	**BRI 284824**	735	44.450 (1 3/4)	76.200 (3)	38.100 (1 1/2)	38.350	57.150 (2 1/4)	1	52.5	55	69	1.5	90 300	158 000	7 000	**LRB 283624**
	BRI 284828	855	44.450 (1 3/4)	76.200 (3)	44.450 (1 3/4)	44.700	57.150 (2 1/4)	1	52.5	55	69	1.5	105 000	191 000	7 000	**LRB 283628**
50.800 (2)	**BRI 325224**	810	50.800 (2)	82.550 (3 1/4)	38.100 (1 1/2)	38.350	63.500 (2 1/2)	1	58	61	74.3	2	94 600	174 000	6 500	**LRB 324024**
	BRI 325228	945	50.800 (2)	82.550 (3 1/4)	44.450 (1 3/4)	44.700	63.500 (2 1/2)	1	58	61	74.3	2	110 000	210 000	6 500	**LRB 324028**
57.150 (2 1/4)	**BRI 365624**	885	57.150 (2 1/4)	88.900 (3 1/2)	38.100 (1 1/2)	38.350	69.850 (2 3/4)	1	65	67	80.7	2	98 700	189 000	5 500	**LRB 364424**
	BRI 365628	1 040	57.150 (2 1/4)	88.900 (3 1/2)	44.450 (1 3/4)	44.700	69.850 (2 3/4)	1	65	67	80.7	2	114 000	228 000	5 500	**LRB 364428**
63.500 (2 1/2)	**BRI 406024**	965	63.500 (2 1/2)	95.250 (3 3/4)	38.100 (1 1/2)	38.350	76.200 (3)	1	71	73	87	2	105 000	211 000	5 500	**LRB 404824**
	BRI 406028	1 130	63.500 (2 1/2)	95.250 (3 3/4)	44.450 (1 3/4)	44.700	76.200 (3)	1	71	73	87	2	122 000	255 000	5 500	**LRB 404828**
69.850 (2 3/4)	**BRI 446828**	1 520	69.850 (2 3/4)	107.950 (4 1/4)	44.450 (1 3/4)	44.700	82.550 (3 1/4)	1.5	77	79	99.7	2	141 000	259 000	5 000	**LRB 445228**
	BRI 446832	1 740	69.850 (2 3/4)	107.950 (4 1/4)	50.800 (2)	51.050	82.550 (3 1/4)	3	77	79	99.7	2	154 000	290 000	5 000	**LRB 445232**
76.200 (3)	**BRI 487232**	1 860	76.200 (3)	114.300 (4 1/2)	50.800 (2)	51.050	88.900 (3 1/2)	3	83.5	86	106.1	2	162 000	316 000	4 500	**LRB 485632**
82.550 (3 1/4)	**BRI 527632**	1 980	82.550 (3 1/4)	120.650 (4 3/4)	50.800 (2)	51.050	95.250 (3 3/4)	3	91	93	111.4	2.5	169 000	342 000	4 000	**LRB 526032**
88.900 (3 1/2)	**BRI 568032**	2 120	88.900 (3 1/2)	127.000 (5)	50.800 (2)	51.050	101.600 (4)	3	97	99	117.8	2.5	176 000	368 000	4 000	**LRB 566432**

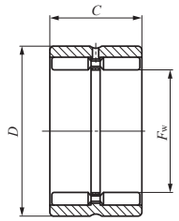
Notes(1) Allowable axial shift amount of inner ring to outer ring
(2) Maximum permissible corner radius of the shaft or housing
(3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.

Remarks1. In bearings with a bearing bore diameter, d, of 57.150 mm or less, the outer ring has an oil groove and an oil hole. In bearings with a bearing bore diameter, d, of 76.200 mm or less, the inner ring has an oil groove and an oil hole. In others, the inner ring and the outer ring each have an oil groove and two oil holes.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring, Inch Series



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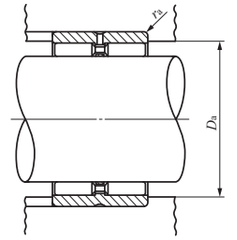


Shaft dia. 15.875 — 50.800mm

Shaft dia. mm (inch)	Identification number	Mass (Ref.) g	Boundary dimensions mm(inch) F_w	D	C	Standard mounting dimensions mm D_a Max.	$r_{as\,max}$ (1)	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (2) rpm
15.875 (5/8)	**GBR 101812**	55.5	15.875 (5/8)	28.575 (1 1/8)	19.050 (3/4)	24.5	0.6	23 500	28 500	9 500
19.050 (3/4)	**GBR 122012**	63	19.050 (3/4)	31.750 (1 1/4)	19.050 (3/4)	27	0.6	26 400	34 500	8 000
22.225 (7/8)	**GBR 142212**	71	22.225 (7/8)	34.925 (1 3/8)	19.050 (3/4)	30	0.6	28 600	40 100	7 000
	GBR 142216	95.5	22.225 (7/8)	34.925 (1 3/8)	25.400 (1)	30	0.6	38 300	58 300	7 000
25.400 (1)	**GBR 162412**	79	25.400 (1)	38.100 (1 1/2)	19.050 (3/4)	33.3	0.6	31 000	46 100	6 000
	GBR 162416	106	25.400 (1)	38.100 (1 1/2)	25.400 (1)	33.3	0.6	41 400	67 100	6 000
28.575 (1 1/8)	**GBR 182616**	117	28.575 (1 1/8)	41.275 (1 5/8)	25.400 (1)	36.3	0.6	43 900	75 300	5 500
31.750 (1 1/4)	**GBR 202816**	128	31.750 (1 1/4)	44.450 (1 3/4)	25.400 (1)	39.6	0.6	46 600	83 900	4 500
34.925 (1 3/8)	**GBR 223016**	137	34.925 (1 3/8)	47.625 (1 7/8)	25.400 (1)	42.8	0.6	49 500	91 800	4 500
38.100 (1 1/2)	**GBR 243316**	168	38.100 (1 1/2)	52.388 (2 1/16)	25.400 (1)	47.3	0.6	54 200	97 700	4 000
	GBR 243320	205	38.100 (1 1/2)	52.388 (2 1/16)	31.750 (1 1/4)	47.3	0.6	64 100	121 000	4 000
41.275 (1 5/8)	**GBR 263516**	180	41.275 (1 5/8)	55.562 (2 3/16)	25.400 (1)	50.5	0.6	56 600	105 000	3 500
	GBR 263520	220	41.275 (1 5/8)	55.562 (2 3/16)	31.750 (1 1/4)	50.5	0.6	67 000	130 000	3 500
44.450 (1 3/4)	**GBR 283720**	235	44.450 (1 3/4)	58.738 (2 5/16)	31.750 (1 1/4)	53.7	0.6	69 700	141 000	3 500
	GBR 283820	275	44.450 (1 3/4)	60.325 (2 3/8)	31.750 (1 1/4)	55.3	0.6	69 700	141 000	3 500
47.625 (1 7/8)	**GBR 303920**	250	47.625 (1 7/8)	61.912 (2 7/16)	31.750 (1 1/4)	56.2	1	72 400	150 000	3 000
50.800 (2)	**GBR 324116**	215	50.800 (2)	65.088 (2 9/16)	25.400 (1)	59.2	1	63 100	130 000	3 000
	GBR 324120	265	50.800 (2)	65.088 (2 9/16)	31.750 (1 1/4)	59.2	1	74 600	162 000	3 000

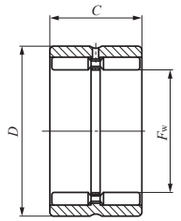
Notes(1) Maximum permissible corner radius of the housing
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.

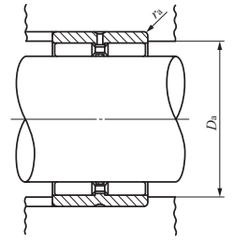
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

Without Inner Ring, Inch Series





GBR

Shaft dia. 57.150 — 107.950mm

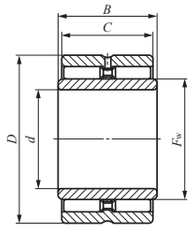
Shaft dia. mm (inch)	Identification number	Mass (Ref.) g	Boundary dimensions mm(inch) F_w	D	C	Standard mounting dimensions mm D_a Max.	$r_{as\ max}$ (1)	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed(2) rpm
57.150 (2 1/4)	**GBR 364824**	490	57.150 (2 1/4)	76.200 (3)	38.100 (1 1/2)	69.2	1.5	113 000	224 000	2 500
	GBR 364828	580	57.150 (2 1/4)	76.200 (3)	44.450 (1 3/4)	69.2	1.5	133 000	276 000	2 500
63.500 (2 1/2)	**GBR 405224**	535	63.500 (2 1/2)	82.550 (3 1/4)	38.100 (1 1/2)	75.7	1.5	120 000	248 000	2 500
	GBR 405228	635	63.500 (2 1/2)	82.550 (3 1/4)	44.450 (1 3/4)	75.7	1.5	141 000	306 000	2 500
69.850 (2 3/4)	**GBR 445624**	585	69.850 (2 3/4)	88.900 (3 1/2)	38.100 (1 1/2)	82	1.5	125 000	273 000	2 000
	GBR 445628	690	69.850 (2 3/4)	88.900 (3 1/2)	44.450 (1 3/4)	82	1.5	147 000	336 000	2 000
76.200 (3)	**GBR 486024**	630	76.200 (3)	95.250 (3 3/4)	38.100 (1 1/2)	88	1.5	131 000	298 000	2 000
	GBR 486028	745	76.200 (3)	95.250 (3 3/4)	44.450 (1 3/4)	88	1.5	154 000	368 000	2 000
82.550 (3 1/4)	**GBR 526828**	1 100	82.550 (3 1/4)	107.950 (4 1/4)	44.450 (1 3/4)	99.9	1.5	193 000	396 000	1 800
	GBR 526832	1 240	82.550 (3 1/4)	107.950 (4 1/4)	50.800 (2)	99.9	1.5	214 000	452 000	1 800
88.900 (3 1/2)	**GBR 567232**	1 330	88.900 (3 1/2)	114.300 (4 1/2)	50.800 (2)	106.3	1.5	221 000	488 000	1 700
95.250 (3 3/4)	**GBR 607632**	1 420	95.250 (3 3/4)	120.650 (4 3/4)	50.800 (2)	112.6	1.5	228 000	522 000	1 600
101.600 (4)	**GBR 648032**	1 500	101.600 (4)	127.000 (5)	50.800 (2)	119	1.5	237 000	556 000	1 500
107.950 (4 1/4)	**GBR 688432**	1 580	107.950 (4 1/4)	133.350 (5 1/4)	50.800 (2)	125.3	1.5	242 000	590 000	1 400

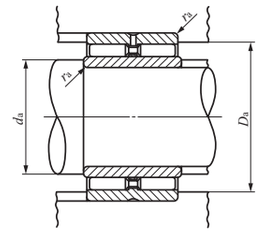
Notes(1) Maximum permissible corner radius of the housing
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring, Inch Series





GBRI

Shaft dia. 9.525 — 41.275mm

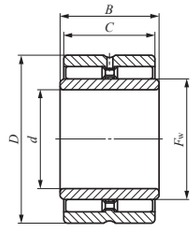
Shaft dia. mm (inch)	Identification number	Mass (Ref.) g	Boundary dimensions mm(inch) d	D	C	B	F_w	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	$r_{as\,max}$ (1)	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (2) rpm	Assembled inner ring
9.525 (3/8)	**GBRI 61812**	74	9.525 (3/8)	28.575 (1 1/8)	19.050 (3/4)	19.300	15.875 (5/8)	14	14.5	24.5	0.6	23 500	28 500	9 500	**LRBZ 61012**
12.700 (1/2)	**GBRI 82012**	86.5	12.700 (1/2)	31.750 (1 1/4)	19.050 (3/4)	19.300	19.050 (3/4)	17.5	18	27	0.6	26 400	34 500	8 000	**LRBZ 81212**
15.875 (5/8)	**GBRI 102212**	99	15.875 (5/8)	34.925 (1 3/8)	19.050 (3/4)	19.300	22.225 (7/8)	21	21.2	30	0.6	28 600	40 100	7 000	**LRBZ 101412**
	GBRI 102216	133	15.875 (5/8)	34.925 (1 3/8)	25.400 (1)	25.650	22.225 (7/8)	21	21.2	30	0.6	38 300	58 300	7 000	**LRBZ 101416**
19.050 (3/4)	**GBRI 122412**	112	19.050 (3/4)	38.100 (1 1/2)	19.050 (3/4)	19.300	25.400 (1)	24	24.4	33.3	0.6	31 000	46 100	6 000	**LRBZ 121612**
	GBRI 122416	150	19.050 (3/4)	38.100 (1 1/2)	25.400 (1)	25.650	25.400 (1)	24	24.4	33.3	0.6	41 400	67 100	6 000	**LRBZ 121616**
22.225 (7/8)	**GBRI 142616**	167	22.225 (7/8)	41.275 (1 5/8)	25.400 (1)	25.650	28.575 (1 1/8)	27	27.5	36.3	0.6	43 900	75 300	5 500	**LRBZ 141816**
25.400 (1)	**GBRI 162816**	184	25.400 (1)	44.450 (1 3/4)	25.400 (1)	25.650	31.750 (1 1/4)	30.5	30.7	39.6	0.6	46 600	83 900	4 500	**LRBZ 162016**
28.575 (1 1/8)	**GBRI 183016**	200	28.575 (1 1/8)	47.625 (1 7/8)	25.400 (1)	25.650	34.925 (1 3/8)	33.5	33.9	42.8	0.6	49 500	91 800	4 500	**LRBZ 182216**
31.750 (1 1/4)	**GBRI 203316**	235	31.750 (1 1/4)	52.388 (2 1/16)	25.400 (1)	25.650	38.100 (1 1/2)	37	37.1	47.3	0.6	54 200	97 700	4 000	**LRBZ 202416**
	GBRI 203320	291	31.750 (1 1/4)	52.388 (2 1/16)	31.750 (1 1/4)	32.000	38.100 (1 1/2)	37	37.1	47.3	0.6	64 100	121 000	4 000	**LRBZ 202420**
34.925 (1 3/8)	**GBRI 223516**	255	34.925 (1 3/8)	55.562 (2 3/16)	25.400 (1)	25.650	41.275 (1 5/8)	40.2	40.2	50.5	0.6	56 600	105 000	3 500	**LRBZ 222616**
	GBRI 223520	316	34.925 (1 3/8)	55.562 (2 3/16)	31.750 (1 1/4)	32.000	41.275 (1 5/8)	40.2	40.2	50.5	0.6	67 000	130 000	3 500	**LRBZ 222620**
38.100 (1 1/2)	**GBRI 243720**	335	38.100 (1 1/2)	58.738 (2 5/16)	31.750 (1 1/4)	32.000	44.450 (1 3/4)	43.3	43.4	53.7	0.6	69 700	141 000	3 500	**LRBZ 242820**
	GBRI 243820	375	38.100 (1 1/2)	60.325 (2 3/8)	31.750 (1 1/4)	32.000	44.450 (1 3/4)	43.3	43.4	55.3	0.6	69 700	141 000	3 500	**LRBZ 242820**
	GBRI 243920	410	38.100 (1 1/2)	61.912 (2 7/16)	31.750 (1 1/4)	32.000	47.625 (1 7/8)	43.3	45	56.2	1	72 400	150 000	3 000	**LRBZ 243020**
41.275 (1 5/8)	**GBRI 264116**	350	41.275 (1 5/8)	65.088 (2 9/16)	25.400 (1)	25.650	50.800 (2)	48	49	59.2	1	63 100	130 000	3 000	**LRBZ 263216**
	GBRI 264120	435	41.275 (1 5/8)	65.088 (2 9/16)	31.750 (1 1/4)	32.000	50.800 (2)	48	49	59.2	1	74 600	162 000	3 000	**LRBZ 263220**

Notes(1) Maximum permissible corner radius of the shaft or housing
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

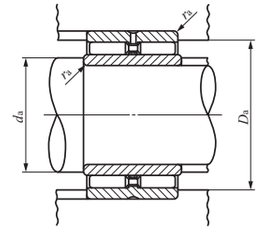
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring, Inch Series



GBRI



Shaft dia. 44.450 — 95.250mm

Shaft dia. mm (inch)	Identification number	Mass (Ref.) g	Boundary dimensions mm(inch) d	D	C	B	F_w	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	$r_{as\,max}$ (1)	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (2) rpm	Assembled inner ring
44.450 (1 3/4)	**GBRI 284824**	790	44.450 (1 3/4)	76.200 (3)	38.100 (1 1/2)	38.350	57.150 (2 1/4)	52.5	55	69.2	1.5	113 000	224 000	2 500	**LRBZ 283624**
	GBRI 284828	925	44.450 (1 3/4)	76.200 (3)	44.450 (1 3/4)	44.700	57.150 (2 1/4)	52.5	55	69.2	1.5	133 000	276 000	2 500	**LRBZ 283628**
50.800 (2)	**GBRI 325224**	870	50.800 (2)	82.550 (3 1/4)	38.100 (1 1/2)	38.350	63.500 (2 1/2)	58	61	75.7	1.5	120 000	248 000	2 500	**LRBZ 324024**
	GBRI 325228	1 030	50.800 (2)	82.550 (3 1/4)	44.450 (1 3/4)	44.700	63.500 (2 1/2)	58	61	75.7	1.5	141 000	306 000	2 500	**LRBZ 324028**
57.150 (2 1/4)	**GBRI 365624**	955	57.150 (2 1/4)	88.900 (3 1/2)	38.100 (1 1/2)	38.350	69.850 (2 3/4)	65	67	82	1.5	125 000	273 000	2 000	**LRBZ 364424**
	GBRI 365628	1 130	57.150 (2 1/4)	88.900 (3 1/2)	44.450 (1 3/4)	44.700	69.850 (2 3/4)	65	67	82	1.5	147 000	336 000	2 000	**LRBZ 364428**
63.500 (2 1/2)	**GBRI 406024**	1 040	63.500 (2 1/2)	95.250 (3 3/4)	38.100 (1 1/2)	38.350	76.200 (3)	71	73	88	1.5	131 000	298 000	2 000	**LRBZ 404824**
	GBRI 406028	1 230	63.500 (2 1/2)	95.250 (3 3/4)	44.450 (1 3/4)	44.700	76.200 (3)	71	73	88	1.5	154 000	368 000	2 000	**LRBZ 404828**
69.850 (2 3/4)	**GBRI 446828**	1 630	69.850 (2 3/4)	107.950 (4 1/4)	44.450 (1 3/4)	44.700	82.550 (3 1/4)	77	79	99.9	1.5	193 000	396 000	1 800	**LRBZ 445228**
	GBRI 446832	1 840	69.850 (2 3/4)	107.950 (4 1/4)	50.800 (2)	51.050	82.550 (3 1/4)	77	79	99.9	1.5	214 000	452 000	1 800	**LRBZ 445232**
76.200 (3)	**GBRI 487232**	1 970	76.200 (3)	114.300 (4 1/2)	50.800 (2)	51.050	88.900 (3 1/2)	83.5	86	106.3	1.5	221 000	488 000	1 700	**LRBZ 485632**
82.550 (3 1/4)	**GBRI 527632**	2 110	82.550 (3 1/4)	120.650 (4 3/4)	50.800 (2)	51.050	95.250 (3 3/4)	91	93	112.6	1.5	228 000	522 000	1 600	**LRBZ 526032**
88.900 (3 1/2)	**GBRI 568032**	2 250	88.900 (3 1/2)	127.000 (5)	50.800 (2)	51.050	101.600 (4)	97	99	119	1.5	237 000	556 000	1 500	**LRBZ 566432**
95.250 (3 3/4)	**GBRI 608432**	2 380	95.250 (3 3/4)	133.350 (5 1/4)	50.800 (2)	51.050	107.950 (4 1/4)	103	105	125.3	1.5	242 000	590 000	1 400	**LRBZ 606832**

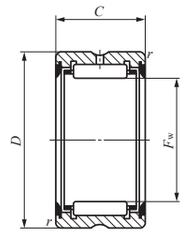
Notes(1) Maximum permissible corner radius of the shaft or housing
(2) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.

Remarks1. The outer ring has an oil groove and an oil hole.
2. No grease is prepacked. Perform proper lubrication.

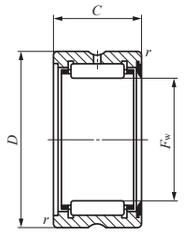
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

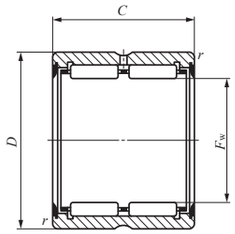
With Seal, Without Inner Ring



RNA49 ··· UU
RNA69 ··· UU($F_w \leqq 35$)



RNA49 ··· U
RNA69 ··· U($F_w \leqq 35$)



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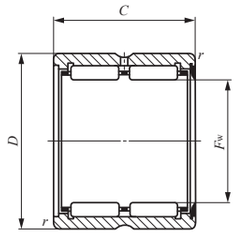

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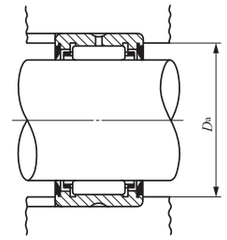


Shaft dia. 14 — 45mm

Shaft dia. mm	Identification number: With two seals	With one seal	With two seals	With one seal	Mass (Ref.) g	Boundary dimensions mm: F_w	D	C	$r_{s\,min}$ (1)
14	**RNA 4900UU**	**RNA 4900U**	—	—	16.3	14	22	13	0.3
16	**RNA 4901UU**	**RNA 4901U**	—	—	17.9	16	24	13	0.3
	—	—	**RNA 6901UU**	**RNA 6901U**	30	16	24	22	0.3
18	**RNA 49/14UU**	**RNA 49/14U**	—	—	19.7	18	26	13	0.3
20	**RNA 4902UU**	**RNA 4902U**	—	—	21.5	20	28	13	0.3
	—	—	**RNA 6902UU**	**RNA 6902U**	37.5	20	28	23	0.3
22	**RNA 4903UU**	**RNA 4903U**	—	—	23	22	30	13	0.3
	—	—	**RNA 6903UU**	**RNA 6903U**	40.5	22	30	23	0.3
25	**RNA 4904UU**	**RNA 4904U**	—	—	54.5	25	37	17	0.3
	—	—	**RNA 6904UU**	**RNA 6904U**	95.5	25	37	30	0.3
28	**RNA 49/22UU**	**RNA 49/22U**	—	—	55.5	28	39	17	0.3
	—	—	**RNA 69/22UU**	**RNA 69/22U**	97.5	28	39	30	0.3
30	**RNA 4905UU**	**RNA 4905U**	—	—	63	30	42	17	0.3
	—	—	**RNA 6905UU**	**RNA 6905U**	111	30	42	30	0.3
32	**RNA 49/28UU**	**RNA 49/28U**	—	—	75.5	32	45	17	0.3
	—	—	**RNA 69/28UU**	**RNA 69/28U**	133	32	45	30	0.3
35	**RNA 4906UU**	**RNA 4906U**	—	—	71	35	47	17	0.3
	—	—	**RNA 6906UU**	**RNA 6906U**	125	35	47	30	0.3
40	**RNA 49/32UU**	**RNA 49/32U**	—	—	94.5	40	52	20	0.6
	—	—	**RNA 69/32UU**	**RNA 69/32U**	170	40	52	36	0.6
42	**RNA 4907UU**	**RNA 4907U**	—	—	112	42	55	20	0.6
	—	—	**RNA 6907UU**	**RNA 6907U**	200	42	55	36	0.6
45	**RNA 49/38UU**	**RNA 49/38U**	—	—	119	45	58	20	0.6

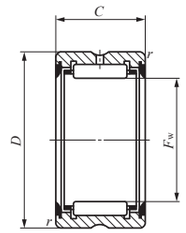
Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed(2) rpm
20	8 080	8 490	14 000
22	8 470	9 320	12 000
22	15 500	20 400	12 000
24	9 260	10 800	11 000
26	9 570	11 600	9 500
26	18 500	27 100	9 500
28	10 300	13 100	8 500
28	19 800	30 600	8 500
35	18 000	20 500	7 500
35	33 000	44 600	7 500
37	18 300	23 700	7 000
37	33 800	52 000	7 000
40	20 300	25 100	6 500
40	39 200	58 700	6 500
43	21 000	26 800	6 000
43	38 900	59 100	6 000
45	21 500	28 400	5 500
45	40 100	63 000	5 500
48	29 400	44 200	5 000
48	50 300	88 300	5 000
51	30 100	46 300	4 500
51	51 600	92 600	4 500
54	31 600	50 400	4 000

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable rotational speed applies to grease lubrication.
Remarks1. The outer ring has an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Seal, Without Inner Ring



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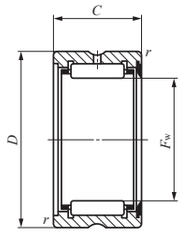

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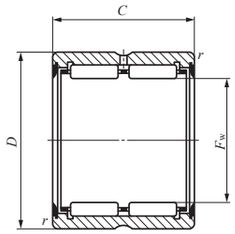

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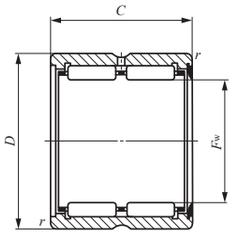

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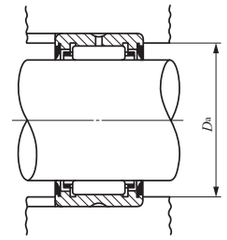


Shaft dia. 48 — 85mm

Shaft dia. mm	Identification number: With two seals	With one seal	With two seals	With one seal	Mass (Ref.) g	Boundary dimensions mm: F_w	D	C	$r_{s\,min}$ (1)	Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed(2) rpm
48	**RNA 4908UU**	**RNA 4908U**	—	—	150	48	62	22	0.6	58	37 200	58 400	4 000
	—	—	**RNA 6908UU**	**RNA 6908U**	270	48	62	40	0.6	58	63 700	117 000	4 000
50	**RNA 49/42UU**	**RNA 49/42U**	—	—	173	50	65	22	0.6	61	38 000	60 900	4 000
52	**RNA 4909UU**	**RNA 4909U**	—	—	197	52	68	22	0.6	64	38 900	63 400	3 500
	—	—	**RNA 6909UU**	**RNA 6909U**	355	52	68	40	0.6	64	66 600	127 000	3 500
55	**RNA 49/48UU**	**RNA 49/48U**	—	—	187	55	70	22	0.6	66	39 600	66 100	3 500
58	**RNA 4910UU**	**RNA 4910U**	—	—	177	58	72	22	0.6	68	41 300	71 100	3 500
	—	—	**RNA 6910UU**	**RNA 6910U**	320	58	72	40	0.6	68	70 800	142 000	3 500
60	**RNA 49/52UU**	**RNA 49/52U**	—	—	200	60	75	22	0.6	71	42 100	73 600	3 000
63	**RNA 4911UU**	**RNA 4911U**	—	—	265	63	80	25	1	75	52 200	85 700	3 000
	—	—	**RNA 6911UU**	**RNA 6911U**	470	63	80	45	1	75	89 400	171 000	3 000
65	**RNA 49/58UU**	**RNA 49/58U**	—	—	275	65	82	25	1	77	53 400	89 200	3 000
68	**RNA 4912UU**	**RNA 4912U**	—	—	285	68	85	25	1	80	54 500	92 800	3 000
	—	—	**RNA 6912UU**	**RNA 6912U**	505	68	85	45	1	80	93 400	186 000	3 000
70	**RNA 49/62UU**	**RNA 49/62U**	—	—	320	70	88	25	1	83	55 700	96 300	2 500
72	**RNA 4913UU**	**RNA 4913U**	—	—	325	72	90	25	1	85	56 800	99 800	2 500
	—	—	**RNA 6913UU**	**RNA 6913U**	580	72	90	45	1	85	97 400	200 000	2 500
75	**RNA 49/68UU**	**RNA 49/68U**	—	—	465	75	95	30	1	90	73 900	133 000	2 500
80	**RNA 4914UU**	**RNA 4914U**	—	—	495	80	100	30	1	95	76 900	143 000	2 500
	—	—	**RNA 6914UU**	**RNA 6914U**	910	80	100	54	1	95	124 000	281 000	2 500
85	**RNA 4915UU**	**RNA 4915U**	—	—	520	85	105	30	1	100	79 600	153 000	2 000
	—	—	**RNA 6915UU**	**RNA 6915U**	960	85	105	54	1	100	128 000	299 000	2 000

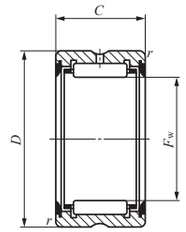
Notes(1) Minimum allowable value of chamfer dimension *r*
(2) Allowable rotational speed applies to grease lubrication.

Remarks1. The outer ring has an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

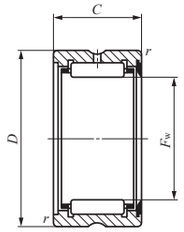
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

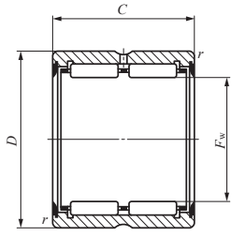
With Seal, Without Inner Ring



RNA49 ··· UU



RNA49 ··· U



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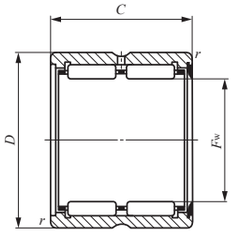
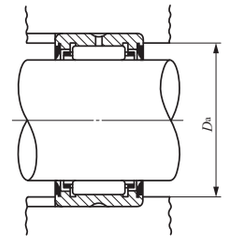


RNA69 ··· U



Shaft dia. 90 ─ 160mm

Shaft dia. mm	Identification number: With two seals	With one seal	With two seals	With one seal	Mass (Ref.) g	Boundary dimensions mm: F_w	D	C	$r_{s\,min}$ (1)
90	**RNA 4916UU**	**RNA 4916U**	—	—	545	90	110	30	1
	—	—	**RNA 6916UU**	**RNA 6916U**	1 010	90	110	54	1
95	**RNA 49/82UU**	**RNA 49/82U**	—	—	570	95	115	30	1
100	**RNA 4917UU**	**RNA 4917U**	—	—	695	100	120	35	1.1
	—	—	**RNA 6917UU**	**RNA 6917U**	1 300	100	120	63	1.1
105	**RNA 4918UU**	**RNA 4918U**	—	—	730	105	125	35	1.1
	—	—	**RNA 6918UU**	**RNA 6918U**	1 360	105	125	63	1.1
110	**RNA 4919UU**	**RNA 4919U**	—	—	760	110	130	35	1.1
	—	—	**RNA 6919UU**	**RNA 6919U**	1 420	110	130	63	1.1
115	**RNA 4920UU**	**RNA 4920U**	—	—	1 200	115	140	40	1.1
125	**RNA 4922UU**	**RNA 4922U**	—	—	1 280	125	150	40	1.1
135	**RNA 4924UU**	**RNA 4924U**	—	—	1 940	135	165	45	1.1
150	**RNA 4926UU**	**RNA 4926U**	—	—	2 360	150	180	50	1.5
160	**RNA 4928UU**	**RNA 4928U**	—	—	2 510	160	190	50	1.5

Standard mounting dimension D_a Max. mm	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed(2) rpm
105	80 700	158 000	2 000
105	132 000	317 000	2 000
110	83 200	168 000	2 000
113.5	103 000	225 000	1 900
113.5	168 000	448 000	1 900
118.5	106 000	238 000	1 800
118.5	172 000	471 000	1 800
123.5	109 000	250 000	1 700
123.5	177 000	493 000	1 700
133.5	134 000	297 000	1 700
143.5	140 000	322 000	1 500
158.5	178 000	410 000	1 400
172	206 000	511 000	1 300
182	214 000	549 000	1 200

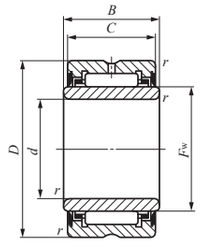
Notes(1) Minimum allowable value of chamfer dimension *r*
(2) Allowable rotational speed applies to grease lubrication.

Remarks1. The outer ring has an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

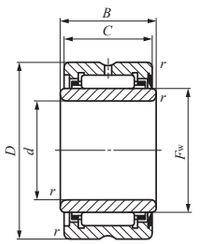
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

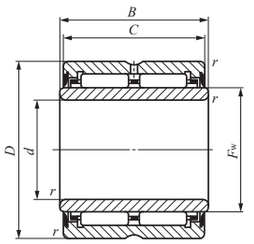
With Seal, With Inner Ring



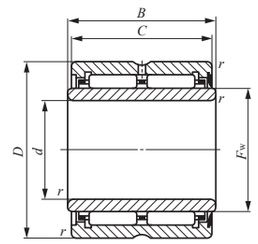
NA49 ··· UU
NA69 ··· UU($d \leqq 30$)



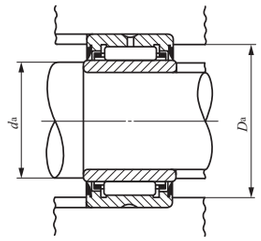
NA49 ··· U
NA69 ··· U($d \leqq 30$)



NA69 ··· UU



NA69 ··· U



Shaft dia. 10 — 40mm

Shaft dia. mm	Identification number: With two seals	With one seal	With two seals	With one seal	Mass (Ref.) g	Boundary dimensions mm: d	D	C	B
10	NA 4900UU	NA 4900U	—	—	24.5	10	22	13	14
12	NA 4901UU	NA 4901U	—	—	27.5	12	24	13	14
	—	—	NA 6901UU	NA 6901U	45.5	12	24	22	23
15	NA 4902UU	NA 4902U	—	—	36	15	28	13	14
	—	—	NA 6902UU	NA 6902U	62.5	15	28	23	24
17	NA 4903UU	NA 4903U	—	—	39.5	17	30	13	14
	—	—	NA 6903UU	NA 6903U	68.5	17	30	23	24
20	NA 4904UU	NA 4904U	—	—	78.5	20	37	17	18
	—	—	NA 6904UU	NA 6904U	137	20	37	30	31
22	NA 49/22UU	NA 49/22U	—	—	87.5	22	39	17	18
	—	—	NA 69/22UU	NA 69/22U	153	22	39	30	31
25	NA 4905UU	NA 4905U	—	—	92.5	25	42	17	18
	—	—	NA 6905UU	NA 6905U	162	25	42	30	31
28	NA 49/28UU	NA 49/28U	—	—	101	28	45	17	18
	—	—	NA 69/28UU	NA 69/28U	177	28	45	30	31
30	NA 4906UU	NA 4906U	—	—	106	30	47	17	18
	—	—	NA 6906UU	NA 6906U	185	30	47	30	31
32	NA 49/32UU	NA 49/32U	—	—	167	32	52	20	21
	—	—	NA 69/32UU	NA 69/32U	300	32	52	36	37
35	NA 4907UU	NA 4907U	—	—	179	35	55	20	21
	—	—	NA 6907UU	NA 6907U	320	35	55	36	37
40	NA 4908UU	NA 4908U	—	—	245	40	62	22	23
	—	—	NA 6908UU	NA 6908U	440	40	62	40	41

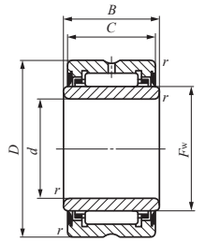
$r_{s\,min}$ (1)	F_w	Standard mounting dimensions mm: d_a Min.	d_a Max.	D_a Max.	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed (2) rpm	Assembled inner ring
0.3	14	12	13	20	8 080	8 490	14 000	**LRTZ 101414**
0.3	16	14	15	22	8 470	9 320	12 000	**LRTZ 121614**
0.3	16	14	15	22	15 500	20 400	12 000	**LRTZ 121623**
0.3	20	17	19	26	9 570	11 600	9 500	**LRTZ 152014**
0.3	20	17	19	26	18 500	27 100	9 500	**LRTZ 152024**
0.3	22	19	21	28	10 300	13 100	8 500	**LRTZ 172214**
0.3	22	19	21	28	19 800	30 600	8 500	**LRTZ 172224**
0.3	25	22	24	35	18 000	20 500	7 500	**LRTZ 202518**
0.3	25	22	24	35	33 000	44 600	7 500	**LRTZ 202531**
0.3	28	24	27	37	18 300	23 700	7 000	**LRTZ 222818**
0.3	28	24	27	37	33 800	52 000	7 000	**LRTZ 222831**
0.3	30	27	29	40	20 300	25 100	6 500	**LRTZ 253018**
0.3	30	27	29	40	39 200	58 700	6 500	**LRTZ 253031**
0.3	32	30	31	43	21 000	26 800	6 000	**LRTZ 283218**
0.3	32	30	31	43	38 900	59 100	6 000	**LRTZ 283231**
0.3	35	32	34	45	21 500	28 400	5 500	**LRTZ 303518**
0.3	35	32	34	45	40 100	63 000	5 500	**LRTZ 303531**
0.6	40	36	39	48	29 400	44 200	5 000	**LRTZ 324021**
0.6	40	36	39	48	50 300	88 300	5 000	**LRTZ 324037**
0.6	42	39	41	51	30 100	46 300	4 500	**LRTZ 354221**
0.6	42	39	41	51	51 600	92 600	4 500	**LRTZ 354237**
0.6	48	44	47	58	37 200	58 400	4 000	**LRTZ 404823**
0.6	48	44	47	58	63 700	117 000	4 000	**LRTZ 404841**

Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable rotational speed applies to grease lubrication.
Remarks1. The outer ring has an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

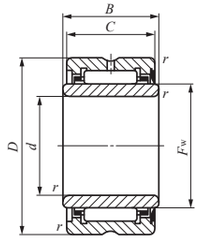
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Seal, With Inner Ring



NA49 ··· UU



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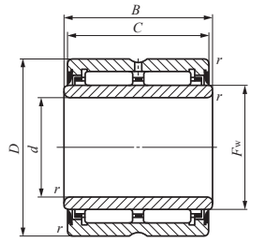
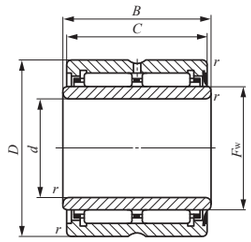
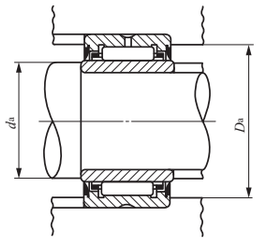


NA69 ··· UU



NA69 ··· U



Shaft dia. 45 — 110mm

Shaft dia. mm	Identification number: With two seals	With one seal	With two seals	With one seal	Mass (Ref.) g	Boundary dimensions mm: d	D	C	B
45	NA 4909UU	NA 4909U	—	—	290	45	68	22	23
	—	—	NA 6909UU	NA 6909U	520	45	68	40	41
50	NA 4910UU	NA 4910U	—	—	295	50	72	22	23
	—	—	NA 6910UU	NA 6910U	530	50	72	40	41
55	NA 4911UU	NA 4911U	—	—	415	55	80	25	26
	—	—	NA 6911UU	NA 6911U	730	55	80	45	46
60	NA 4912UU	NA 4912U	—	—	445	60	85	25	26
	—	—	NA 6912UU	NA 6912U	785	60	85	45	46
65	NA 4913UU	NA 4913U	—	—	475	65	90	25	26
	—	—	NA 6913UU	NA 6913U	845	65	90	45	46
70	NA 4914UU	NA 4914U	—	—	770	70	100	30	31
	—	—	NA 6914UU	NA 6914U	1 400	70	100	54	55
75	NA 4915UU	NA 4915U	—	—	815	75	105	30	31
	—	—	NA 6915UU	NA 6915U	1 480	75	105	54	55
80	NA 4916UU	NA 4916U	—	—	860	80	110	30	31
	—	—	NA 6916UU	NA 6916U	1 570	80	110	54	55
85	NA 4917UU	NA 4917U	—	—	1 300	85	120	35	36
	—	—	NA 6917UU	NA 6917U	2 360	85	120	63	64
90	NA 4918UU	NA 4918U	—	—	1 360	90	125	35	36
	—	—	NA 6918UU	NA 6918U	2 480	90	125	63	64
95	NA 4919UU	NA 4919U	—	—	1 420	95	130	35	36
	—	—	NA 6919UU	NA 6919U	2 600	95	130	63	64
100	NA 4920UU	NA 4920U	—	—	1 980	100	140	40	41
110	NA 4922UU	NA 4922U	—	—	2 150	110	150	40	41

$r_{s\,min}$ (1)	F_w	Standard mounting dimensions mm: d_a Min.	d_a Max.	D_a Max.	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed(2) rpm	Assembled inner ring
0.6	52	49	51	64	38 900	63 400	3 500	**LRTZ 455223**
0.6	52	49	51	64	66 600	127 000	3 500	**LRTZ 455241**
0.6	58	54	57	68	41 300	71 100	3 500	**LRTZ 505823**
0.6	58	54	57	68	70 800	142 000	3 500	**LRTZ 505841**
1	63	60	61	75	52 200	85 700	3 000	**LRTZ 556326**
1	63	60	61	75	89 400	171 000	3 000	**LRTZ 556346**
1	68	65	66	80	54 500	92 800	3 000	**LRTZ 606826**
1	68	65	66	80	93 400	186 000	3 000	**LRTZ 606846**
1	72	70	70.5	85	56 800	99 800	2 500	**LRTZ 657226**
1	72	70	70.5	85	97 400	200 000	2 500	**LRTZ 657246**
1	80	75	78	95	76 900	143 000	2 500	**LRTZ 708031**
1	80	75	78	95	124 000	281 000	2 500	**LRTZ 708055**
1	85	80	83	100	79 600	153 000	2 000	**LRTZ 758531**
1	85	80	83	100	128 000	299 000	2 000	**LRTZ 758555**
1	90	85	88	105	80 700	158 000	2 000	**LRTZ 809031**
1	90	85	88	105	132 000	317 000	2 000	**LRTZ 809055**
1.1	100	91.5	98	113.5	103 000	225 000	1 900	**LRTZ 8510036**
1.1	100	91.5	98	113.5	168 000	448 000	1 900	**LRTZ 8510064**
1.1	105	96.5	103	118.5	106 000	238 000	1 800	**LRTZ 9010536**
1.1	105	96.5	103	118.5	172 000	471 000	1 800	**LRTZ 9010564**
1.1	110	101.5	108	123.5	109 000	250 000	1 700	**LRTZ 9511036**
1.1	110	101.5	108	123.5	177 000	493 000	1 700	**LRTZ 9511064**
1.1	115	106.5	113	133.5	134 000	297 000	1 700	**LRTZ 10011541**
1.1	125	116.5	123	143.5	140 000	322 000	1 500	**LRTZ 11012541**

Notes(1) Minimum allowable value of chamfer dimension *r*
(2) Allowable rotational speed applies to grease lubrication.

Remarks1. The outer ring has an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

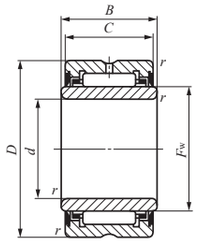
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

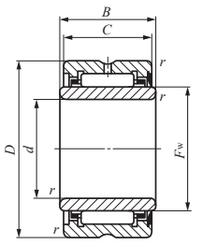
With Seal, With Inner Ring

Shaft dia. 120 — 140mm

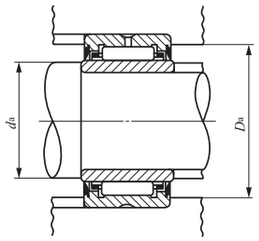
Shaft dia. mm	Identification number: With two seals	With one seal	With two seals	With one seal	Mass (Ref.) g	Boundary dimensions mm: d	D	C	B
120	**NA 4924UU**	**NA 4924U**	—	—	2 990	120	165	45	46
130	**NA 4926UU**	**NA 4926U**	—	—	4 080	130	180	50	51
140	**NA 4928UU**	**NA 4928U**	—	—	4 340	140	190	50	51



NA49 ··· UU



NA49 ··· U



$r_{s\,min}$ (1)	F_w	Standard mounting dimensions mm: d_a Min.	d_a Max.	D_a Max.	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed(2) rpm	Assembled inner ring
1.1	135	126.5	133	158.5	178 000	410 000	1 400	**LRTZ 12013546**
1.5	150	138	148	172	206 000	511 000	1 300	**LRTZ 13015051**
1.5	160	148	158	182	214 000	549 000	1 200	**LRTZ 14016051**

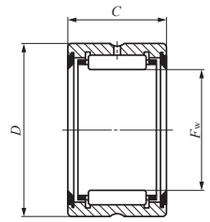
Notes(1) Minimum allowable value of chamfer dimension r
(2) Allowable rotational speed applies to grease lubrication.

Remarks1. The outer ring has an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

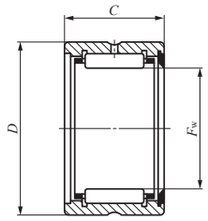
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

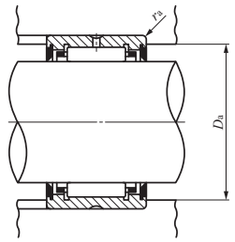
MACHINED TYPE NEEDLE ROLLER BEARINGS

With Seal, Without Inner Ring, Inch Series



BR ··· UU





BR ··· U

Shaft dia. 15.875 — 50.800mm

Shaft dia. mm (inch)	Identification number		Mass (Ref.)	Boundary dimensions mm(inch)			Standard mounting dimensions mm		Basic dynamic load rating	Basic static load rating	Allowable rotational speed(2)
	With two seals	With one seal	g	F_w	D	C	D_a Max.	$r_{as\ max}$ (1)	C N	C_0 N	rpm
15.875 (5/8)	**BR 101816 UU**	**BR 101816 U**	54	15.875 (5/8)	28.575 (1 1/8)	25.400 (1)	24.5	0.6	18 300	20 000	12 000
19.050 (3/4)	**BR 122016 UU**	**BR 122016 U**	68	19.050 (3/4)	31.750 (1 1/4)	25.400 (1)	26.5	1.0	20 700	24 400	10 000
22.225 (7/8)	**BR 142216 UU**	**BR 142216 U**	76	22.225 (7/8)	34.925 (1 3/8)	25.400 (1)	29.7	1.0	21 600	26 900	9 000
25.400 (1)	**BR 162416 UU**	**BR 162416 U**	83	25.400 (1)	38.100 (1 1/2)	25.400 (1)	32.9	1.0	23 600	31 300	8 000
28.575 (1 1/8)	**BR 182620 UU**	**BR 182620 U**	115	28.575 (1 1/8)	41.275 (1 5/8)	31.750 (1 1/4)	36.0	1.0	34 900	49 900	7 000
31.750 (1 1/4)	**BR 202820 UU**	**BR 202820 U**	124	31.750 (1 1/4)	44.450 (1 3/4)	31.750 (1 1/4)	39.2	1.0	36 000	53 500	6 500
34.925 (1 3/8)	**BR 223020 UU**	**BR 223020 U**	134	34.925 (1 3/8)	47.625 (1 7/8)	31.750 (1 1/4)	42.4	1.0	38 500	60 000	5 500
38.100 (1 1/2)	**BR 243320 UU**	**BR 243320 U**	168	38.100 (1 1/2)	52.388 (2 1/16)	31.750 (1 1/4)	45.1	1.5	43 700	66 900	5 500
41.275 (1 5/8)	**BR 263520 UU**	**BR 263520 U**	179	41.275 (1 5/8)	55.562 (2 3/16)	31.750 (1 1/4)	48.3	1.5	44 800	70 900	4 500
44.450 (1 3/4)	**BR 283720 UU**	**BR 283720 U**	193	44.450 (1 3/4)	58.738 (2 5/16)	31.750 (1 1/4)	51.5	1.5	47 500	78 200	4 500
47.625 (1 7/8)	**BR 303920 UU**	**BR 303920 U**	202	47.625 (1 7/8)	61.912 (2 7/16)	31.750 (1 1/4)	54.7	1.5	48 500	82 100	4 000
50.800 (2)	**BR 324120 UU**	**BR 324120 U**	216	50.800 (2)	65.088 (2 9/16)	31.750 (1 1/4)	57.8	1.5	51 000	89 400	4 000

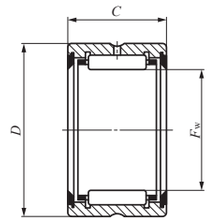
Notes(1) Maximum permissible corner radius of the housing
(2) Allowable rotational speed applies to grease lubrication.

Remarks1. The outer ring has an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

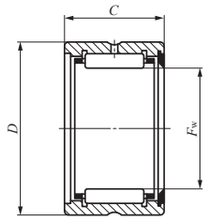
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

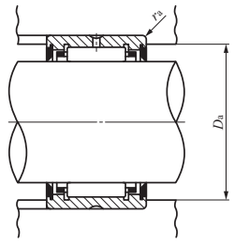
MACHINED TYPE NEEDLE ROLLER BEARINGS

With Seal, Without Inner Ring, Inch Series



BR ··· UU





BR ··· U

Shaft dia. 57.150 — 95.250mm

Shaft dia. mm (inch)	Identification number		Mass (Ref.)	Boundary dimensions mm(inch)			Standard mounting dimensions mm		Basic dynamic load rating	Basic static load rating	Allowable rotational speed(2)
	With two seals	With one seal	g	F_w	D	C	D_a Max.	$r_{as\ max}$(1)	C N	C_0 N	rpm
57.150 (2 1/4)	**BR 364828 UU**	**BR 364828 U**	459	57.150 (2 1/4)	76.200 (3)	44.450 (1 3/4)	69.0	1.5	90 300	158 000	3 500
63.500 (2 1/2)	**BR 405228 UU**	**BR 405228 U**	499	63.500 (2 1/2)	82.550 (3 1/4)	44.450 (1 3/4)	74.3	2.0	94 600	174 000	3 000
69.850 (2 3/4)	**BR 445628 UU**	**BR 445628 U**	540	69.850 (2 3/4)	88.900 (3 1/2)	44.450 (1 3/4)	80.7	2.0	98 700	189 000	2 500
76.200 (3)	**BR 486028 UU**	**BR 486028 U**	585	76.200 (3)	95.250 (3 3/4)	44.450 (1 3/4)	87.0	2.0	105 000	211 000	2 500
82.550 (3 1/4)	**BR 526828 UU**	**BR 526828 U**	891	82.550 (3 1/4)	107.950 (4 1/4)	44.450 (1 3/4)	99.7	2.0	109 000	227 000	2 500
88.900 (3 1/2)	**BR 567232 UU**	**BR 567232 U**	1 098	88.900 (3 1/2)	114.300 (4 1/2)	50.800 (2)	106.1	2.0	142 000	265 000	2 000
95.250 (3 3/4)	**BR 607632 UU**	**BR 607632 U**	1 161	95.250 (3 3/4)	120.650 (4 3/4)	50.800 (2)	111.4	2.5	148 000	287 000	2 000

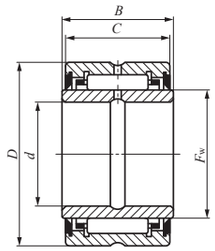
Notes(1) Maximum permissible corner radius of the housing
(2) Allowable rotational speed applies to grease lubrication.

Remarks1. The outer ring has an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

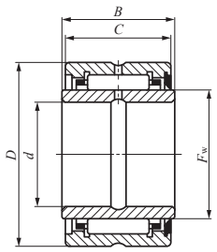
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

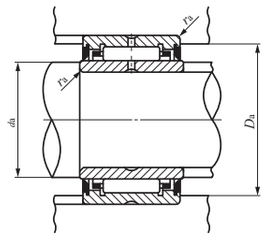
With Seal, With Inner Ring, Inch Series



BRI ··· UU



BRI ··· U



Shaft dia. 9.525 — 44.450mm

Shaft dia. mm (inch)	Identification number		Mass (Ref.)	Boundary dimensions mm(inch)				F_w	Standard mounting dimensions mm				Basic dynamic load rating	Basic static load rating	Allowable rotational speed(2)	Assembled inner ring
	With two seals	With one seal	g	d	D	C	B		d_a Min.	d_a Max.	D_a Max.	$r_{as\ max}$(1)	C N	C_0 N	rpm	
9.525 (3/8)	**BRI 61816 UU**	**BRI 61816 U**	79	9.525 (3/8)	28.575 (1 1/8)	25.400 (1)	25.650	15.875 (5/8)	14	14.5	24.5	0.6	18 300	20 000	12 000	**LRBZ 61016 B**
12.700 (1/2)	**BRI 82016 UU**	**BRI 82016 U**	99	12.700 (1/2)	31.750 (1 1/4)	25.400 (1)	25.650	19.050 (3/4)	17.5	18	26.5	0.6	20 700	24 400	10 000	**LRBZ 81216 B**
15.875 (5/8)	**BRI 102216 UU**	**BRI 102216 U**	113.5	15.875 (5/8)	34.925 (1 3/8)	25.400 (1)	25.650	22.225 (7/8)	21	21.2	29.7	0.6	21 600	26 900	9 000	**LRBZ 101416 B**
19.050 (3/4)	**BRI 122416 UU**	**BRI 122416 U**	127	19.050 (3/4)	38.100 (1 1/2)	25.400 (1)	25.650	25.400 (1)	24	24.4	32.9	0.6	23 600	31 300	8 000	**LRBZ 121616 B**
22.225 (7/8)	**BRI 142620 UU**	**BRI 142620 U**	177	22.225 (7/8)	41.275 (1 5/8)	31.750 (1 1/4)	32.000	28.575 (1 1/8)	27	27.5	36.0	0.6	34 900	49 900	7 000	**LRBZ 141820 B**
25.400 (1)	**BRI 162820 UU**	**BRI 162820 U**	196	25.400 (1)	44.450 (1 3/4)	31.750 (1 1/4)	32.000	31.750 (1 1/4)	30.5	30.7	39.2	0.6	36 000	53 500	6 500	**LRBZ 162020 B**
28.575 (1 1/8)	**BRI 183020 UU**	**BRI 183020 U**	211	28.575 (1 1/8)	47.625 (1 7/8)	31.750 (1 1/4)	32.000	34.925 (1 3/8)	33.5	33.9	42.4	0.6	38 500	60 000	5 500	**LRBZ 182220 B**
31.750 (1 1/4)	**BRI 203320 UU**	**BRI 203320 U**	254	31.750 (1 1/4)	52.388 (2 1/16)	31.750 (1 1/4)	32.000	38.100 (1 1/2)	37	37.1	45.1	0.6	43 700	66 900	5 500	**LRBZ 202420 B**
34.925 (1 3/8)	**BRI 223520 UU**	**BRI 223520 U**	275	34.925 (1 3/8)	55.562 (2 3/16)	31.750 (1 1/4)	32.000	41.275 (1 5/8)	40.2	40.2	48.3	0.6	44 800	70 900	4 500	**LRBZ 222620 B**
38.100 (1 1/2)	**BRI 243720 UU** **BRI 243920 UU**	**BRI 243720 U** **BRI 243920 U**	293 362	38.100 (1 1/2) 38.100 (1 1/2)	58.738 (2 5/16) 61.912 (2 7/16)	31.750 (1 1/4) 31.750 (1 1/4)	32.000 32.000	44.450 (1 3/4) 47.625 (1 7/8)	43.3 43.3	43.4 45	51.5 54.7	0.6 1	47 500 48 500	78 200 82 100	4 500 4 000	**LRBZ 242820 B** **LRBZ 243020 B**
41.275 (1 5/8)	**BRI 264120 UU**	**BRI 264120 U**	386	41.275 (1 5/8)	65.088 (2 9/16)	31.750 (1 1/4)	32.000	50.800 (2)	48	49	57.8	1	51 000	89 400	4 000	**LRBZ 263220 B**
44.450 (1 3/4)	**BRI 284828 UU**	**BRI 284828 U**	804	44.450 (1 3/4)	76.200 (3)	44.450 (1 3/4)	44.700	57.150 (2 1/4)	52.5	55	69.0	1.5	90 300	158 000	3 500	**LRBZ 283628 B**

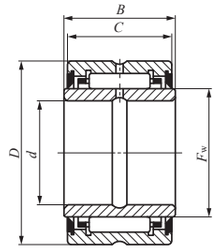
Notes(1) Maximum permissible corner radius of the shaft or housing
(2) Allowable rotational speed applies to grease lubrication.

Remarks1. The inner ring and the outer ring each have an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

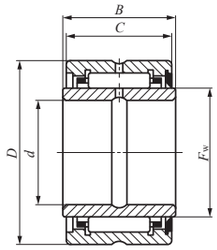
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

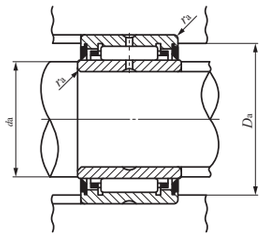
MACHINED TYPE NEEDLE ROLLER BEARINGS

With Seal, With Inner Ring, Inch Series



BRI ··· UU





BRI ··· U

Shaft dia. 50.800 — 82.550mm

Shaft dia. mm (inch)	Identification number		Mass (Ref.)	Boundary dimensions mm(inch)				F_w	Standard mounting dimensions mm				Basic dynamic load rating	Basic static load rating	Allowable rotational speed(2)	Assembled inner ring
	With two seals	With one seal	g	d	D	C	B		d_a Min.	d_a Max.	D_a Max.	$r_{as\,max}$ (1)	C N	C_0 N	rpm	
50.800 (2)	**BRI 325228 UU**	**BRI 325228 U**	889	50.800 (2)	82.550 (3 1/4)	44.450 (1 3/4)	44.700	63.500 (2 1/2)	58	61	74.3	1.5	94 600	174 000	3 000	**LRBZ 324028 B**
57.150 (2 1/4)	**BRI 365628 UU**	**BRI 365628 U**	980	57.150 (2 1/4)	88.900 (3 1/2)	44.450 (1 3/4)	44.700	69.850 (2 3/4)	65	67	80.7	1.5	98 700	189 000	2 500	**LRBZ 364428 B**
63.500 (2 1/2)	**BRI 406028 UU**	**BRI 406028 U**	1 065	63.500 (2 1/2)	95.250 (3 3/4)	44.450 (1 3/4)	44.700	76.200 (3)	71	73	87.0	1.5	105 000	211 000	2 500	**LRBZ 404828 B**
69.850 (2 3/4)	**BRI 446828 UU**	**BRI 446828 U**	1 421	69.850 (2 3/4)	107.950 (4 1/4)	44.450 (1 3/4)	44.700	82.550 (3 1/4)	77	79	99.7	1.5	109 000	227 000	2 500	**LRBZ 445228 B**
76.200 (3)	**BRI 487232 UU**	**BRI 487232 U**	1 738	76.200 (3)	114.300 (4 1/2)	50.800 (2)	51.050	88.900 (3 1/2)	83.5	86	106.1	1.5	142 000	265 000	2 000	**LRBZ 485632 B**
82.550 (3 1/4)	**BRI 527632 UU**	**BRI 527632 U**	1 851	82.550 (3 1/4)	120.650 (4 3/4)	50.800 (2)	51.050	95.250 (3 3/4)	91	93	111.4	1.5	148 000	287 000	2 000	**LRBZ 526032 B**

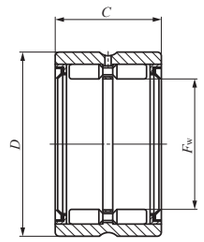
Notes(1) Maximum permissible corner radius of the shaft or housing
(2) Allowable rotational speed applies to grease lubrication.

Remarks1. The inner ring and the outer ring each have an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

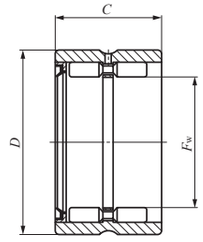
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

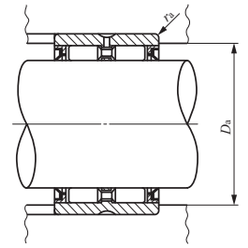
With Seal, Without Inner Ring, Inch Series



GBR ··· UU



GBR ··· U



Shaft dia. 15.875 — 50.800mm

Shaft dia. mm (inch)	Identification number		Mass (Ref.)	Boundary dimensions mm(inch)			Standard mounting dimensions mm		Basic dynamic load rating	Basic static load rating	Allowable rotational speed(2)
	With two seals	With one seal	g	F_w	D	C	D_a Max.	$r_{as\ max}$ (1)	C N	C_0 N	rpm
15.875 (5/8)	**GBR 101816 UU**	**GBR 101816 U**	69.5	15.875 (5/8)	28.575 (1 1/8)	25.400 (1)	24.5	0.6	23 500	28 500	5 000
19.050 (3/4)	**GBR 122016 UU**	**GBR 122016 U**	79	19.050 (3/4)	31.750 (1 1/4)	25.400 (1)	27	0.6	26 400	34 500	4 000
22.225 (7/8)	**GBR 142216 UU**	**GBR 142216 U**	89.5	22.225 (7/8)	34.925 (1 3/8)	25.400 (1)	30	0.6	28 600	40 100	3 500
25.400 (1)	**GBR 162416 UU**	**GBR 162416 U**	99	25.400 (1)	38.100 (1 1/2)	25.400 (1)	33.3	0.6	31 000	46 100	3 000
28.575 (1 1/8)	**GBR 182620 UU**	**GBR 182620 U**	139	28.575 (1 1/8)	41.275 (1 5/8)	31.750 (1 1/4)	36.3	0.6	43 900	75 300	3 000
31.750 (1 1/4)	**GBR 202820 UU**	**GBR 202820 U**	152	31.750 (1 1/4)	44.450 (1 3/4)	31.750 (1 1/4)	39.6	0.6	46 600	83 900	2 500
34.925 (1 3/8)	**GBR 223020 UU**	**GBR 223020 U**	163	34.925 (1 3/8)	47.625 (1 7/8)	31.750 (1 1/4)	42.8	0.6	49 500	91 800	2 500
38.100 (1 1/2)	**GBR 243320 UU**	**GBR 243320 U**	200	38.100 (1 1/2)	52.388 (2 1/16)	31.750 (1 1/4)	47.3	0.6	54 200	97 700	2 000
41.275 (1 5/8)	**GBR 263520 UU**	**GBR 263520 U**	215	41.275 (1 5/8)	55.562 (2 3/16)	31.750 (1 1/4)	50.5	0.6	56 600	105 000	1 900
44.450 (1 3/4)	**GBR 283720 UU**	**GBR 283720 U**	230	44.450 (1 3/4)	58.738 (2 5/16)	31.750 (1 1/4)	53.7	0.6	58 900	114 000	1 800
47.625 (1 7/8)	**GBR 303920 UU**	**GBR 303920 U**	240	47.625 (1 7/8)	61.912 (2 7/16)	31.750 (1 1/4)	56.2	1	61 100	121 000	1 700
50.800 (2)	**GBR 324120 UU**	**GBR 324120 U**	255	50.800 (2)	65.088 (2 9/16)	31.750 (1 1/4)	59.2	1	63 100	130 000	1 600

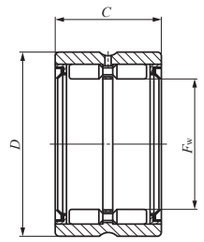
Notes(1) Maximum permissible corner radius of the shaft or housing
(2) Allowable rotational speed applies to grease lubrication.

Remarks1. The outer ring has an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

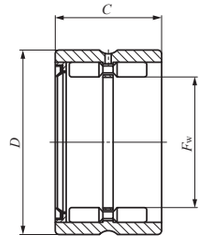
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

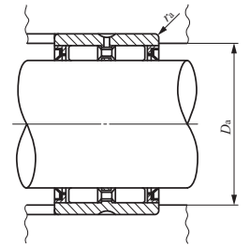
With Seal, Without Inner Ring, Inch Series



GBR ··· UU



GBR ··· U



Shaft dia. 57.150 — 107.950mm

Shaft dia. mm (inch)	Identification number		Mass (Ref.)	Boundary dimensions mm(inch)			Standard mounting dimensions mm		Basic dynamic load rating	Basic static load rating	Allowable rotational speed(2)
	With two seals	With one seal	g	F_w	D	C	D_a Max.	$r_{as\ max}$ (1)	C N	C_0 N	rpm
57.150 (2 1/4)	**GBR 364828 UU**	**GBR 364828 U**	515	57.150 (2 1/4)	76.200 (3)	44.450 (1 3/4)	69.2	1.5	87 500	161 000	1 400
63.500 (2 1/2)	**GBR 405228 UU**	**GBR 405228 U**	560	63.500 (2 1/2)	82.550 (3 1/4)	44.450 (1 3/4)	75.7	1.5	93 300	179 000	1 300
69.850 (2 3/4)	**GBR 445628 UU**	**GBR 445628 U**	610	69.850 (2 3/4)	88.900 (3 1/2)	44.450 (1 3/4)	82	1.5	97 200	197 000	1 100
76.200 (3)	**GBR 486028 UU**	**GBR 486028 U**	660	76.200 (3)	95.250 (3 3/4)	44.450 (1 3/4)	88	1.5	101 000	215 000	1 100
82.550 (3 1/4)	**GBR 526828 UU**	**GBR 526828 U**	960	82.550 (3 1/4)	107.950 (4 1/4)	44.450 (1 3/4)	99.9	1.5	127 000	231 000	950
88.900 (3 1/2)	**GBR 567232 UU**	**GBR 567232 U**	1 240	88.900 (3 1/2)	114.300 (4 1/2)	50.800 (2)	106.3	1.5	170 000	347 000	900
95.250 (3 3/4)	**GBR 607632 UU**	**GBR 607632 U**	1 320	95.250 (3 3/4)	120.650 (4 3/4)	50.800 (2)	112.6	1.5	175 000	371 000	850
101.600 (4)	**GBR 648032 UU**	**GBR 648032 U**	1 380	101.600 (4)	127.000 (5)	50.800 (2)	119	1.5	182 000	395 000	800
107.950 (4 1/4)	**GBR 688432 UU**	**GBR 688432 U**	1 460	107.950 (4 1/4)	133.350 (5 1/4)	50.800 (2)	125.3	1.5	186 000	419 000	750

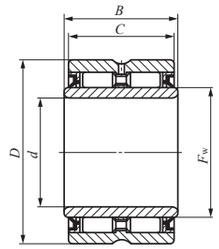
Notes(1) Maximum permissible corner radius of the shaft or housing
(2) Allowable rotational speed applies to grease lubrication.

Remarks1. The outer ring has an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

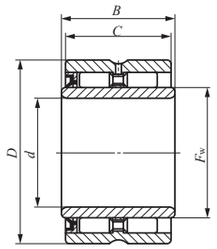
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

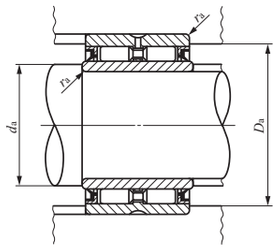
With Seal, With Inner Ring, Inch Series



GBRI ··· UU



GBRI ··· U



Shaft dia. 9.525 — 44.450mm

Shaft dia. mm (inch)	Identification number		Mass (Ref.)	Boundary dimensions mm(inch)			B	F_w	Standard mounting dimensions mm				Basic dynamic load rating	Basic static load rating	Allowable rotational speed(2)	Assembled inner ring
	With two seals	With one seal	g	d	D	C			d_a Min.	d_a Max.	D_a Max.	$r_{as\ max}$(1)	C N	C_0 N	rpm	
9.525 (3/8)	**GBRI 61816 UU**	**GBRI 61816 U**	94.5	9.525 (3/8)	28.575 (1 1/8)	25.400 (1)	25.650	15.875 (5/8)	14	14.5	24.5	0.6	23 500	28 500	5 000	**LRBZ 61016**
12.700 (1/2)	**GBRI 82016 UU**	**GBRI 82016 U**	110	12.700 (1/2)	31.750 (1 1/4)	25.400 (1)	25.650	19.050 (3/4)	17.5	18	27	0.6	26 400	34 500	4 000	**LRBZ 81216**
15.875 (5/8)	**GBRI 102216 UU**	**GBRI 102216 U**	127	15.875 (5/8)	34.925 (1 3/8)	25.400 (1)	25.650	22.225 (7/8)	21	21.2	30	0.6	28 600	40 100	3 500	**LRBZ 101416**
19.050 (3/4)	**GBRI 122416 UU**	**GBRI 122416 U**	143	19.050 (3/4)	38.100 (1 1/2)	25.400 (1)	25.650	25.400 (1)	24	24.4	33.3	0.6	31 000	46 100	3 000	**LRBZ 121616**
22.225 (7/8)	**GBRI 142620 UU**	**GBRI 142620 U**	200	22.225 (7/8)	41.275 (1 5/8)	31.750 (1 1/4)	32.000	28.575 (1 1/8)	27	27.5	36.3	0.6	43 900	75 300	3 000	**LRBZ 141820**
25.400 (1)	**GBRI 162820 UU**	**GBRI 162820 U**	220	25.400 (1)	44.450 (1 3/4)	31.750 (1 1/4)	32.000	31.750 (1 1/4)	30.5	30.7	39.6	0.6	46 600	83 900	2 500	**LRBZ 162020**
28.575 (1 1/8)	**GBRI 183020 UU**	**GBRI 183020 U**	240	28.575 (1 1/8)	47.625 (1 7/8)	31.750 (1 1/4)	32.000	34.925 (1 3/8)	33.5	33.9	42.8	0.6	49 500	91 800	2 500	**LRBZ 182220**
31.750 (1 1/4)	**GBRI 203320 UU**	**GBRI 203320 U**	286	31.750 (1 1/4)	52.388 (2 1/16)	31.750 (1 1/4)	32.000	38.100 (1 1/2)	37	37.1	47.3	0.6	54 200	97 700	2 000	**LRBZ 202420**
34.925 (1 3/8)	**GBRI 223520 UU**	**GBRI 223520 U**	311	34.925 (1 3/8)	55.562 (2 3/16)	31.750 (1 1/4)	32.000	41.275 (1 5/8)	40.2	40.2	50.5	0.6	56 600	105 000	1 900	**LRBZ 222620**
38.100 (1 1/2)	**GBRI 243720 UU** **GBRI 243920 UU**	**GBRI 243720 U** **GBRI 243920 U**	330 400	38.100 (1 1/2) 38.100 (1 1/2)	58.738 (2 5/16) 61.912 (2 7/16)	31.750 (1 1/4) 31.750 (1 1/4)	32.000 32.000	44.450 (1 3/4) 47.625 (1 7/8)	43.3 43.3	43.4 45	53.7 56.2	0.6 1	58 900 61 100	114 000 121 000	1 800 1 700	**LRBZ 242820** **LRBZ 243020**
41.275 (1 5/8)	**GBRI 264120 UU**	**GBRI 264120 U**	425	41.275 (1 5/8)	65.088 (2 9/16)	31.750 (1 1/4)	32.000	50.800 (2)	48	49	59.2	1	63 100	130 000	1 600	**LRBZ 263220**
44.450 (1 3/4)	**GBRI 284828 UU**	**GBRI 284828 U**	860	44.450 (1 3/4)	76.200 (3)	44.450 (1 3/4)	44.700	57.150 (2 1/4)	52.5	55	69.2	1.5	87 500	161 000	1 400	**LRBZ 283628**

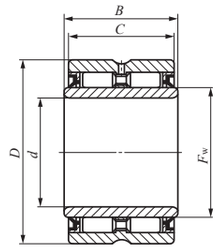
Notes(1) Maximum permissible corner radius of the shaft or housing
(2) Allowable rotational speed applies to grease lubrication.

Remarks1. The outer ring has an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

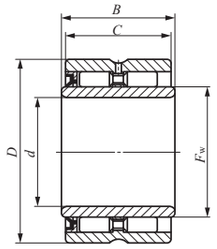
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

MACHINED TYPE NEEDLE ROLLER BEARINGS

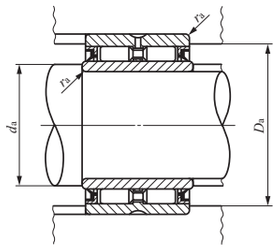
With Seal, With Inner Ring, Inch Series



GBRI ··· UU



GBRI ··· U



Shaft dia. 50.800 — 95.250mm

Shaft dia. mm (inch)	Identification number		Mass (Ref.)	Boundary dimensions mm(inch)		
	With two seals	With one seal	g	d	D	C
50.800 (2)	**GBRI 325228 UU**	**GBRI 325228 U**	950	50.800 (2)	82.550 (3 1/4)	44.450 (1 3/4)
57.150 (2 1/4)	**GBRI 365628 UU**	**GBRI 365628 U**	1 050	57.150 (2 1/4)	88.900 (3 1/2)	44.450 (1 3/4)
63.500 (2 1/2)	**GBRI 406028 UU**	**GBRI 406028 U**	1 140	63.500 (2 1/2)	95.250 (3 3/4)	44.450 (1 3/4)
69.850 (2 3/4)	**GBRI 446828 UU**	**GBRI 446828 U**	1 490	69.850 (2 3/4)	107.950 (4 1/4)	44.450 (1 3/4)
76.200 (3)	**GBRI 487232 UU**	**GBRI 487232 U**	1 880	76.200 (3)	114.300 (4 1/2)	50.800 (2)
82.550 (3 1/4)	**GBRI 527632 UU**	**GBRI 527632 U**	2 010	82.550 (3 1/4)	120.650 (4 3/4)	50.800 (2)
88.900 (3 1/2)	**GBRI 568032 UU**	**GBRI 568032 U**	2 130	88.900 (3 1/2)	127.000 (5)	50.800 (2)
95.250 (3 3/4)	**GBRI 608432 UU**	**GBRI 608432 U**	2 260	95.250 (3 3/4)	133.350 (5 1/4)	50.800 (2)

B	F_w	Standard mounting dimensions mm d_a Min.	d_a Max.	D_a Max.	$r_{as\ max}$ (1)	Basic dynamic load rating C N	Basic static load rating C_0 N	Allowable rotational speed(2) rpm	Assembled inner ring
44.700	63.500 (2 1/2)	58	61	75.7	1.5	93 300	179 000	1 300	**LRBZ 324028**
44.700	69.850 (2 3/4)	65	67	82	1.5	97 200	197 000	1 100	**LRBZ 364428**
44.700	76.200 (3)	71	73	88	1.5	101 000	215 000	1 100	**LRBZ 404828**
44.700	82.550 (3 1/4)	77	79	99.9	1.5	127 000	231 000	950	**LRBZ 445228**
51.050	88.900 (3 1/2)	83.5	86	106.3	1.5	170 000	347 000	900	**LRBZ 485632**
51.050	95.250 (3 3/4)	91	93	112.6	1.5	175 000	371 000	850	**LRBZ 526032**
51.050	101.600 (4)	97	99	119	1.5	182 000	395 000	800	**LRBZ 566432**
51.050	107.950 (4 1/4)	103	105	125.3	1.5	186 000	419 000	750	**LRBZ 606832**

Notes(1) Maximum permissible corner radius of the shaft or housing
(2) Allowable rotational speed applies to grease lubrication.

Remarks1. The outer ring has an oil groove and an oil hole.
2. Bearings with seals on both sides are provided with prepacked grease. Bearings with a seal on one side are not provided with prepacked grease. Perform proper lubrication for use.

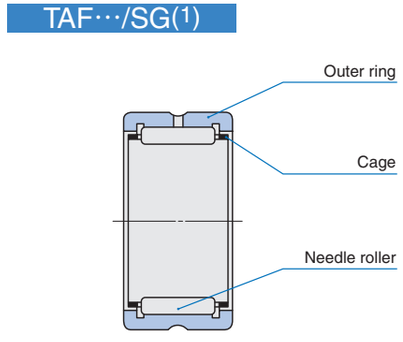
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

C-LUBE
MACHINED TYPE NEEDLE ROLLER BEARINGS

Structure and features

C-Lube Machined Type Needle Roller Bearing is a bearing that is lubricated with a newly developed thermosetting solid-type lubricant. A large amount of lubricating oil and fine particles of ultra high molecular weight polyolefin resin are solidified by heat treatment to fill the inner space of the bearing. As the bearing rotates, the lubricating oil oozes out onto the raceway in proper quantities, maintaining the lubrication performance for a long period of time.
C-Lube Machined Type Needle Roller Bearings are bearings with a low sectional height and large load ratings. The outer ring has high rigidity and can easily be used even for light alloy housings.

Structure of C-Lube Machined Type Needle Roller Bearing



Note(1) Thermosetting solid-type lubricant fills inner space of the bearing.

Type

C-Lube Machined Type Needle Roller Bearing is available in type shown in Table 1.

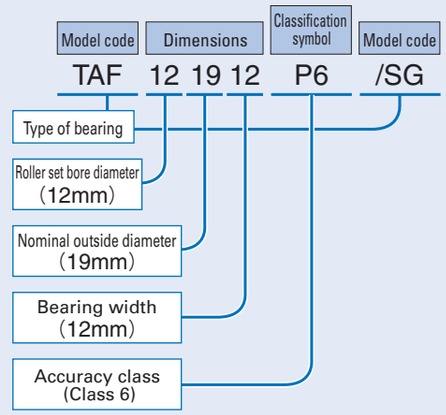
Table 1 Type of bearing

Series \ Type		Needle bearing with cage
		Without inner ring
Metric series	For light duty	TAF···/SG

Identification number

The identification number of C-Lube Machined Type Needle Roller Bearing consists of model code, dimensions and classification symbol. Example is shown below.

Example of identification number



Accuracy

C-Lube Machined Type Needle Roller Bearings are manufactured based on JIS (See page A31.). The tolerances for the smallest single roller set bore diameter of bearings without inner ring are based on Table 14 on page A33.

Fit

The recommended fits for C-Lube Machined Type Needle Roller Bearings are shown in Tables 21 to 23 on pages A41 and A42.

Allowable Rotational Speed

The allowable rotational speed of C-Lube Machined Type Needle Roller Bearing is affected by mounting and operating conditions. The reference $d_m n$ value (1) is 20,000.

Note(1) $d_m n$ value = {(Bore diameter of bearing [mm] + Outside diameter of bearing [mm])/2} x rotational speed [rpm]

Lubrication

As the internal space of C-Lube Machined Type Needle Roller Bearing is filled with thermosetting solid-type lubricant C-Lube, regreasing is not possible due to the structure.

Oil hole

Table 2 shows the number of oil holes on the outer ring.

Table 2 Number of oil holes of outer ring

Nominal roller set bore diameter F_w mm	Number of hole holes of outer ring
$F_w \leqq 26$	0
$26 < F_w$	1

Remark If there is oil hole on the outer ring, care must be exercised not to let oil holes within the load range.

Mounting

❶ Mounting dimensions for C-Lube Machined Type Needle Roller Bearings are shown in the table of dimensions.
❷ When mounting, pay special attention to avoid locating the oil hole within the loading zone. This may lead to a short bearing life.

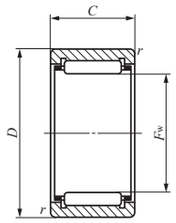
Precaution for Use

❶ Do not wash C-Lube Machined Type Needle Roller Bearing with organic solvent and/or white kerosene, which have the ability of removing fat nor leave them in contact with the above agents.
❷ To ensure normal rotation of the C-Lube Machined Type Needle Roller Bearing, apply a load of 1% or over of the dynamic load rating at use.
❸ The operating temperature range is -15～+80˚C. For continuous operation, the recommended operating temperature is +60˚C or less.
❹ When using two or more C-Lube Machined Type Needle Roller Bearings adjacent to each other on the same shaft, it is necessary to obtain an even load distribution. On request, a set of bearings is available, in which bearings are matched to obtain an even load distribution.

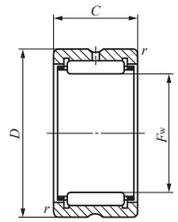
Further, C-Lube Machined Type Needle Roller Bearing for food machinery is also available. If needed, please contact IKO.

C-LUBE MACHINED TYPE NEEDLE ROLLER BEARINGS

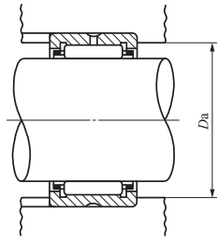
Without Inner Ring



TAF ⋯ /SG
$F_w \leqq 26$



TAF ⋯ /SG
$F_w > 26$



Shaft dia. 10—45mm

Shaft dia.	Identification number	Mass (Ref.)	Boundary dimensions mm				Standard mounting dimension	Basic dynamic load rating	Basic static load rating
			F_w	D	C	$r_{s\,min}$(1)	D_a Max.	C	C_0
		g					mm	N	N
10	TAF 101712/SG	11	10	17	12	0.2	15.4	5 880	5 970
	TAF 101716/SG	14.7	10	17	16	0.2	15.4	8 230	9 190
12	TAF 121912/SG	12.5	12	19	12	0.3	17	6 610	7 260
	TAF 121916/SG	16.8	12	19	16	0.3	17	9 250	11 200
14	TAF 142216/SG	22	14	22	16	0.3	20	11 700	13 700
	TAF 142220/SG	27.5	14	22	20	0.3	20	14 800	18 600
15	TAF 152316/SG	23.5	15	23	16	0.3	21	12 300	14 900
	TAF 152320/SG	29	15	23	20	0.3	21	15 600	20 200
16	TAF 162416/SG	24	16	24	16	0.3	22	12 300	15 100
	TAF 162420/SG	30	16	24	20	0.3	22	15 500	20 400
18	TAF 182616/SG	26.5	18	26	16	0.3	24	13 400	17 500
	TAF 182620/SG	33	18	26	20	0.3	24	17 000	23 600
19	TAF 192716/SG	28	19	27	16	0.3	25	14 000	18 700
	TAF 192720/SG	35.5	19	27	20	0.3	25	17 700	25 300
20	TAF 202816/SG	28.5	20	28	16	0.3	26	13 900	18 800
	TAF 202820/SG	37	20	28	20	0.3	26	17 600	25 400
21	TAF 212916/SG	30	21	29	16	0.3	27	14 400	20 000
	TAF 212920/SG	37.5	21	29	20	0.3	27	18 200	27 100
22	TAF 223016/SG	31	22	30	16	0.3	28	14 900	21 200
	TAF 223020/SG	39	22	30	20	0.3	28	18 900	28 700
24	TAF 243216/SG	33	24	32	16	0.3	30	15 300	22 500
	TAF 243220/SG	42	24	32	20	0.3	30	19 400	30 500
25	TAF 253316/SG	35	25	33	16	0.3	31	15 800	23 700
	TAF 253320/SG	43.5	25	33	20	0.3	31	20 000	32 100
29	TAF 293820/SG	59	29	38	20	0.3	36	21 600	37 200
	TAF 293830/SG	88	29	38	30	0.3	36	30 900	59 100
30	TAF 304020/SG	67	30	40	20	0.3	38	25 100	40 100
	TAF 304030/SG	101	30	40	30	0.3	38	36 000	63 900
35	TAF 354520/SG	76.5	35	45	20	0.3	43	26 900	46 200
	TAF 354530/SG	116.5	35	45	30	0.3	43	38 600	73 600
40	TAF 405020/SG	86	40	50	20	0.3	48	29 400	54 100
	TAF 405030/SG	130	40	50	30	0.3	48	42 300	86 200
45	TAF 455520/SG	95.5	45	55	20	0.3	53	31 000	60 200
	TAF 455530/SG	144	45	55	30	0.3	53	44 600	95 800

Note(1) Minimum allowable value of chamfer dimension r.

Remarks1. Models with a nominal roller set bore diameter F_w of 26mm or less are provided without oil holes. other models are provided with one oil hole and oil groove.

2. This bearing can not be re-lubricated as thermosetting solid-type lubricant C-Lube fills inner space of the bearing.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch