

# MACHINED TYPE NEEDLE ROLLER BEARINGS

- Machined Type Caged Needle Roller Bearings
- Machined Type Guide Needle Roller Bearings

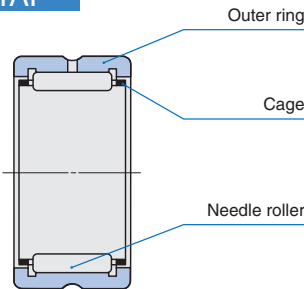


## Structure and Features

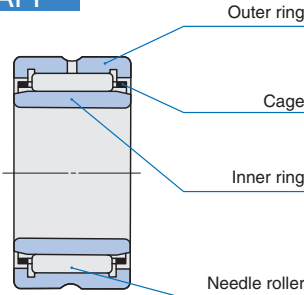
IKO Machined Type Needle Roller Bearings are bearings with a low sectional height and large load ratings. The outer ring has high rigidity and can easily be used even for light alloy housings. These bearings are available in metric series and inch series, both of which have the caged type and the full 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

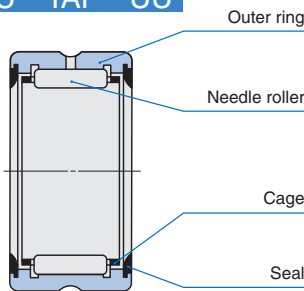
#### RNA49 · TAF



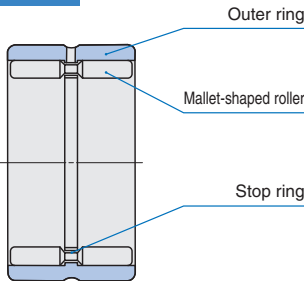
#### NA49 · TAFI



#### 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)

| 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             | —                            | —               |

Table 1.2 Type of bearing (With seal)

| 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       | —                            | —               |
|               | One side seal       | —                            | —               | —                            | —               |

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.

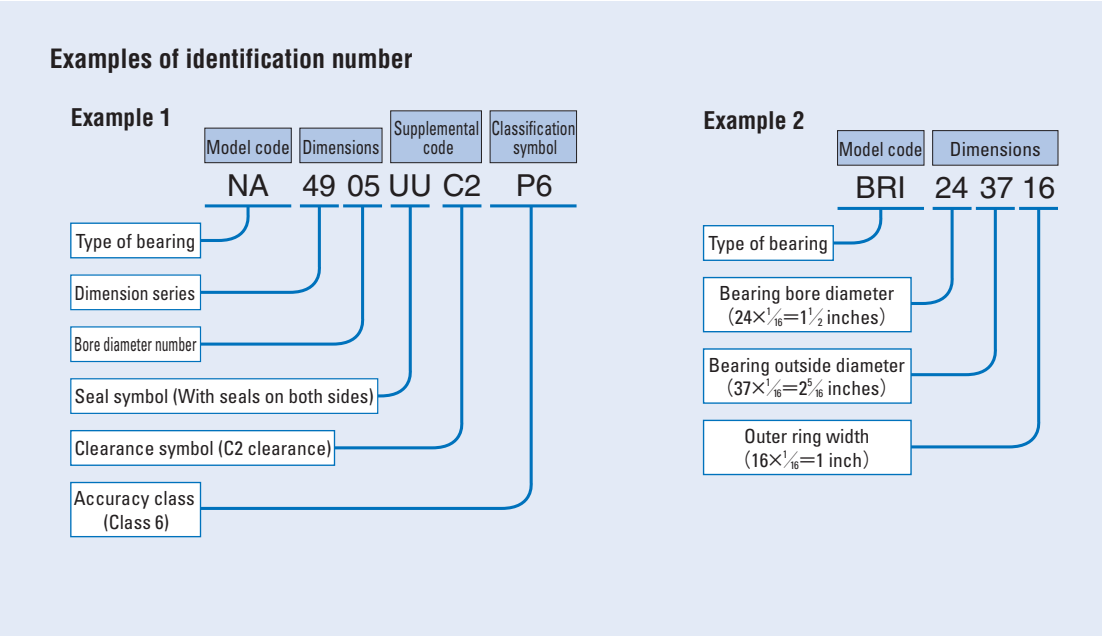
Guide Needle Roller Bearings

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.

Bearings with and without inner rings are available. In bearings with an inner ring, the width of the inner ring is larger than that of the outer ring.

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.



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

| <i>d</i> or <i>D</i><br>Nominal bearing bore dia.<br>or outside dia.<br>mm |         | $\Delta_{dmp}$<br>Single plane mean<br>bore diameter<br>deviation |      | $\Delta_{Dmp}$<br>Single plane mean<br>outside diameter<br>deviation |      | $\Delta_{Bs}$ ( $\Delta_{Cs}$ )<br>Deviation of a single<br>inner (or outer) ring<br>width |       | $K_{ia}$<br>Radial runout of<br>assembled bearing<br>inner ring | $K_{ea}$<br>Radial runout of<br>assembled bearing<br>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  $\Delta_{dmp}$ ,  $\Delta_{Bs}$ ,  $\Delta_{Cs}$  and  $K_{ia}$ , and *D* for  $\Delta_{Dmp}$  and  $K_{ea}$

D  
NA  
TAFI  
TRI  
BRI

Table 3 Tolerances for smallest single roller set bore diameter  $F_{ws\ min}$  of inch series BR unit:  $\mu\ m$

| $F_w$<br>Nominal roller set bore diameter<br>mm |         | $\Delta F_{ws\ min}$<br>Deviation of smallest single roller<br>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 |

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 unit:  $\mu\ m$

| $F_w$<br>Nominal roller set bore diameter<br>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  |

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                    | 0                                     | —                        | —                       |
|                                           | Inch series   | BR, BRI                      | 1                                     | 1                        | —                       |
|                                           |               | 69.850 < $F_w$               | 2                                     | 1                        | —                       |
|                                           |               | Guide Needle Roller Bearings | 1                                     | —                        | —                       |

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

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.

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         | ×             | —                        | —                       |

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 6.2 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 |
| Caged Needle Roller Bearings | Metric series | NA   |                 | 0                                     | 0             | 0                        |
|                              |               | TRI  |                 | 0                                     | 0             | 0                        |
|                              |               | TAFI |                 | 0                                     | —             | —                        |
|                              | Inch series   | BRI  | $d \leq 76.200$ | 1                                     | 1             | —                        |
|                              |               |      | $76.200 < d$    | 2                                     | 1             | —                        |
| Guide Needle Roller Bearings | Metric series | GTRI |                 | 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.

Extended Life Specification Machined Type Needle Roller Bearings

Extended Life Specification Machined Type Needle Roller Bearings are treated with a newly developed special heat treatment that enhances the bearing's surface hardness and toughness, and suppresses the generation and growth of damage on the surface. Significant life extension can be achieved under high load or under the condition of lubrication contaminated with foreign substances. In a life comparison test, as shown in Figure 1, IKO's special heat treated Extended Life Specification products lasted 5 times longer than standard heat-treated products. Extended Life Specification Machined Type Needle Roller Bearings, available according to the "Applicable Production Size" shown in Table 7, are made to order upon request.

Table 7 Applicable Production Size

| With inner ring<br>$d=10 \sim 75\text{mm}$ | Without inner ring<br>$F_w=14 \sim 85\text{mm}$ |
|--------------------------------------------|-------------------------------------------------|
| NA 4900 ~ 4915                             | RNA 4900 ~ 4915                                 |
| NA 6901 ~ 6915                             | RNA 6901 ~ 6915                                 |
| TAFI 102216 ~ 7510535                      | TAF 142216 ~ 8510535                            |
| TRI 153320 ~ 7510845                       | TR 203320 ~ 8310845                             |

Mounting

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

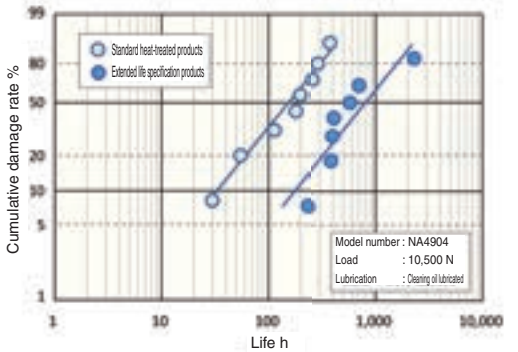


Fig. 1 Life Test Result  
Remark This table shows the result of life testing under load conditions at 50% of the basic dynamic rating. The Extended Life Specification with special heat treatment lasted 5 times longer or more in L10 life compared to the standard heat-treated products.

MACHINED TYPE NEEDLE ROLLER BEARINGS

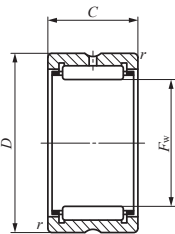
Without Inner Ring



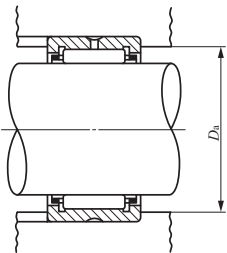
Shaft dia. 5 – 15mm

| Shaft dia.<br>mm | Identification number |        |        |            |    |     | Mass<br>(Ref.)<br>g |
|------------------|-----------------------|--------|--------|------------|----|-----|---------------------|
|                  | RNA 49                | RNA 69 | RNA 48 | TAF        | TR | GTR |                     |
| 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                  |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension  $r$   
<sup>(2)</sup> 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  
RNA69 ( $F_w \leq 35$ )



| Boundary dimensions mm |     |     |                 | Standard mounting dimension | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> |
|------------------------|-----|-----|-----------------|-----------------------------|---------------------------|--------------------------|-------------------------------------------|
| $F_w$                  | $D$ | $C$ | $r_s^{(1)}$ min | $D_a$ Max. mm               | $C$ N                     | $C_0$ N                  | min <sup>-1</sup>                         |
| 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                                    |

MACHINED TYPE NEEDLE ROLLER BEARINGS

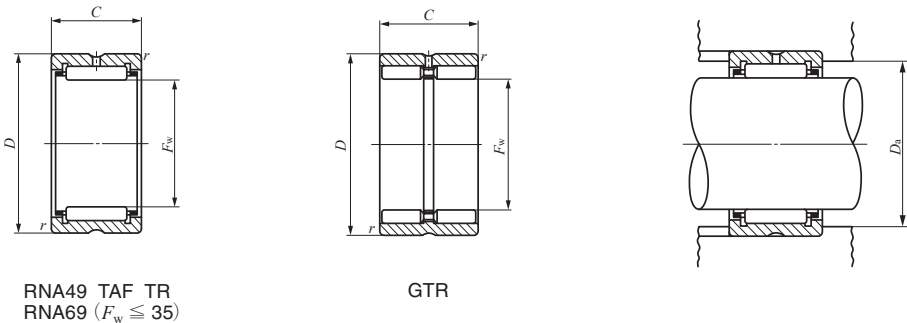
Without Inner Ring



Shaft dia. 16 – 22mm

| Shaft dia.<br>mm | Identification number |          |        |            |           |            | Mass<br>(Ref.)<br>g |
|------------------|-----------------------|----------|--------|------------|-----------|------------|---------------------|
|                  | RNA 49                | RNA 69   | RNA 48 | TAF        | TR        | GTR        |                     |
| 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<sup>(1)</sup> Minimum allowable value of chamfer dimension  $r$   
<sup>(2)</sup> 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.



| Boundary dimensions mm |     |     |                 | Standard mounting dimension | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> |
|------------------------|-----|-----|-----------------|-----------------------------|---------------------------|--------------------------|-------------------------------------------|
| $F_w$                  | $D$ | $C$ | $r_s^{(1)}$ min | $D_a$ Max. mm               | $C$ N                     | $C_0$ N                  | min <sup>-1</sup>                         |
| 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                                     |

MACHINED TYPE NEEDLE ROLLER BEARINGS

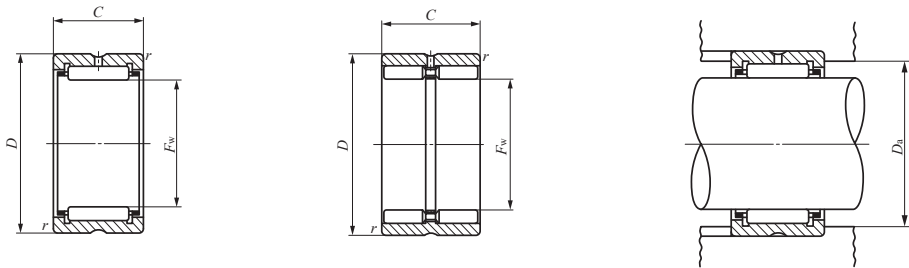
Without Inner Ring



Shaft dia. 24 – 30mm

| Shaft dia.<br>mm | Identification number |           |        |            |           |            | Mass<br>(Ref.)<br>g |
|------------------|-----------------------|-----------|--------|------------|-----------|------------|---------------------|
|                  | RNA 49                | RNA 69    | RNA 48 | TAF        | TR        | GTR        |                     |
| 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                 |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension  $r$   
<sup>(2)</sup> 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 ( $F_w \leq 35$ )

GTR

| Boundary dimensions mm |     |     |                 | Standard mounting dimension | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> |
|------------------------|-----|-----|-----------------|-----------------------------|---------------------------|--------------------------|-------------------------------------------|
| $F_w$                  | $D$ | $C$ | $r_s^{(1)}$ min | $D_a$ Max. mm               | $C$ N                     | $C_0$ N                  | min <sup>-1</sup>                         |
| 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                                     |

MACHINED TYPE NEEDLE ROLLER BEARINGS

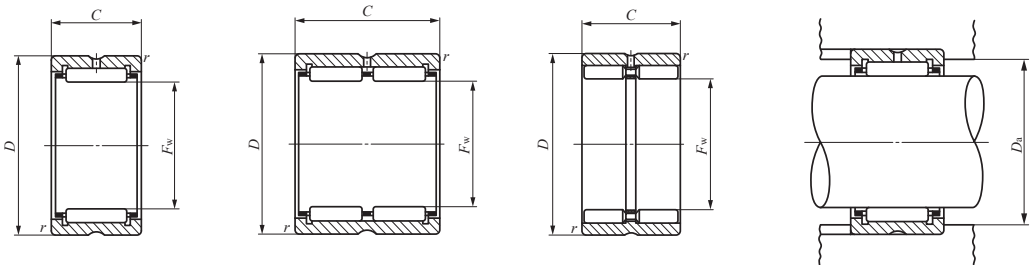
Without Inner Ring



Shaft dia. 32 – 40mm

| Shaft dia.<br>mm | Identification number |           |        |            |           |            | Mass<br>(Ref.)<br>g |
|------------------|-----------------------|-----------|--------|------------|-----------|------------|---------------------|
|                  | RNA 49                | RNA 69    | RNA 48 | TAF        | TR        | GTR        |                     |
| 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                 |
| 37               | —                     | —         | —      | —          | —         | GTR 354830 | 163                 |
|                  | —                     | —         | —      | TAF 374720 | —         | —          | 77.5                |
|                  | —                     | —         | —      | TAF 374730 | —         | —          | 117                 |
|                  | —                     | —         | —      | TAF 384820 | —         | —          | 79                  |
|                  | —                     | —         | —      | TAF 384830 | —         | —          | 119                 |
| 38               | —                     | —         | —      | —          | TR 385230 | —          | 168                 |
|                  | —                     | —         | —      | —          | —         | GTR 385230 | 195                 |
| 40               | —                     | —         | —      | TAF 405020 | —         | —          | 83                  |
|                  | —                     | —         | —      | TAF 405030 | —         | —          | 125                 |
|                  | RNA 49/32             | —         | —      | —          | —         | —          | 96                  |
|                  | —                     | RNA 69/32 | —      | —          | —         | —          | 172                 |
|                  | —                     | —         | —      | —          | TR 405520 | —          | 129                 |
| 40               | —                     | —         | —      | —          | —         | GTR 405520 | 144                 |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> 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 |          |          |                                         | Standard mounting dimension  | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> |
|------------------------|----------|----------|-----------------------------------------|------------------------------|---------------------------|--------------------------|-------------------------------------------|
| <i>F<sub>w</sub></i>   | <i>D</i> | <i>C</i> | <i>r<sub>s</sub></i> min <sup>(1)</sup> | <i>D<sub>a</sub></i> Max. mm | <i>C</i> N                | <i>C<sub>0</sub></i> N   | min <sup>-1</sup>                         |
| 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                                     |

D  
NA  
TAFI  
TRI  
BRI

MACHINED TYPE NEEDLE ROLLER BEARINGS

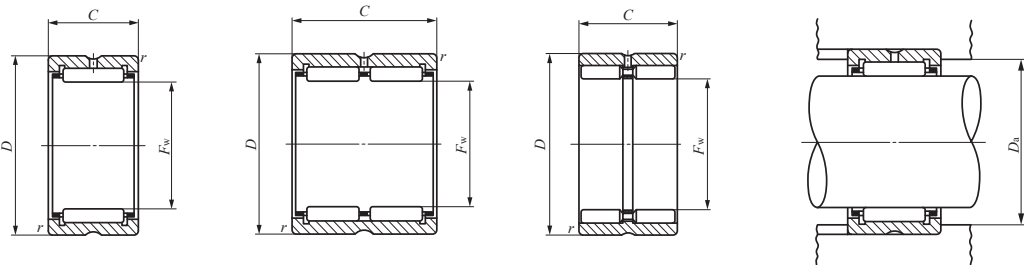
Without Inner Ring



Shaft dia. 42 – 50mm

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

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> 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 TAF TR

RNA69

GTR

| Boundary dimensions mm |          |          |                                         | Standard mounting dimension  | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> |
|------------------------|----------|----------|-----------------------------------------|------------------------------|---------------------------|--------------------------|-------------------------------------------|
| <i>F<sub>w</sub></i>   | <i>D</i> | <i>C</i> | <i>r<sub>s</sub></i> min <sup>(1)</sup> | <i>D<sub>a</sub></i> Max. mm | <i>C</i> N                | <i>C<sub>0</sub></i> N   | min <sup>-1</sup>                         |
| 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                                     |

D  
NA  
TAFI  
TRI  
BRI

MACHINED TYPE NEEDLE ROLLER BEARINGS

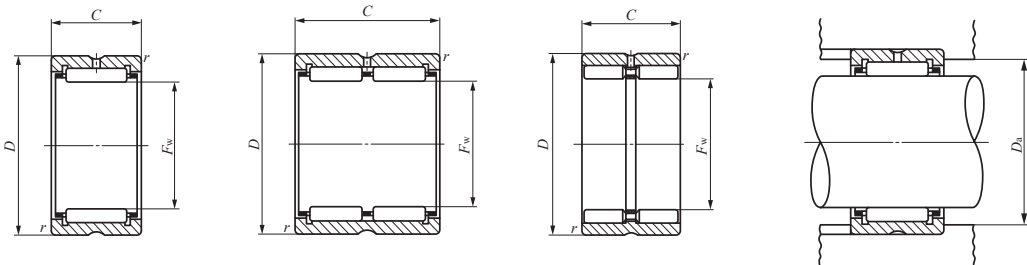
Without Inner Ring



Shaft dia. 52 – 68mm

| Shaft dia.<br>mm | Identification number |          |        |            |           |            | Mass<br>(Ref.)<br>g |
|------------------|-----------------------|----------|--------|------------|-----------|------------|---------------------|
|                  | RNA 49                | RNA 69   | RNA 48 | TAF        | TR        | GTR        |                     |
| 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                 |
| 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                 |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> 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 TAF TR

RNA69

GTR

| Boundary dimensions  |          |          |                          | mm             | Standard mounting dimension  | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> |
|----------------------|----------|----------|--------------------------|----------------|------------------------------|---------------------------|--------------------------|-------------------------------------------|
| <i>F<sub>w</sub></i> | <i>D</i> | <i>C</i> | <i>r<sub>s</sub></i> min | <sup>(1)</sup> | <i>D<sub>a</sub></i> Max. mm | <i>C</i> N                | <i>C<sub>0</sub></i> N   | min <sup>-1</sup>                         |
| 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                                     |

MACHINED TYPE NEEDLE ROLLER BEARINGS

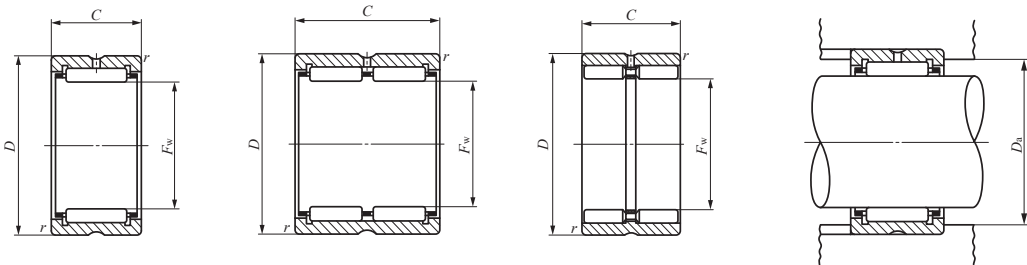
Without Inner Ring



Shaft dia. 70 – 85mm

| Shaft dia.<br>mm | Identification number |          |        |             |            |             | Mass<br>(Ref.)<br>g |
|------------------|-----------------------|----------|--------|-------------|------------|-------------|---------------------|
|                  | RNA 49                | RNA 69   | RNA 48 | TAF         | TR         | GTR         |                     |
| 70               | —                     | —        | —      | TAF 708525  | —          | —           | 280                 |
|                  | —                     | —        | —      | TAF 708535  | —          | —           | 395                 |
|                  | RNA 49/62             | —        | —      | —           | —          | —           | 320                 |
|                  | —                     | —        | —      | —           | TR 708945  | —           | 605                 |
| 72               | —                     | —        | —      | —           | —          | GTR 708945  | 690                 |
|                  | RNA 4913              | RNA 6913 | —      | —           | —          | —           | 325                 |
| 73               | —                     | —        | —      | —           | —          | —           | 585                 |
|                  | —                     | —        | —      | TAF 739025  | —          | —           | 335                 |
| 75               | —                     | —        | —      | TAF 739035  | —          | —           | 475                 |
|                  | —                     | —        | —      | 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                 |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> 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 TAF TR      RNA69      GTR

| Boundary dimensions mm |          |          |                                         | Standard mounting dimension  | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> |
|------------------------|----------|----------|-----------------------------------------|------------------------------|---------------------------|--------------------------|-------------------------------------------|
| <i>F<sub>w</sub></i>   | <i>D</i> | <i>C</i> | <i>r<sub>s</sub></i> min <sup>(1)</sup> | <i>D<sub>a</sub></i> Max. mm | <i>C</i> N                | <i>C<sub>0</sub></i> N   | min <sup>-1</sup>                         |
| 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                                     |

D  
NA  
TAFI  
TRI  
BRI

MACHINED TYPE NEEDLE ROLLER BEARINGS

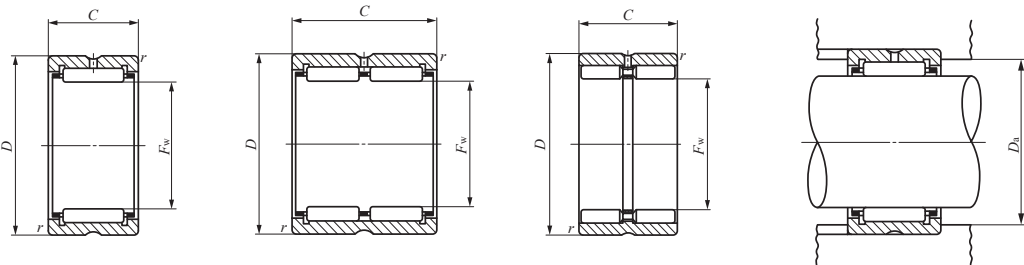
Without Inner Ring



Shaft dia. 90 – 105mm

| Shaft dia.<br>mm | Identification number |          |        |              |             |              | Mass<br>(Ref.)<br>g |
|------------------|-----------------------|----------|--------|--------------|-------------|--------------|---------------------|
|                  | RNA 49                | RNA 69   | RNA 48 | TAF          | TR          | GTR          |                     |
| 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               |
| 100              | —                     | —        | —      | —            | —           | GTR 9512045  | 1 230               |
|                  | —                     | —        | —      | TAF 10012026 | —           | —            | 525                 |
|                  | RNA 4917              | —        | —      | —            | —           | —            | 705                 |
|                  | —                     | —        | —      | TAF 10012036 | —           | —            | 725                 |
| 105              | —                     | —        | —      | —            | —           | —            | 1 300               |
|                  | —                     | RNA 6917 | —      | —            | —           | —            | —                   |
|                  | —                     | —        | —      | —            | TR 10012550 | —            | 1 290               |
|                  | —                     | —        | —      | —            | —           | GTR 10012550 | 1 440               |
| 105              | —                     | —        | —      | TAF 10512526 | —           | —            | 545                 |
|                  | RNA 4918              | —        | —      | —            | —           | —            | 740                 |
|                  | —                     | —        | —      | TAF 10512536 | —           | —            | 760                 |
|                  | —                     | RNA 6918 | —      | —            | —           | —            | 1 360               |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> 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 TAF TR      RNA69      GTR

| Boundary dimensions mm |          |          |                                         | Standard mounting dimension  | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> |
|------------------------|----------|----------|-----------------------------------------|------------------------------|---------------------------|--------------------------|-------------------------------------------|
| <i>F<sub>w</sub></i>   | <i>D</i> | <i>C</i> | <i>r<sub>s</sub></i> min <sup>(1)</sup> | <i>D<sub>a</sub></i> Max. mm | <i>C</i> N                | <i>C<sub>0</sub></i> N   | min <sup>-1</sup>                         |
| 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                                     |

D  
NA  
TAFI  
TRI  
BRI

MACHINED TYPE NEEDLE ROLLER BEARINGS

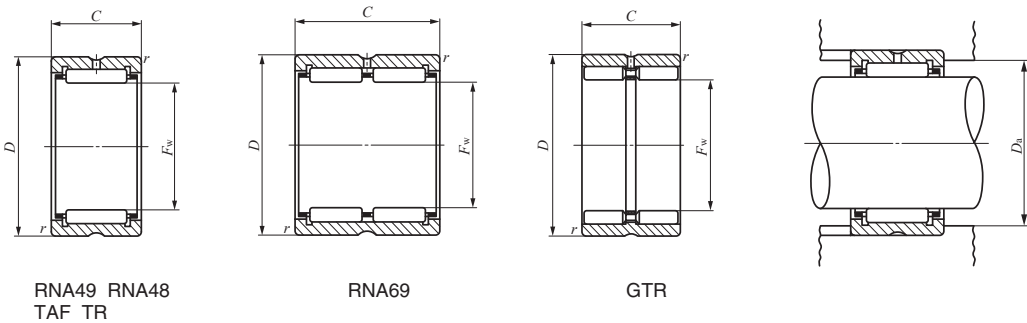
Without Inner Ring



Shaft dia. 110 – 170mm

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

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> 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 |     |     |                    | Standard mounting dimension | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> |
|------------------------|-----|-----|--------------------|-----------------------------|---------------------------|--------------------------|-------------------------------------------|
| $F_w$                  | $D$ | $C$ | $r_{s \min}^{(1)}$ | $D_a$<br>Max. mm            | $C$<br>N                  | $C_0$<br>N               | min <sup>-1</sup>                         |
| 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                                     |

D  
NA  
TAFI  
TRI  
BRI

MACHINED TYPE NEEDLE ROLLER BEARINGS

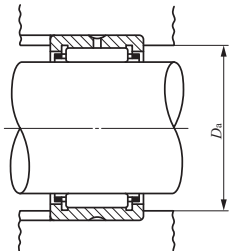
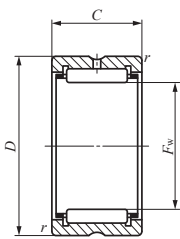
Without Inner Ring



Shaft dia. 175 – 350mm

| Shaft dia.<br>mm | Identification number |        |               |     |    |     | Mass<br>(Ref.)<br>g |
|------------------|-----------------------|--------|---------------|-----|----|-----|---------------------|
|                  | RNA 49                | RNA 69 | RNA 48        | TAF | TR | GTR |                     |
| 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              | —<br>RNA 4948         | —      | RNA 4848<br>— | —   | —  | —   | 5 670<br>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              |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> 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 |          |          |                                         | Standard mounting dimension  | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> |
|------------------------|----------|----------|-----------------------------------------|------------------------------|---------------------------|--------------------------|-------------------------------------------|
| <i>F<sub>w</sub></i>   | <i>D</i> | <i>C</i> | <i>r<sub>s</sub></i> <sup>(1)</sup> min | <i>D<sub>a</sub></i> Max. mm | <i>C</i> N                | <i>C<sub>0</sub></i> N   | min <sup>-1</sup>                         |
| 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                                       |

D  
NA  
TAFI  
TRI  
BRI

MACHINED TYPE NEEDLE ROLLER BEARINGS

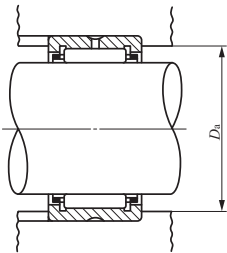
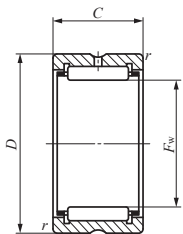
Without Inner Ring



Shaft dia. 360 – 490mm

| Shaft<br>dia.<br>mm | Identification number |        |          |     |    |     | Mass<br>(Ref.)<br>g |
|---------------------|-----------------------|--------|----------|-----|----|-----|---------------------|
|                     | RNA 49                | RNA 69 | RNA 48   | TAF | TR | GTR |                     |
| 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<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> 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 |          |          |                                         | Standard mounting dimension  | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> |
|------------------------|----------|----------|-----------------------------------------|------------------------------|---------------------------|--------------------------|-------------------------------------------|
| <i>F<sub>w</sub></i>   | <i>D</i> | <i>C</i> | <i>r<sub>s</sub></i> <sup>(1)</sup> min | <i>D<sub>a</sub></i> Max. mm | <i>C</i> N                | <i>C<sub>0</sub></i> N   | min <sup>-1</sup>                         |
| 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                                       |

MACHINED TYPE NEEDLE ROLLER BEARINGS

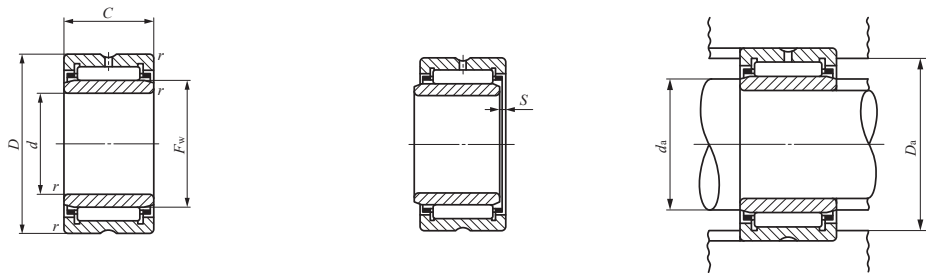
With Inner Ring



Shaft dia. 5 – 12mm

| Shaft dia.<br>mm | Identification number |         |       |             |     |      | Mass<br>(Ref.)<br>g | d  |
|------------------|-----------------------|---------|-------|-------------|-----|------|---------------------|----|
|                  | NA 49                 | NA 69   | NA 48 | TAFI        | TRI | GTRI |                     |    |
| 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 |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable axial shift amount of inner ring to outer ring  
<sup>(3)</sup> 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.



NA49 TAFI  
NA69 (*d* ≤ 30)

| Boundary dimensions mm |          |          |                                          |                       |                         | Standard mounting dimensions mm |                            |                            | Basic dynamic load rating | Basic static load rating   | Allowable rotational speed <sup>(3)</sup> | Assembled inner ring |        |
|------------------------|----------|----------|------------------------------------------|-----------------------|-------------------------|---------------------------------|----------------------------|----------------------------|---------------------------|----------------------------|-------------------------------------------|----------------------|--------|
| <i>D</i>               | <i>C</i> | <i>B</i> | <i>r</i> <sub>s min</sub> <sup>(1)</sup> | <i>F</i> <sub>w</sub> | <i>S</i> <sup>(2)</sup> | Min.                            | <i>d</i> <sub>a</sub> Max. | <i>D</i> <sub>a</sub> Max. | <i>C</i><br>N             | <i>C</i> <sub>0</sub><br>N | min <sup>-1</sup>                         |                      |        |
| 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 |

MACHINED TYPE NEEDLE ROLLER BEARINGS

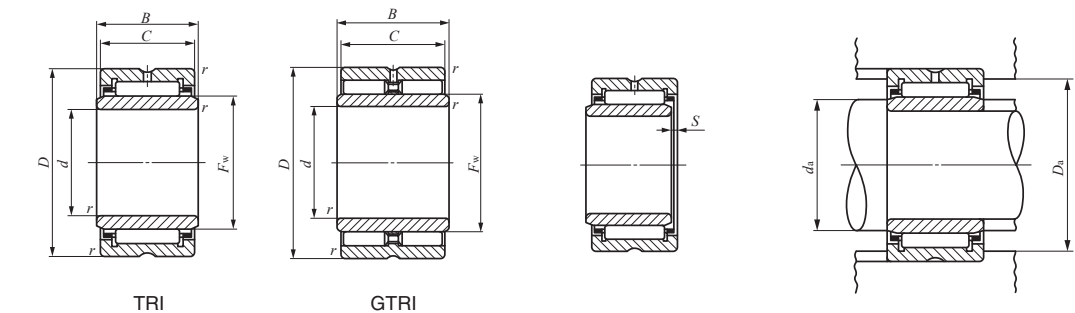
With Inner Ring



Shaft dia. 15 – 22mm

| Shaft dia.<br>mm | Identification number |          |       |             |            |             | Mass<br>(Ref.) | d  |
|------------------|-----------------------|----------|-------|-------------|------------|-------------|----------------|----|
|                  | NA 49                 | NA 69    | NA 48 | TAFI        | TRI        | GTRI        | g              |    |
| 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 |
| 22               | —                     | —        | —     | —           | —          | GTRI 203820 | 110            | 20 |
|                  | —                     | —        | —     | —           | —          | GTRI 203825 | 138            | 20 |
|                  | —                     | —        | —     | TAFI 223416 | —          | —           | 52             | 22 |
|                  | —                     | —        | —     | TAFI 223420 | —          | —           | 67.5           | 22 |
|                  | NA 49/22              | —        | —     | —           | —          | —           | 87             | 22 |
|                  | —                     | NA 69/22 | —     | —           | —          | —           | 152            | 22 |

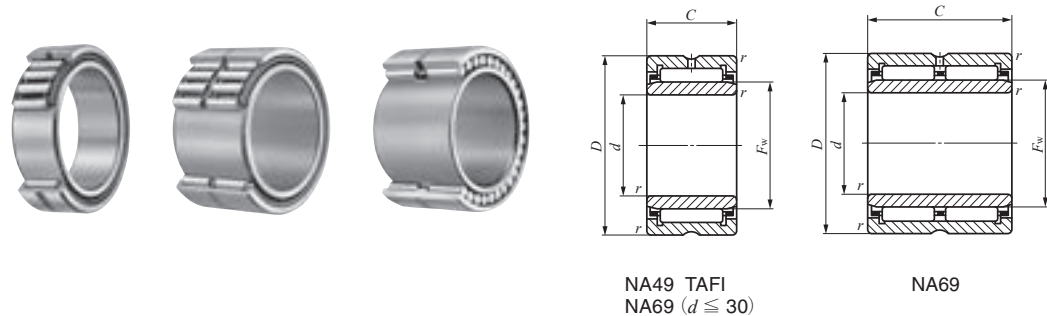
Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable axial shift amount of inner ring to outer ring  
<sup>(3)</sup> Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.  
Remarks1. TAFI 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.



| Boundary dimensions mm |    |      |                                             |                       |                            | Standard mounting dimensions mm |                            |                            | Basic dynamic load rating | Basic static load rating   | Allowable rotational speed <sup>(3)</sup> | Assembled inner ring |
|------------------------|----|------|---------------------------------------------|-----------------------|----------------------------|---------------------------------|----------------------------|----------------------------|---------------------------|----------------------------|-------------------------------------------|----------------------|
| D                      | C  | B    | <sup>(1)</sup><br><i>r</i> <sub>s min</sub> | <i>F</i> <sub>w</sub> | <sup>(2)</sup><br><i>S</i> | Min.                            | <i>d</i> <sub>a</sub> Max. | <i>D</i> <sub>a</sub> Max. | <i>C</i><br>N             | <i>C</i> <sub>0</sub><br>N | min <sup>-1</sup>                         |                      |
| 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           |

MACHINED TYPE NEEDLE ROLLER BEARINGS

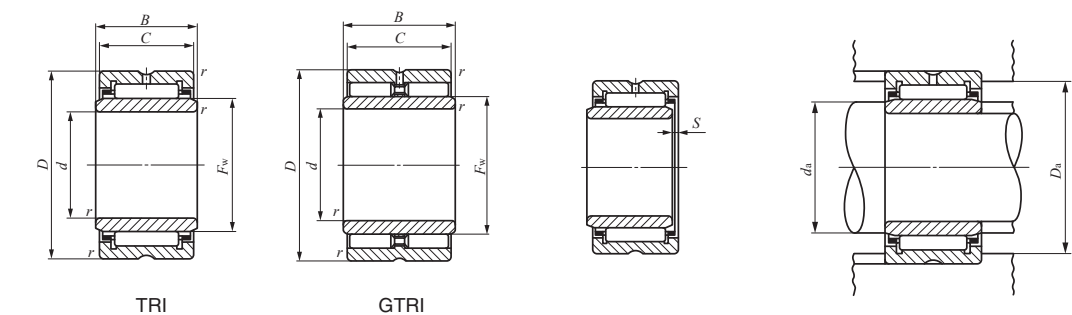
With Inner Ring



Shaft dia. 25 – 32mm

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

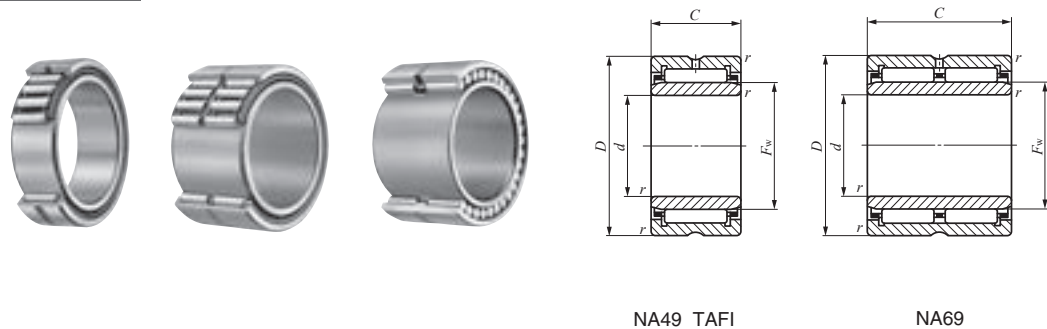
Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable axial shift amount of inner ring to outer ring  
<sup>(3)</sup> Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.  
Remarks1. The outer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



| Boundary dimensions mm |    |      |                                             |                                         |                            | Standard mounting dimensions mm |                            |                            | Basic dynamic load rating | Basic static load rating   | Allowable rotational speed <sup>(3)</sup> | Assembled inner ring |
|------------------------|----|------|---------------------------------------------|-----------------------------------------|----------------------------|---------------------------------|----------------------------|----------------------------|---------------------------|----------------------------|-------------------------------------------|----------------------|
| D                      | C  | B    | <sup>(1)</sup><br><i>r</i> <sub>s min</sub> | <sup>(2)</sup><br><i>F</i> <sub>w</sub> | <sup>(2)</sup><br><i>S</i> | Min.                            | <i>d</i> <sub>a</sub> Max. | <i>D</i> <sub>a</sub> Max. | <i>C</i><br>N             | <i>C</i> <sub>0</sub><br>N | min <sup>-1</sup>                         |                      |
| 38                     | 20 | —    | 0.3                                         | 29                                      | 0.5                        | 27                              | 28                         | 36                         | 21 600                    | 37 200                     | 14 000                                    | <b>LRT 252920</b>    |
| 38                     | 30 | —    | 0.3                                         | 29                                      | 1                          | 27                              | 28                         | 36                         | 30 900                    | 59 100                     | 14 000                                    | <b>LRT 252930</b>    |
| 42                     | 17 | —    | 0.3                                         | 30                                      | 0.5                        | 27                              | 29                         | 40                         | 23 700                    | 30 700                     | 13 000                                    | <b>LRT 253017</b>    |
| 42                     | 30 | —    | 0.3                                         | 30                                      | 0.5                        | 27                              | 29                         | 40                         | 42 100                    | 64 300                     | 13 000                                    | <b>LRT 253030</b>    |
| 44                     | 25 | 25.5 | 0.3                                         | 30                                      | 0.5                        | 27                              | 29                         | 42                         | 37 900                    | 52 100                     | 13 000                                    | <b>LRT 253025</b>    |
| 44                     | 25 | 25.5 | 0.3                                         | 30                                      | —                          | 27                              | 29                         | 42                         | 47 000                    | 76 500                     | 5 000                                     | <b>LRTZ 253025</b>   |
| 42                     | 20 | —    | 0.3                                         | 32                                      | 0.5                        | 30                              | 31                         | 40                         | 25 700                    | 42 200                     | 12 000                                    | <b>LRT 283220</b>    |
| 42                     | 30 | —    | 0.3                                         | 32                                      | 1                          | 30                              | 31                         | 40                         | 36 800                    | 67 200                     | 12 000                                    | <b>LRT 283230</b>    |
| 45                     | 17 | —    | 0.3                                         | 32                                      | 1                          | 30                              | 31                         | 43                         | 24 500                    | 32 700                     | 12 000                                    | <b>LRT 283217</b>    |
| 45                     | 30 | —    | 0.3                                         | 32                                      | 1                          | 30                              | 31                         | 43                         | 41 800                    | 64 800                     | 12 000                                    | <b>LRT 283230</b>    |
| 45                     | 30 | 30.5 | 0.3                                         | 32                                      | —                          | 30                              | 31                         | 43                         | 58 000                    | 101 000                    | 4 500                                     | <b>LRTZ 283230</b>   |
| 45                     | 20 | —    | 0.3                                         | 35                                      | 0.3                        | 32                              | 34                         | 43                         | 26 900                    | 46 200                     | 11 000                                    | <b>LRT 303520</b>    |
| 45                     | 30 | —    | 0.3                                         | 35                                      | 0.5                        | 32                              | 34                         | 43                         | 38 600                    | 73 600                     | 11 000                                    | <b>LRT 303530</b>    |
| 47                     | 17 | —    | 0.3                                         | 35                                      | 0.5                        | 32                              | 34                         | 45                         | 25 200                    | 34 700                     | 11 000                                    | <b>LRT 303517</b>    |
| 47                     | 30 | —    | 0.3                                         | 35                                      | 0.5                        | 32                              | 34                         | 45                         | 43 000                    | 69 000                     | 11 000                                    | <b>LRT 303530</b>    |
| 48                     | 30 | 30.5 | 0.3                                         | 35                                      | 1                          | 32                              | 34                         | 46                         | 47 400                    | 72 300                     | 11 000                                    | <b>LRT 303530-1</b>  |
| 48                     | 30 | 30.5 | 0.3                                         | 35                                      | —                          | 32                              | 34                         | 46                         | 61 100                    | 110 000                    | 4 500                                     | <b>LRTZ 303530</b>   |
| 47                     | 20 | —    | 0.3                                         | 37                                      | 0.3                        | 34                              | 36                         | 45                         | 28 200                    | 50 100                     | 11 000                                    | <b>LRT 323720</b>    |
| 47                     | 30 | —    | 0.3                                         | 37                                      | 0.5                        | 34                              | 36                         | 45                         | 40 500                    | 79 800                     | 11 000                                    | <b>LRT 323730</b>    |
| 52                     | 20 | —    | 0.6                                         | 40                                      | 0.5                        | 36                              | 39                         | 48                         | 31 200                    | 47 800                     | 10 000                                    | <b>LRT 324020</b>    |
| 52                     | 30 | 30.5 | 0.6                                         | 38                                      | 0.5                        | 36                              | 37                         | 48                         | 50 800                    | 81 100                     | 11 000                                    | <b>LRT 323830</b>    |
| 52                     | 36 | —    | 0.6                                         | 40                                      | 0.3                        | 36                              | 39                         | 48                         | 53 500                    | 95 700                     | 10 000                                    | <b>LRT 324036</b>    |
| 52                     | 30 | 30.5 | 0.6                                         | 38                                      | —                          | 36                              | 37                         | 48                         | 64 200                    | 121 000                    | 4 000                                     | <b>LRTZ 323830</b>   |

MACHINED TYPE NEEDLE ROLLER BEARINGS

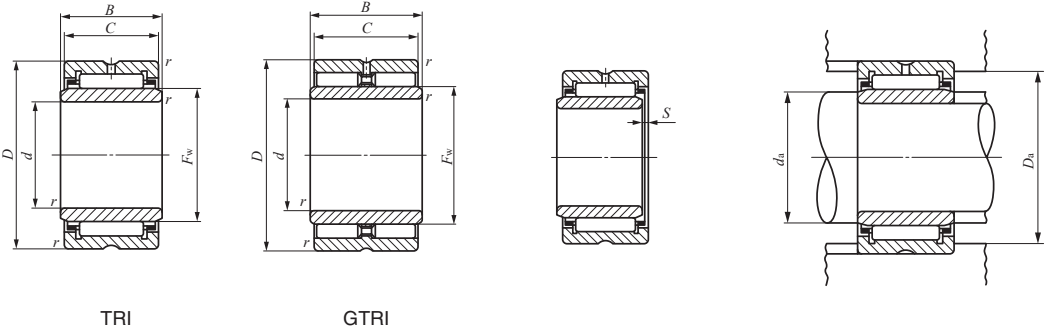
With Inner Ring



Shaft dia. 35 — 45mm

| Shaft dia.<br>mm | Identification number |         |       |             |            |             | Mass<br>(Ref.) | d  |
|------------------|-----------------------|---------|-------|-------------|------------|-------------|----------------|----|
|                  | NA 49                 | NA 69   | NA 48 | TAFI        | TRI        | GTRI        | g              |    |
| 35               | —                     | —       | —     | TAFI 355020 | —          | —           | 129            | 35 |
|                  | —                     | —       | —     | TAFI 355030 | —          | —           | 192            | 35 |
|                  | NA 4907               | —       | —     | —           | —          | —           | 178            | 35 |
|                  | —                     | NA 6907 | —     | —           | —          | —           | 320            | 35 |
|                  | —                     | —       | —     | —           | TRI 355630 | —           | 280            | 35 |
| 38               | —                     | —       | —     | —           | —          | GTRI 355520 | 191            | 35 |
|                  | —                     | —       | —     | —           | —          | GTRI 355630 | 310            | 35 |
|                  | —                     | —       | —     | 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 |
| 42               | —                     | —       | —     | —           | —          | GTRI 405930 | 300            | 40 |
|                  | —                     | —       | —     | 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 |
| 45               | —                     | —       | —     | —           | —          | GTRI 456430 | 335            | 45 |
|                  | —                     | —       | —     | —           | —          | —           | —              | —  |

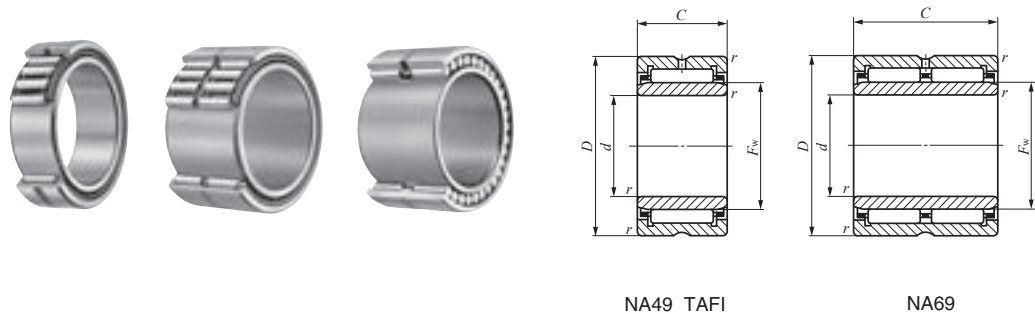
Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable axial shift amount of inner ring to outer ring  
<sup>(3)</sup> Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.  
Remarks1. The outer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



| Boundary dimensions mm |    |      |                                             |                                         |                            |                            | Standard mounting dimensions mm |      | Basic dynamic load rating | Basic static load rating   | Allowable rotational speed <sup>(3)</sup> | Assembled inner ring |
|------------------------|----|------|---------------------------------------------|-----------------------------------------|----------------------------|----------------------------|---------------------------------|------|---------------------------|----------------------------|-------------------------------------------|----------------------|
| D                      | C  | B    | <sup>(1)</sup><br><i>r</i> <sub>s min</sub> | <sup>(2)</sup><br><i>F</i> <sub>w</sub> | <sup>(2)</sup><br><i>S</i> | <sup>(2)</sup><br><i>S</i> | Min.                            | Max. | <i>C</i><br>N             | <i>C</i> <sub>0</sub><br>N | min <sup>-1</sup>                         |                      |
| 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          |

MACHINED TYPE NEEDLE ROLLER BEARINGS

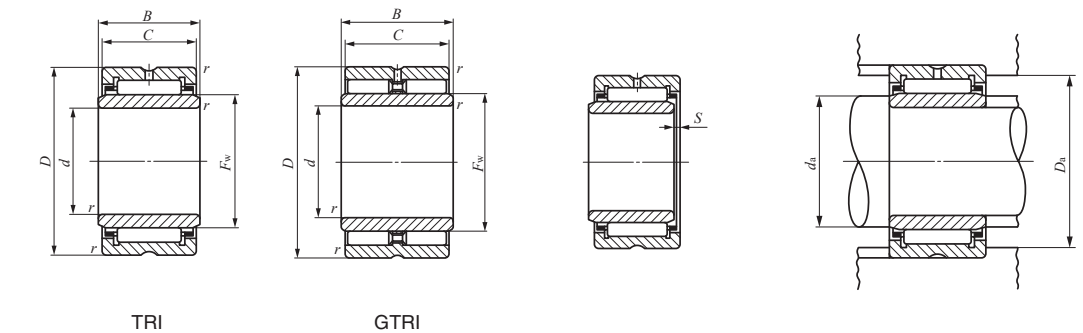
With Inner Ring



Shaft dia. 50 – 70mm

| Shaft dia.<br>mm | Identification number |         |       |             |            |             | Mass<br>(Ref.) | d  |
|------------------|-----------------------|---------|-------|-------------|------------|-------------|----------------|----|
|                  | NA 49                 | NA 69   | NA 48 | TAFI        | TRI        | GTRI        | g              |    |
| 50               | —                     | —       | —     | TAFI 506825 | —          | —           | 270            | 50 |
|                  | —                     | —       | —     | TAFI 506835 | —          | —           | 365            | 50 |
|                  | NA 4910               | —       | —     | —           | —          | —           | 295            | 50 |
|                  | —                     | NA 6910 | —     | —           | —          | —           | 530            | 50 |
|                  | —                     | —       | —     | —           | TRI 507745 | —           | 755            | 50 |
|                  | —                     | —       | —     | —           | —          | GTRI 507745 | 825            | 50 |
| 55               | —                     | —       | —     | TAFI 557225 | —          | —           | 275            | 55 |
|                  | —                     | —       | —     | TAFI 557235 | —          | —           | 380            | 55 |
|                  | NA 4911               | —       | —     | —           | —          | —           | 410            | 55 |
|                  | —                     | NA 6911 | —     | —           | —          | —           | 730            | 55 |
|                  | —                     | —       | —     | —           | TRI 558138 | —           | 650            | 55 |
|                  | —                     | —       | —     | —           | —          | GTRI 558138 | 710            | 55 |
| 60               | —                     | —       | —     | TAFI 608225 | —          | —           | 395            | 60 |
|                  | —                     | —       | —     | TAFI 608235 | —          | —           | 560            | 60 |
|                  | NA 4912               | —       | —     | —           | —          | —           | 440            | 60 |
|                  | —                     | NA 6912 | —     | —           | —          | —           | 785            | 60 |
|                  | —                     | —       | —     | —           | TRI 608945 | —           | 960            | 60 |
|                  | —                     | —       | —     | —           | —          | GTRI 608945 | 1 050          | 60 |
| 65               | NA 4913               | —       | —     | —           | —          | —           | 470            | 65 |
|                  | —                     | —       | —     | TAFI 659035 | —          | —           | 710            | 65 |
|                  | —                     | NA 6913 | —     | —           | —          | —           | 840            | 65 |
| 70               | —                     | —       | —     | TAFI 709525 | —          | —           | 540            | 70 |
|                  | —                     | —       | —     | TAFI 709535 | —          | —           | 755            | 70 |
|                  | NA 4914               | —       | —     | —           | —          | —           | 765            | 70 |
|                  | —                     | —       | —     | —           | —          | —           | 1 400          | 70 |
|                  | —                     | NA 6914 | —     | —           | —          | —           | —              | 70 |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable axial shift amount of inner ring to outer ring  
<sup>(3)</sup> 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.

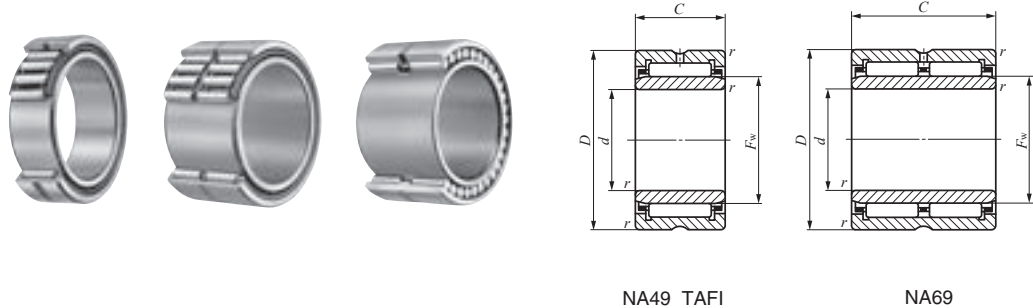


| Boundary dimensions mm |    |      |                                             |                       |                            | Standard mounting dimensions mm |                            |                            | Basic dynamic load rating | Basic static load rating   | Allowable rotational speed <sup>(3)</sup> | Assembled inner ring |
|------------------------|----|------|---------------------------------------------|-----------------------|----------------------------|---------------------------------|----------------------------|----------------------------|---------------------------|----------------------------|-------------------------------------------|----------------------|
| D                      | C  | B    | <sup>(1)</sup><br><i>r</i> <sub>s min</sub> | <i>F</i> <sub>w</sub> | <sup>(2)</sup><br><i>S</i> | Min.                            | <i>d</i> <sub>a</sub> Max. | <i>D</i> <sub>a</sub> Max. | <i>C</i><br>N             | <i>C</i> <sub>0</sub><br>N | min <sup>-1</sup>                         |                      |
| 68                     | 25 | —    | 0.3                                         | 55                    | 0.5                        | 52                              | 54                         | 66                         | 45 400                    | 94 000                     | 7 500                                     | LRT 505525           |
| 68                     | 35 | —    | 0.3                                         | 55                    | 1                          | 52                              | 54                         | 66                         | 61 200                    | 138 000                    | 7 500                                     | LRT 505535           |
| 72                     | 22 | —    | 0.6                                         | 58                    | 0.5                        | 54                              | 57                         | 68                         | 46 200                    | 82 100                     | 7 000                                     | LRT 505822           |
| 72                     | 40 | —    | 0.6                                         | 58                    | 0.3                        | 54                              | 57                         | 68                         | 79 200                    | 164 000                    | 7 000                                     | LRT 505840           |
| 77                     | 45 | 45.5 | 1                                           | 58                    | 2                          | 55                              | 57                         | 72                         | 104 000                   | 191 000                    | 7 000                                     | LRT 505845           |
| 77                     | 45 | 45.5 | 1                                           | 58                    | —                          | 55                              | 57                         | 72                         | 135 000                   | 280 000                    | 2 500                                     | LRTZ 505845          |
| 72                     | 25 | —    | 0.3                                         | 60                    | 0.5                        | 57                              | 59                         | 70                         | 47 500                    | 103 000                    | 6 500                                     | LRT 556025           |
| 72                     | 35 | —    | 0.3                                         | 60                    | 1                          | 57                              | 59                         | 70                         | 64 100                    | 151 000                    | 6 500                                     | LRT 556035           |
| 80                     | 25 | —    | 1                                           | 63                    | 1                          | 60                              | 61                         | 75                         | 57 600                    | 97 200                     | 6 500                                     | LRT 556325           |
| 80                     | 45 | —    | 1                                           | 63                    | 0.5                        | 60                              | 61                         | 75                         | 98 700                    | 194 000                    | 6 500                                     | LRT 556345           |
| 81                     | 38 | 38.5 | 1                                           | 62                    | 1.5                        | 60                              | 60.5                       | 76                         | 92 000                    | 166 000                    | 6 500                                     | LRT 556238           |
| 81                     | 38 | 38.5 | 1                                           | 62                    | —                          | 60                              | 60.5                       | 76                         | 118 000                   | 241 000                    | 2 500                                     | LRTZ 556238          |
| 82                     | 25 | —    | 0.6                                         | 68                    | 0.3                        | 64                              | 66                         | 78                         | 54 800                    | 117 000                    | 6 000                                     | LRT 606825           |
| 82                     | 35 | —    | 0.6                                         | 68                    | 1                          | 64                              | 66                         | 78                         | 72 000                    | 166 000                    | 6 000                                     | LRT 606835           |
| 85                     | 25 | —    | 1                                           | 68                    | 1                          | 65                              | 66                         | 80                         | 60 200                    | 105 000                    | 6 000                                     | LRT 606825-1         |
| 85                     | 45 | —    | 1                                           | 68                    | 0.5                        | 65                              | 66                         | 80                         | 103 000                   | 211 000                    | 6 000                                     | LRT 606845           |
| 89                     | 45 | 45.5 | 1                                           | 70                    | 2                          | 65                              | 68                         | 84                         | 114 000                   | 228 000                    | 5 500                                     | LRT 607045           |
| 89                     | 45 | 45.5 | 1                                           | 70                    | —                          | 65                              | 68                         | 84                         | 147 000                   | 336 000                    | 2 000                                     | LRTZ 607045          |
| 90                     | 25 | —    | 1                                           | 72                    | 1                          | 70                              | 70.5                       | 85                         | 62 700                    | 113 000                    | 5 500                                     | LRT 657225           |
| 90                     | 35 | —    | 1                                           | 73                    | 1                          | 70                              | 71                         | 85                         | 80 400                    | 181 000                    | 5 500                                     | LRT 657335           |
| 90                     | 45 | —    | 1                                           | 72                    | 0.5                        | 70                              | 70.5                       | 85                         | 108 000                   | 227 000                    | 5 500                                     | LRT 657245           |
| 95                     | 25 | —    | 1                                           | 80                    | 0.3                        | 75                              | 78                         | 90                         | 59 400                    | 137 000                    | 5 000                                     | LRT 708025           |
| 95                     | 35 | —    | 1                                           | 80                    | 1                          | 75                              | 78                         | 90                         | 78 100                    | 195 000                    | 5 000                                     | LRT 708035           |
| 100                    | 30 | —    | 1                                           | 80                    | 1.5                        | 75                              | 78                         | 95                         | 83 200                    | 158 000                    | 5 000                                     | LRT 708030           |
| 100                    | 54 | —    | 1                                           | 80                    | 1                          | 75                              | 78                         | 95                         | 134 000                   | 311 000                    | 5 000                                     | LRT 708054           |

D  
NA  
TAFI  
TRI  
BRI

MACHINED TYPE NEEDLE ROLLER BEARINGS

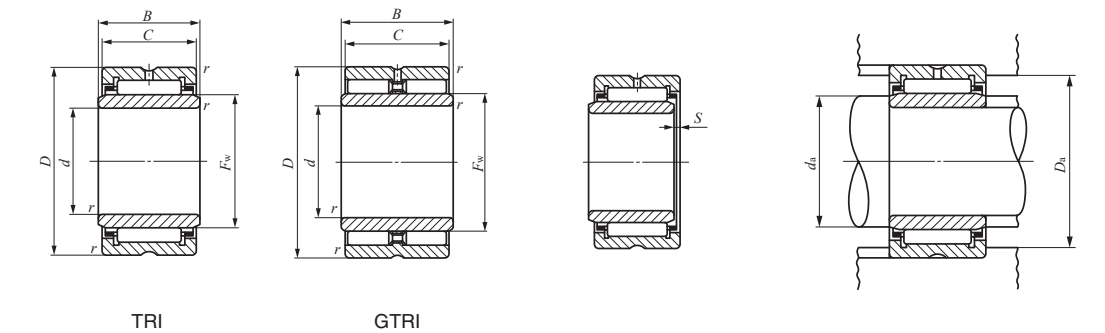
With Inner Ring



Shaft dia. 75 – 90mm

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

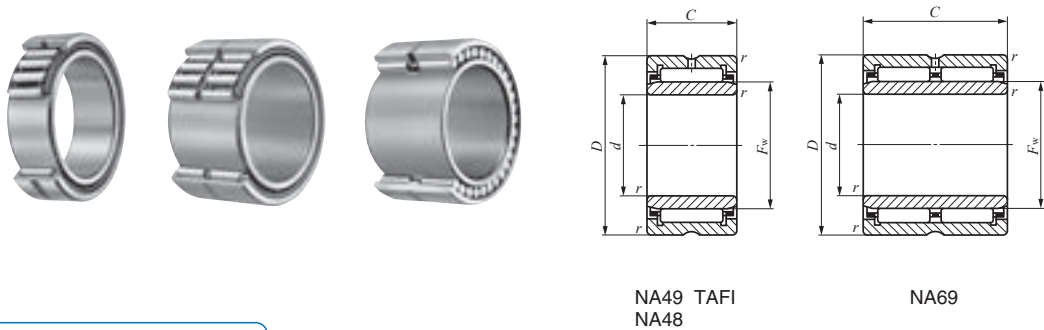
Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable axial shift amount of inner ring to outer ring  
<sup>(3)</sup> Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.  
Remarks1. The outer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



| Boundary dimensions mm |    |      |                                          |                       |                         | Standard mounting dimensions mm |                       |       | Basic dynamic load rating | Basic static load rating   | Allowable rotational speed <sup>(3)</sup> | Assembled inner ring |         |
|------------------------|----|------|------------------------------------------|-----------------------|-------------------------|---------------------------------|-----------------------|-------|---------------------------|----------------------------|-------------------------------------------|----------------------|---------|
| D                      | C  | B    | <i>r</i> <sub>s min</sub> <sup>(1)</sup> | <i>F</i> <sub>w</sub> | <i>S</i> <sup>(2)</sup> | Min.                            | <i>d</i> <sub>a</sub> | Max.  | <i>C</i><br>N             | <i>C</i> <sub>0</sub><br>N | min <sup>-1</sup>                         |                      |         |
| 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 |

MACHINED TYPE NEEDLE ROLLER BEARINGS

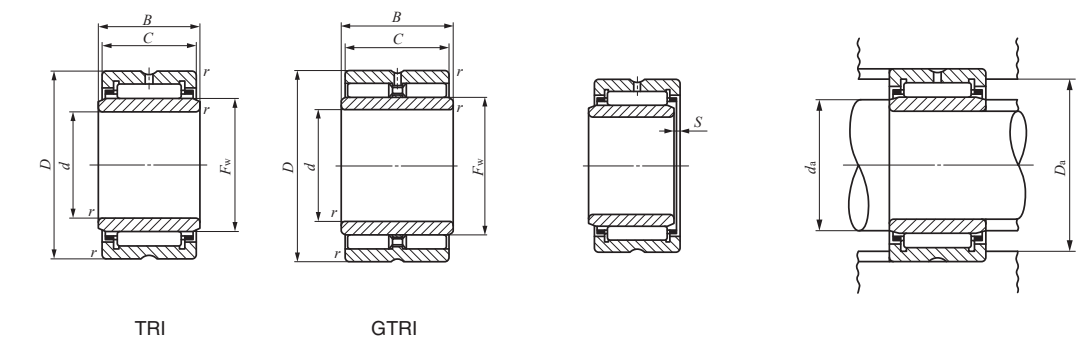
With Inner Ring



Shaft dia. 95 – 150mm

| Shaft dia.<br>mm | Identification number |         |         |               |               |               | Mass<br>(Ref.) | d   |
|------------------|-----------------------|---------|---------|---------------|---------------|---------------|----------------|-----|
|                  | NA 49                 | NA 69   | NA 48   | TAFI          | TRI           | GTRI          | g              |     |
| 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               | —       | —       | —             | —             | GTRI 10013550 | 1 960          | 100 |
| 105              | —                     | —       | —       | —             | —             | —             | 2 200          | 100 |
|                  | —                     | —       | —       | —             | TRI 10515350  | —             | 3 020          | 105 |
| 110              | —                     | —       | —       | —             | —             | —             | 3 270          | 105 |
|                  | —                     | —       | —       | —             | GTRI 10515350 | —             | —              | —   |
| 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              | —                     | —       | —       | —             | —             | —             | 4 780          | 125 |
|                  | —                     | —       | —       | —             | —             | —             | 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              | —                     | —       | —       | —             | —             | —             | 5 100          | 135 |
|                  | —                     | —       | —       | —             | —             | —             | 5 530          | 135 |
| 140              | —                     | —       | NA 4828 | —             | —             | —             | 2 100          | 140 |
|                  | NA 4928               | —       | —       | —             | —             | —             | 4 290          | 140 |
| 150              | —                     | —       | —       | —             | —             | —             | 2 100          | 140 |
|                  | —                     | —       | —       | —             | —             | —             | 4 290          | 140 |
| 150              | —                     | —       | NA 4830 | —             | —             | —             | 2 880          | 150 |
|                  | NA 4930               | —       | —       | —             | —             | —             | 6 380          | 150 |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable axial shift amount of inner ring to outer ring  
<sup>(3)</sup> 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 |    |      |                                             |                       |                            | Standard mounting dimensions mm |                            |                            | Basic dynamic load rating | Basic static load rating   | Allowable rotational speed <sup>(3)</sup> | Assembled inner ring |          |
|------------------------|----|------|---------------------------------------------|-----------------------|----------------------------|---------------------------------|----------------------------|----------------------------|---------------------------|----------------------------|-------------------------------------------|----------------------|----------|
| D                      | C  | B    | <sup>(1)</sup><br><i>r</i> <sub>s min</sub> | <i>F</i> <sub>w</sub> | <sup>(2)</sup><br><i>S</i> | Min.                            | <i>d</i> <sub>a</sub> Max. | <i>D</i> <sub>a</sub> Max. | <i>C</i><br>N             | <i>C</i> <sub>0</sub><br>N | min <sup>-1</sup>                         |                      |          |
| 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 |

MACHINED TYPE NEEDLE ROLLER BEARINGS

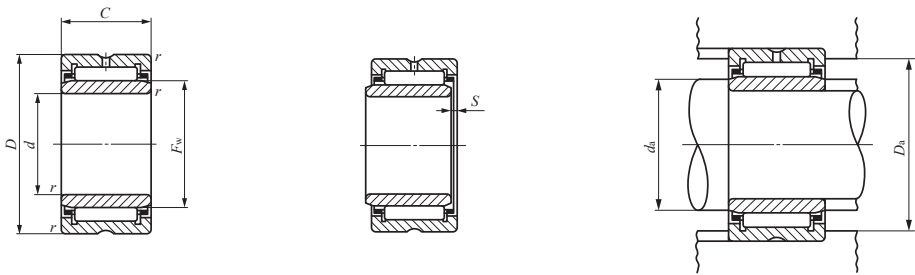
With Inner Ring



Shaft dia. 160 – 340mm

| Shaft dia.<br>mm | Identification number |       |         |      |     |      | Mass<br>(Ref.)<br>g | d   |
|------------------|-----------------------|-------|---------|------|-----|------|---------------------|-----|
|                  | NA 49                 | NA 69 | NA 48   | TAFI | TRI | GTRI |                     |     |
| 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 |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable axial shift amount of inner ring to outer ring  
<sup>(3)</sup> 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.



NA49 NA48

| Boundary dimensions mm |     |   |                                             |                                         |                            | Standard mounting dimensions mm |                            |                            | Basic dynamic load rating | Basic static load rating   | Allowable rotational speed <sup>(3)</sup> | Assembled inner ring |
|------------------------|-----|---|---------------------------------------------|-----------------------------------------|----------------------------|---------------------------------|----------------------------|----------------------------|---------------------------|----------------------------|-------------------------------------------|----------------------|
| D                      | C   | B | <sup>(1)</sup><br><i>r</i> <sub>s min</sub> | <sup>(2)</sup><br><i>F</i> <sub>w</sub> | <sup>(2)</sup><br><i>S</i> | Min.                            | <i>d</i> <sub>a</sub> Max. | <i>D</i> <sub>a</sub> Max. | <i>C</i><br>N             | <i>C</i> <sub>0</sub><br>N | min <sup>-1</sup>                         |                      |
| 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        |

MACHINED TYPE NEEDLE ROLLER BEARINGS

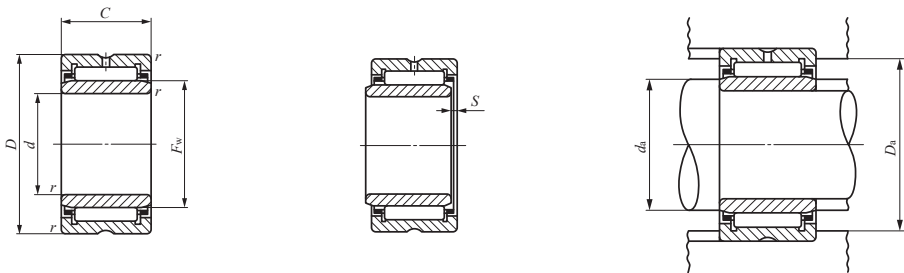
With Inner Ring



Shaft dia. 360 – 440mm

| Shaft<br>dia.<br><br>mm | Identification number |       |         |      |     |      | Mass<br>(Ref.) |          |
|-------------------------|-----------------------|-------|---------|------|-----|------|----------------|----------|
|                         | NA 49                 | NA 69 | NA 48   | TAFI | TRI | GTRI | g              | <i>d</i> |
| 360                     | —                     | —     | NA 4872 | —    | —   | —    | 26 400         | 360      |
|                         | NA 4972               | —     | —       | —    | —   | —    | 60 200         | 360      |
| 380                     | —                     | —     | NA 4876 | —    | —   | —    | 44 600         | 380      |
|                         | NA 4976               | —     | —       | —    | —   | —    | 90 300         | 380      |
| 400                     | NA 4980               | —     | —       | —    | —   | —    | 94 400         | 400      |
| 420                     | NA 4984               | —     | —       | —    | —   | —    | 98 500         | 420      |
| 440                     | NA 4988               | —     | —       | —    | —   | —    | 131 000        | 440      |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |
|                         |                       |       |         |      |     |      |                |          |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable axial shift amount of inner ring to outer ring  
<sup>(3)</sup> 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.



NA49 NA48

| Boundary dimensions mm |     |     |                   |       |           | Standard mounting dimensions mm |            |            | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(3)</sup> | Assembled inner ring           |
|------------------------|-----|-----|-------------------|-------|-----------|---------------------------------|------------|------------|---------------------------|--------------------------|-------------------------------------------|--------------------------------|
| $D$                    | $C$ | $B$ | $r_{s\min}^{(1)}$ | $F_w$ | $S^{(2)}$ | Min.                            | $d_a$ Max. | $D_a$ Max. | $C$                       | $C_0$                    |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            | N                         | N                        | min <sup>-1</sup>                         |                                |
| 440                    | 80  | —   | 2.1               | 390   | 2.5       | 371                             | 387        | 429        | 680 000                   | 2 320 000                | 650                                       | LRT 36039080<br>LRT 360400118  |
| 480                    | 118 | —   | 3                 | 400   | 4         | 373                             | 397        | 467        | 1 260 000                 | 3 200 000                | 600                                       |                                |
| 480                    | 100 | —   | 2.1               | 415   | 3         | 391                             | 412        | 469        | 951 000                   | 2 860 000                | 600                                       | LRT 380415100<br>LRT 380430140 |
| 520                    | 140 | —   | 4                 | 430   | 5         | 396                             | 427        | 504        | 1 540 000                 | 4 030 000                | 500                                       |                                |
| 540                    | 140 | —   | 4                 | 450   | 5         | 416                             | 447        | 524        | 1 590 000                 | 4 270 000                | 500                                       | LRT 400450140                  |
| 560                    | 140 | —   | 4                 | 470   | 5         | 436                             | 467        | 544        | 1 640 000                 | 4 510 000                | 500                                       | LRT 420470140                  |
| 600                    | 160 | —   | 4                 | 490   | 5         | 456                             | 487        | 584        | 1 910 000                 | 5 140 000                | 400                                       | LRT 440490160                  |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |
|                        |     |     |                   |       |           |                                 |            |            |                           |                          |                                           |                                |

MACHINED TYPE NEEDLE ROLLER BEARINGS

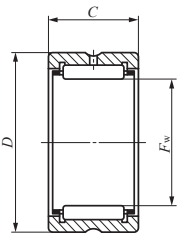
Without Inner Ring, Inch Series



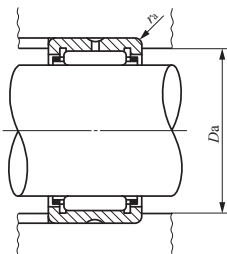
Shaft dia. 15.875 — 47.625mm

| Shaft dia.<br>mm<br>(inch) | Identification<br>number | Mass<br>(Ref.)<br><br>g | Boundary dimensions mm(inch) |                  |                 | Standard mounting<br>dimensions mm |                     |
|----------------------------|--------------------------|-------------------------|------------------------------|------------------|-----------------|------------------------------------|---------------------|
|                            |                          |                         | $F_w$                        | $D$              | $C$             | $D_a$<br>Max.                      | $r_{as\ max}^{(1)}$ |
| 15.875<br>(5/8)            | BR 101812                | 49                      | 15.875 ( 5/8 )               | 28.575 (1 1/8 )  | 19.050 ( 3/4 )  | 24.5                               | 0.6                 |
| 19.050<br>(3/4)            | BR 122012                | 56                      | 19.050 ( 3/4 )               | 31.750 (1 1/4 )  | 19.050 ( 3/4 )  | 26.5                               | 1                   |
|                            | BR 122016                | 75                      | 19.050 ( 3/4 )               | 31.750 (1 1/4 )  | 25.400 (1 )     | 26.5                               | 1                   |
| 22.225<br>(7/8)            | BR 142212                | 63                      | 22.225 ( 7/8 )               | 34.925 (1 3/8 )  | 19.050 ( 3/4 )  | 29.7                               | 1                   |
|                            | BR 142216                | 84.5                    | 22.225 ( 7/8 )               | 34.925 (1 3/8 )  | 25.400 (1 )     | 29.7                               | 1                   |
| 25.400<br>(1)              | BR 162412                | 69                      | 25.400 (1 )                  | 38.100 (1 1/2 )  | 19.050 ( 3/4 )  | 32.9                               | 1                   |
|                            | BR 162416                | 92.5                    | 25.400 (1 )                  | 38.100 (1 1/2 )  | 25.400 (1 )     | 32.9                               | 1                   |
| 28.575<br>(1 1/8)          | BR 182616                | 102                     | 28.575 (1 1/8 )              | 41.275 (1 5/8 )  | 25.400 (1 )     | 36                                 | 1                   |
|                            | BR 182620                | 128                     | 28.575 (1 1/8 )              | 41.275 (1 5/8 )  | 31.750 (1 1/4 ) | 36                                 | 1                   |
| 31.750<br>(1 1/4)          | BR 202816                | 110                     | 31.750 (1 1/4 )              | 44.450 (1 3/4 )  | 25.400 (1 )     | 39.2                               | 1                   |
|                            | BR 202820                | 138                     | 31.750 (1 1/4 )              | 44.450 (1 3/4 )  | 31.750 (1 1/4 ) | 39.2                               | 1                   |
| 34.925<br>(1 3/8)          | BR 223016                | 119                     | 34.925 (1 3/8 )              | 47.625 (1 7/8 )  | 25.400 (1 )     | 42.4                               | 1                   |
|                            | BR 223020                | 149                     | 34.925 (1 3/8 )              | 47.625 (1 7/8 )  | 31.750 (1 1/4 ) | 42.4                               | 1                   |
| 38.100<br>(1 1/2)          | BR 243316                | 149                     | 38.100 (1 1/2 )              | 52.388 (2 1/16 ) | 25.400 (1 )     | 45.1                               | 1.5                 |
|                            | BR 243320                | 187                     | 38.100 (1 1/2 )              | 52.388 (2 1/16 ) | 31.750 (1 1/4 ) | 45.1                               | 1.5                 |
| 41.275<br>(1 5/8)          | BR 263516                | 158                     | 41.275 (1 5/8 )              | 55.562 (2 3/16 ) | 25.400 (1 )     | 48.3                               | 1.5                 |
|                            | BR 263520                | 199                     | 41.275 (1 5/8 )              | 55.562 (2 3/16 ) | 31.750 (1 1/4 ) | 48.3                               | 1.5                 |
| 44.450<br>(1 3/4)          | BR 283716                | 170                     | 44.450 (1 3/4 )              | 58.738 (2 5/16 ) | 25.400 (1 )     | 51.5                               | 1.5                 |
|                            | BR 283720                | 215                     | 44.450 (1 3/4 )              | 58.738 (2 5/16 ) | 31.750 (1 1/4 ) | 51.5                               | 1.5                 |
|                            | BR 283820                | 250                     | 44.450 (1 3/4 )              | 60.325 (2 3/8 )  | 31.750 (1 1/4 ) | 53.1                               | 1.5                 |
| 47.625<br>(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                 |

Notes<sup>(1)</sup> Maximum permissible corner radius of the housing  
<sup>(2)</sup> 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.



BR



| Basic dynamic<br>load rating<br>$C$<br><br>N | Basic static<br>load rating<br>$C_0$<br><br>N | Allowable<br>rotational<br>speed <sup>(2)</sup><br><br>min <sup>-1</sup> |
|----------------------------------------------|-----------------------------------------------|--------------------------------------------------------------------------|
| 18 900                                       | 19 700                                        | 25 000                                                                   |
| 21 700<br>27 600                             | 24 400<br>33 100                              | 20 000<br>20 000                                                         |
| 23 000<br>29 100                             | 27 100<br>36 800                              | 18 000<br>18 000                                                         |
| 25 300<br>32 100                             | 31 900<br>43 300                              | 16 000<br>16 000                                                         |
| 34 900<br>43 200                             | 49 900<br>65 600                              | 14 000<br>14 000                                                         |
| 36 000<br>44 600                             | 53 500<br>70 300                              | 13 000<br>13 000                                                         |
| 38 500<br>47 700                             | 60 000<br>78 900                              | 11 000<br>11 000                                                         |
| 43 700<br>54 200                             | 66 900<br>88 200                              | 11 000<br>11 000                                                         |
| 44 800<br>55 600                             | 70 900<br>93 400                              | 9 500<br>9 500                                                           |
| 47 500<br>58 900<br>58 900                   | 78 200<br>103 000<br>103 000                  | 9 000<br>9 000<br>9 000                                                  |
| 60 100                                       | 108 000                                       | 8 500                                                                    |

D  
NA  
TAFI  
TRI  
BRI

MACHINED TYPE NEEDLE ROLLER BEARINGS

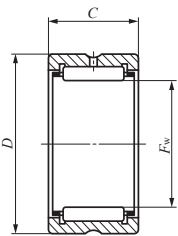
Without Inner Ring, Inch Series



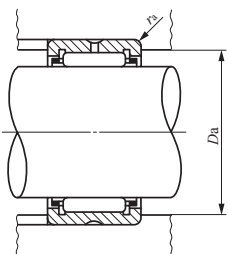
Shaft dia. 50.800 — 101.600mm

| Shaft dia.<br>mm<br>(inch) | Identification<br>number | Mass<br>(Ref.)<br>g | Boundary dimensions mm(inch) |                 |                | Standard mounting<br>dimensions mm |                     |
|----------------------------|--------------------------|---------------------|------------------------------|-----------------|----------------|------------------------------------|---------------------|
|                            |                          |                     | $F_w$                        | $D$             | $C$            | $D_a$<br>Max.                      | $r_{as\ max}^{(1)}$ |
| 50.800<br>(2)              | BR 324116<br>BR 324120   | 190                 | 50.800 (2 )                  | 65.088 (2 9/16) | 25.400 (1 )    | 57.8                               | 1.5                 |
|                            |                          | 240                 | 50.800 (2 )                  | 65.088 (2 9/16) | 31.750 (1 1/4) | 57.8                               | 1.5                 |
| 57.150<br>(2 1/4)          | BR 364824<br>BR 364828   | 435                 | 57.150 (2 1/4)               | 76.200 (3 )     | 38.100 (1 1/2) | 69                                 | 1.5                 |
|                            |                          | 510                 | 57.150 (2 1/4)               | 76.200 (3 )     | 44.450 (1 3/4) | 69                                 | 1.5                 |
| 63.500<br>(2 1/2)          | BR 405224<br>BR 405228   | 475                 | 63.500 (2 1/2)               | 82.550 (3 1/4)  | 38.100 (1 1/2) | 74.3                               | 2                   |
|                            |                          | 555                 | 63.500 (2 1/2)               | 82.550 (3 1/4)  | 44.450 (1 3/4) | 74.3                               | 2                   |
| 69.850<br>(2 3/4)          | BR 445624<br>BR 445628   | 510                 | 69.850 (2 3/4)               | 88.900 (3 1/2)  | 38.100 (1 1/2) | 80.7                               | 2                   |
|                            |                          | 600                 | 69.850 (2 3/4)               | 88.900 (3 1/2)  | 44.450 (1 3/4) | 80.7                               | 2                   |
| 76.200<br>(3)              | BR 486024<br>BR 486028   | 555                 | 76.200 (3 )                  | 95.250 (3 3/4)  | 38.100 (1 1/2) | 87                                 | 2                   |
|                            |                          | 650                 | 76.200 (3 )                  | 95.250 (3 3/4)  | 44.450 (1 3/4) | 87                                 | 2                   |
| 82.550<br>(3 1/4)          | BR 526828<br>BR 526832   | 990                 | 82.550 (3 1/4)               | 107.950 (4 1/4) | 44.450 (1 3/4) | 99.7                               | 2                   |
|                            |                          | 1 140               | 82.550 (3 1/4)               | 107.950 (4 1/4) | 50.800 (2 )    | 99.7                               | 2                   |
| 88.900<br>(3 1/2)          | BR 567232                | 1 220               | 88.900 (3 1/2)               | 114.300 (4 1/2) | 50.800 (2 )    | 106.1                              | 2                   |
| 95.250<br>(3 3/4)          | BR 607632                | 1 290               | 95.250 (3 3/4)               | 120.650 (4 3/4) | 50.800 (2 )    | 111.4                              | 2.5                 |
| 101.600<br>(4)             | BR 648032                | 1 370               | 101.600 (4 )                 | 127.000 (5 )    | 50.800 (2 )    | 117.8                              | 2.5                 |

Notes<sup>(1)</sup> Maximum permissible corner radius of the housing  
<sup>(2)</sup> 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.



BR



| Basic dynamic<br>load rating<br>$C$<br>N | Basic static<br>load rating<br>$C_0$<br>N | Allowable<br>rotational<br>speed <sup>(2)</sup><br>min <sup>-1</sup> |
|------------------------------------------|-------------------------------------------|----------------------------------------------------------------------|
| 51 000                                   | 89 400                                    | 8 000                                                                |
| 63 200                                   | 118 000                                   | 8 000                                                                |
| 90 300                                   | 158 000                                   | 7 000                                                                |
| 105 000                                  | 191 000                                   | 7 000                                                                |
| 94 600                                   | 174 000                                   | 6 500                                                                |
| 110 000                                  | 210 000                                   | 6 500                                                                |
| 98 700                                   | 189 000                                   | 5 500                                                                |
| 114 000                                  | 228 000                                   | 5 500                                                                |
| 105 000                                  | 211 000                                   | 5 500                                                                |
| 122 000                                  | 255 000                                   | 5 500                                                                |
| 141 000                                  | 259 000                                   | 5 000                                                                |
| 154 000                                  | 290 000                                   | 5 000                                                                |
| 162 000                                  | 316 000                                   | 4 500                                                                |
| 169 000                                  | 342 000                                   | 4 000                                                                |
| 176 000                                  | 368 000                                   | 4 000                                                                |

MACHINED TYPE NEEDLE ROLLER BEARINGS

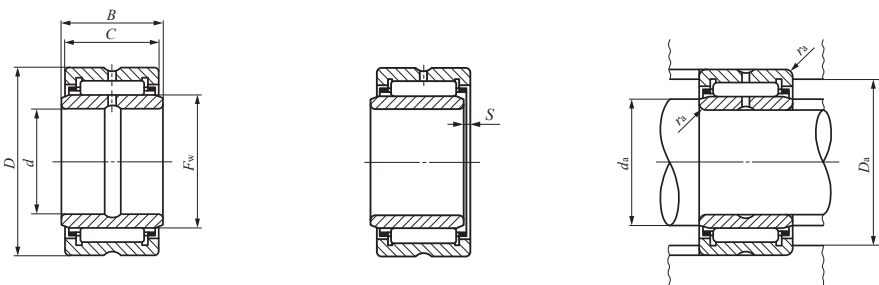
With Inner Ring, Inch Series



Shaft dia. 9.525 — 41.275mm

| Shaft dia.<br>mm<br>(inch) | Identification<br>number                             | Mass<br>(Ref.)<br><br>g  | Boundary dimensions mm(inch)                                         |                                                                         |                                                                   |                                      |                                                                      |                            |
|----------------------------|------------------------------------------------------|--------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------|----------------------------|
|                            |                                                      |                          | <i>d</i>                                                             | <i>D</i>                                                                | <i>C</i>                                                          | <i>B</i>                             | <i>F<sub>w</sub></i>                                                 | <sup>(1)</sup><br><i>S</i> |
| 9.525<br>(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                        |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |
| 12.700<br>(1/2)            | BRI 82012<br>BRI 82016                               | 79.5<br>106              | 12.700 ( 1/2 )<br>12.700 ( 1/2 )                                     | 31.750 (1 1/4)<br>31.750 (1 1/4)                                        | 19.050 ( 3/4 )<br>25.400 (1 )                                     | 19.300<br>25.650                     | 19.050 ( 3/4 )<br>19.050 ( 3/4 )                                     | 0.3<br>0.5                 |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |
| 15.875<br>(5/8)            | BRI 102212<br>BRI 102216                             | 91<br>122                | 15.875 ( 5/8 )<br>15.875 ( 5/8 )                                     | 34.925 (1 3/8)<br>34.925 (1 3/8)                                        | 19.050 ( 3/4 )<br>25.400 (1 )                                     | 19.300<br>25.650                     | 22.225 ( 7/8 )<br>22.225 ( 7/8 )                                     | 0.3<br>0.5                 |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |
| 19.050<br>(3/4)            | BRI 122412<br>BRI 122416                             | 102<br>136               | 19.050 ( 3/4 )<br>19.050 ( 3/4 )                                     | 38.100 (1 1/2)<br>38.100 (1 1/2)                                        | 19.050 ( 3/4 )<br>25.400 (1 )                                     | 19.300<br>25.650                     | 25.400 (1 )<br>25.400 (1 )                                           | 0.3<br>0.5                 |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |
| 22.225<br>(7/8)            | BRI 142616<br>BRI 142620                             | 152<br>190               | 22.225 ( 7/8 )<br>22.225 ( 7/8 )                                     | 41.275 (1 5/8)<br>41.275 (1 5/8)                                        | 25.400 (1 )<br>31.750 (1 1/4)                                     | 25.650<br>32.000                     | 28.575 (1 1/8)<br>28.575 (1 1/8)                                     | 0.5<br>0.5                 |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |
| 25.400<br>(1)              | BRI 162816<br>BRI 162820                             | 166<br>210               | 25.400 (1 )<br>25.400 (1 )                                           | 44.450 (1 3/4)<br>44.450 (1 3/4)                                        | 25.400 (1 )<br>31.750 (1 1/4)                                     | 25.650<br>32.000                     | 31.750 (1 1/4)<br>31.750 (1 1/4)                                     | 0.5<br>0.5                 |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |
| 28.575<br>(1 1/8)          | BRI 183016<br>BRI 183020                             | 182<br>225               | 28.575 (1 1/8)<br>28.575 (1 1/8)                                     | 47.625 (1 7/8)<br>47.625 (1 7/8)                                        | 25.400 (1 )<br>31.750 (1 1/4)                                     | 25.650<br>32.000                     | 34.925 (1 3/8)<br>34.925 (1 3/8)                                     | 0.5<br>0.5                 |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |
| 31.750<br>(1 1/4)          | BRI 203316<br>BRI 203320                             | 220<br>275               | 31.750 (1 1/4)<br>31.750 (1 1/4)                                     | 52.388 (2 1/16)<br>52.388 (2 1/16)                                      | 25.400 (1 )<br>31.750 (1 1/4)                                     | 25.650<br>32.000                     | 38.100 (1 1/2)<br>38.100 (1 1/2)                                     | 0.5<br>0.5                 |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |
| 34.925<br>(1 3/8)          | BRI 223516<br>BRI 223520                             | 235<br>295               | 34.925 (1 3/8)<br>34.925 (1 3/8)                                     | 55.562 (2 3/16)<br>55.562 (2 3/16)                                      | 25.400 (1 )<br>31.750 (1 1/4)                                     | 25.650<br>32.000                     | 41.275 (1 5/8)<br>41.275 (1 5/8)                                     | 0.5<br>0.5                 |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |
| 38.100<br>(1 1/2)          | BRI 243716<br>BRI 243720<br>BRI 243820<br>BRI 243920 | 250<br>315<br>350<br>380 | 38.100 (1 1/2)<br>38.100 (1 1/2)<br>38.100 (1 1/2)<br>38.100 (1 1/2) | 58.738 (2 5/16)<br>58.738 (2 5/16)<br>60.325 (2 3/8)<br>61.912 (2 7/16) | 25.400 (1 )<br>31.750 (1 1/4)<br>31.750 (1 1/4)<br>31.750 (1 1/4) | 25.650<br>32.000<br>32.000<br>32.000 | 44.450 (1 3/4)<br>44.450 (1 3/4)<br>44.450 (1 3/4)<br>47.625 (1 7/8) | 0.5<br>0.5<br>0.5<br>0.5   |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |
| 41.275<br>(1 5/8)          | BRI 264116<br>BRI 264120                             | 325<br>410               | 41.275 (1 5/8)<br>41.275 (1 5/8)                                     | 65.088 (2 9/16)<br>65.088 (2 9/16)                                      | 25.400 (1 )<br>31.750 (1 1/4)                                     | 25.650<br>32.000                     | 50.800 (2 )<br>50.800 (2 )                                           | 0.5<br>0.5                 |
|                            |                                                      |                          |                                                                      |                                                                         |                                                                   |                                      |                                                                      |                            |

Notes<sup>(1)</sup> Allowable axial shift amount of inner ring to outer ring  
<sup>(2)</sup> Maximum permissible corner radius of the shaft or housing  
<sup>(3)</sup> 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.

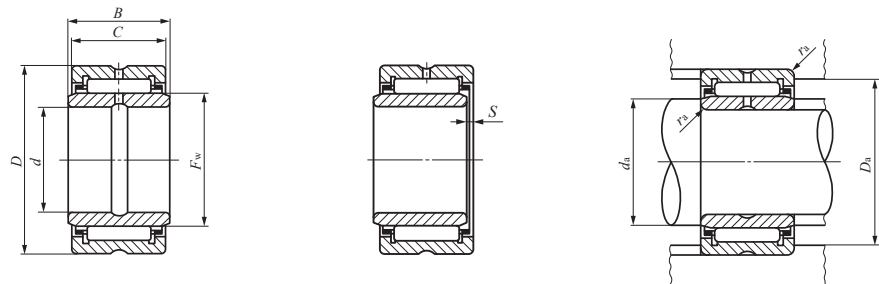


BRI

| Standard mounting<br>dimensions mm |                              |                              |                                          | Basic dynamic<br>load rating<br><i>C</i><br>N | Basic static<br>load rating<br><i>C<sub>0</sub></i><br>N | Allowable<br>rotational<br>speed <sup>(3)</sup><br>min <sup>-1</sup> | Assembled inner ring |
|------------------------------------|------------------------------|------------------------------|------------------------------------------|-----------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------|----------------------|
| <i>d<sub>a</sub></i><br>Min.       | <i>d<sub>a</sub></i><br>Max. | <i>D<sub>a</sub></i><br>Max. | <i>r<sub>as</sub></i> max <sup>(2)</sup> |                                               |                                                          |                                                                      |                      |
| 14                                 | 14.5                         | 24.5                         | 0.6                                      | 18 900                                        | 19 700                                                   | 25 000                                                               | LRB 61012            |
| 17.5                               | 18                           | 26.5                         | 1                                        | 21 700                                        | 24 400                                                   | 20 000                                                               | LRB 81212            |
| 17.5                               | 18                           | 26.5                         | 1                                        | 27 600                                        | 33 100                                                   | 20 000                                                               | LRB 81216            |
| 21                                 | 21.2                         | 29.7                         | 1                                        | 23 000                                        | 27 100                                                   | 18 000                                                               | LRB 101412           |
| 21                                 | 21.2                         | 29.7                         | 1                                        | 29 100                                        | 36 800                                                   | 18 000                                                               | LRB 101416           |
| 24                                 | 24.4                         | 32.9                         | 1                                        | 25 300                                        | 31 900                                                   | 16 000                                                               | LRB 121612           |
| 24                                 | 24.4                         | 32.9                         | 1                                        | 32 100                                        | 43 300                                                   | 16 000                                                               | LRB 121616           |
| 27                                 | 27.5                         | 36                           | 1                                        | 34 900                                        | 49 900                                                   | 14 000                                                               | LRB 141816           |
| 27                                 | 27.5                         | 36                           | 1                                        | 43 200                                        | 65 600                                                   | 14 000                                                               | LRB 141820           |
| 30.5                               | 30.7                         | 39.2                         | 1                                        | 36 000                                        | 53 500                                                   | 13 000                                                               | LRB 162016           |
| 30.5                               | 30.7                         | 39.2                         | 1                                        | 44 600                                        | 70 300                                                   | 13 000                                                               | LRB 162020           |
| 33.5                               | 33.9                         | 42.4                         | 1                                        | 38 500                                        | 60 000                                                   | 11 000                                                               | LRB 182216           |
| 33.5                               | 33.9                         | 42.4                         | 1                                        | 47 700                                        | 78 900                                                   | 11 000                                                               | LRB 182220           |
| 37                                 | 37.1                         | 45.1                         | 1.5                                      | 43 700                                        | 66 900                                                   | 11 000                                                               | LRB 202416           |
| 37                                 | 37.1                         | 45.1                         | 1.5                                      | 54 200                                        | 88 200                                                   | 11 000                                                               | LRB 202420           |
| 40.2                               | 40.2                         | 48.3                         | 1.5                                      | 44 800                                        | 70 900                                                   | 9 500                                                                | LRB 222616           |
| 40.2                               | 40.2                         | 48.3                         | 1.5                                      | 55 600                                        | 93 400                                                   | 9 500                                                                | LRB 222620           |
| 43.3                               | 43.4                         | 51.5                         | 1.5                                      | 47 500                                        | 78 200                                                   | 9 000                                                                | LRB 242816           |
| 43.3                               | 43.4                         | 51.5                         | 1.5                                      | 58 900                                        | 103 000                                                  | 9 000                                                                | LRB 242820           |
| 43.3                               | 43.4                         | 53.1                         | 1.5                                      | 58 900                                        | 103 000                                                  | 9 000                                                                | LRB 242820           |
| 43.3                               | 43.4                         | 54.7                         | 1.5                                      | 60 100                                        | 108 000                                                  | 8 500                                                                | LRB 243020           |
| 48                                 | 49                           | 57.8                         | 1.5                                      | 51 000                                        | 89 400                                                   | 8 000                                                                | LRB 263216           |
| 48                                 | 49                           | 57.8                         | 1.5                                      | 63 200                                        | 118 000                                                  | 8 000                                                                | LRB 263220           |

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring, Inch Series



BRI

Shaft dia. 44.450 — 88.900mm

| Shaft dia.<br>mm<br>(inch) | Identification<br>number | Mass<br>(Ref.)<br>g | Boundary dimensions mm(inch) |                 |                |        |                |                  |
|----------------------------|--------------------------|---------------------|------------------------------|-----------------|----------------|--------|----------------|------------------|
|                            |                          |                     | d                            | D               | C              | B      | F <sub>w</sub> | S <sup>(1)</sup> |
| 44.450<br>(1 3/4)          | BRI 284824<br>BRI 284828 | 735                 | 44.450 (1 3/4)               | 76.200 (3 )     | 38.100 (1 1/2) | 38.350 | 57.150 (2 1/4) | 1                |
|                            |                          | 855                 | 44.450 (1 3/4)               | 76.200 (3 )     | 44.450 (1 3/4) | 44.700 | 57.150 (2 1/4) | 1                |
| 50.800<br>(2)              | BRI 325224<br>BRI 325228 | 810                 | 50.800 (2 )                  | 82.550 (3 1/4)  | 38.100 (1 1/2) | 38.350 | 63.500 (2 1/2) | 1                |
|                            |                          | 945                 | 50.800 (2 )                  | 82.550 (3 1/4)  | 44.450 (1 3/4) | 44.700 | 63.500 (2 1/2) | 1                |
| 57.150<br>(2 1/4)          | BRI 365624<br>BRI 365628 | 885                 | 57.150 (2 1/4)               | 88.900 (3 1/2)  | 38.100 (1 1/2) | 38.350 | 69.850 (2 3/4) | 1                |
|                            |                          | 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                |
| 63.500<br>(2 1/2)          | BRI 406024<br>BRI 406028 | 965                 | 63.500 (2 1/2)               | 95.250 (3 3/4)  | 38.100 (1 1/2) | 38.350 | 76.200 (3 )    | 1                |
|                            |                          | 1 130               | 63.500 (2 1/2)               | 95.250 (3 3/4)  | 44.450 (1 3/4) | 44.700 | 76.200 (3 )    | 1                |
| 69.850<br>(2 3/4)          | BRI 446828<br>BRI 446832 | 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              |
|                            |                          | 1 740               | 69.850 (2 3/4)               | 107.950 (4 1/4) | 50.800 (2 )    | 51.050 | 82.550 (3 1/4) | 3                |
| 76.200<br>(3)              | BRI 487232               | 1 860               | 76.200 (3 )                  | 114.300 (4 1/2) | 50.800 (2 )    | 51.050 | 88.900 (3 1/2) | 3                |
| 82.550<br>(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                |
| 88.900<br>(3 1/2)          | BRI 568032               | 2 120               | 88.900 (3 1/2)               | 127.000 (5 )    | 50.800 (2 )    | 51.050 | 101.600 (4 )   | 3                |

Notes<sup>(1)</sup> Allowable axial shift amount of inner ring to outer ring  
<sup>(2)</sup> Maximum permissible corner radius of the shaft or housing  
<sup>(3)</sup> 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.

| Standard mounting dimensions mm |      |                       |                                           | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(3)</sup> | Assembled inner ring     |
|---------------------------------|------|-----------------------|-------------------------------------------|---------------------------|--------------------------|-------------------------------------------|--------------------------|
| <i>d</i> <sub>a</sub>           |      | <i>D</i> <sub>a</sub> | <i>r</i> <sub>as max</sub> <sup>(2)</sup> | <i>C</i>                  | <i>C</i> <sub>0</sub>    | min <sup>-1</sup>                         |                          |
| Min.                            | Max. | Max.                  |                                           | N                         | N                        |                                           |                          |
| 52.5                            | 55   | 69                    | 1.5                                       | 90 300                    | 158 000                  | 7 000                                     | LRB 283624<br>LRB 283628 |
| 52.5                            | 55   | 69                    | 1.5                                       | 105 000                   | 191 000                  | 7 000                                     |                          |
| 58                              | 61   | 74.3                  | 2                                         | 94 600                    | 174 000                  | 6 500                                     | LRB 324024<br>LRB 324028 |
| 58                              | 61   | 74.3                  | 2                                         | 110 000                   | 210 000                  | 6 500                                     |                          |
| 65                              | 67   | 80.7                  | 2                                         | 98 700                    | 189 000                  | 5 500                                     | LRB 364424<br>LRB 364428 |
| 65                              | 67   | 80.7                  | 2                                         | 114 000                   | 228 000                  | 5 500                                     |                          |
| 71                              | 73   | 87                    | 2                                         | 105 000                   | 211 000                  | 5 500                                     | LRB 404824<br>LRB 404828 |
| 71                              | 73   | 87                    | 2                                         | 122 000                   | 255 000                  | 5 500                                     |                          |
| 77                              | 79   | 99.7                  | 2                                         | 141 000                   | 259 000                  | 5 000                                     | LRB 445228<br>LRB 445232 |
| 77                              | 79   | 99.7                  | 2                                         | 154 000                   | 290 000                  | 5 000                                     |                          |
| 83.5                            | 86   | 106.1                 | 2                                         | 162 000                   | 316 000                  | 4 500                                     | LRB 485632               |
| 91                              | 93   | 111.4                 | 2.5                                       | 169 000                   | 342 000                  | 4 000                                     | LRB 526032               |
| 97                              | 99   | 117.8                 | 2.5                                       | 176 000                   | 368 000                  | 4 000                                     | LRB 566432               |

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Seal, Without Inner Ring

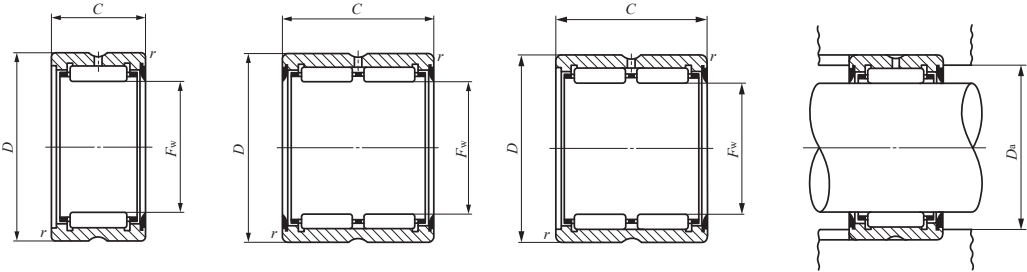


RNA49 ... UU  
RNA69 ... UU( $F_w \leq 35$ )

Shaft dia. 14 — 45mm

| Shaft dia.<br>mm | Identification number |                 |                |               | Mass<br>(Ref.)<br>g | Boundary dimensions<br>mm |     |     |                    |
|------------------|-----------------------|-----------------|----------------|---------------|---------------------|---------------------------|-----|-----|--------------------|
|                  | With two seals        | With one seal   | With two seals | With one seal |                     | $F_w$                     | $D$ | $C$ | $r_{s \min}^{(1)}$ |
| 14               | RNA 4900UU            | RNA 4900U       | —              | —             | 16.3                | 14                        | 22  | 13  | 0.3                |
| 16               | RNA 4901UU<br>—       | RNA 4901U<br>—  | —              | —             | 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<br>—       | RNA 4902U<br>—  | —              | —             | 21.5                | 20                        | 28  | 13  | 0.3                |
|                  |                       |                 | RNA 6902UU     | RNA 6902U     | 37.5                | 20                        | 28  | 23  | 0.3                |
| 22               | RNA 4903UU<br>—       | RNA 4903U<br>—  | —              | —             | 23                  | 22                        | 30  | 13  | 0.3                |
|                  |                       |                 | RNA 6903UU     | RNA 6903U     | 40.5                | 22                        | 30  | 23  | 0.3                |
| 25               | RNA 4904UU<br>—       | RNA 4904U<br>—  | —              | —             | 54.5                | 25                        | 37  | 17  | 0.3                |
|                  |                       |                 | RNA 6904UU     | RNA 6904U     | 95.5                | 25                        | 37  | 30  | 0.3                |
| 28               | RNA 49/22UU<br>—      | RNA 49/22U<br>— | —              | —             | 55.5                | 28                        | 39  | 17  | 0.3                |
|                  |                       |                 | RNA 69/22UU    | RNA 69/22U    | 97.5                | 28                        | 39  | 30  | 0.3                |
| 30               | RNA 4905UU<br>—       | RNA 4905U<br>—  | —              | —             | 63                  | 30                        | 42  | 17  | 0.3                |
|                  |                       |                 | RNA 6905UU     | RNA 6905U     | 111                 | 30                        | 42  | 30  | 0.3                |
| 32               | RNA 49/28UU<br>—      | RNA 49/28U<br>— | —              | —             | 75.5                | 32                        | 45  | 17  | 0.3                |
|                  |                       |                 | RNA 69/28UU    | RNA 69/28U    | 133                 | 32                        | 45  | 30  | 0.3                |
| 35               | RNA 4906UU<br>—       | RNA 4906U<br>—  | —              | —             | 71                  | 35                        | 47  | 17  | 0.3                |
|                  |                       |                 | RNA 6906UU     | RNA 6906U     | 125                 | 35                        | 47  | 30  | 0.3                |
| 40               | RNA 49/32UU<br>—      | RNA 49/32U<br>— | —              | —             | 94.5                | 40                        | 52  | 20  | 0.6                |
|                  |                       |                 | RNA 69/32UU    | RNA 69/32U    | 170                 | 40                        | 52  | 36  | 0.6                |
| 42               | RNA 4907UU<br>—       | RNA 4907U<br>—  | —              | —             | 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                |

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



RNA49 ... U  
RNA69 ... U( $F_w \leq 35$ )  
RNA69 ... UU  
RNA69 ... U

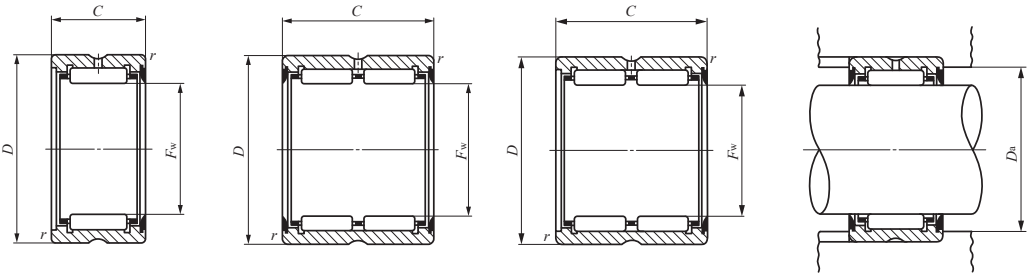
| Standard mounting dimension<br>$D_a$<br>Max. mm | Basic dynamic load rating<br>$C$<br>N | Basic static load rating<br>$C_0$<br>N | Allowable rotational speed <sup>(2)</sup><br>$\text{min}^{-1}$ |
|-------------------------------------------------|---------------------------------------|----------------------------------------|----------------------------------------------------------------|
| 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                                                          |

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Seal, Without Inner Ring



RNA49 ... UU



RNA49 ... U

RNA69 ... UU

RNA69 ... U

Shaft dia. 48 — 85mm

| Shaft dia.<br>mm | Identification number |               |                |               | Mass<br>(Ref.)<br>g | Boundary dimensions<br>mm |     |     |             |
|------------------|-----------------------|---------------|----------------|---------------|---------------------|---------------------------|-----|-----|-------------|
|                  | With two seals        | With one seal | With two seals | With one seal |                     | $F_w$                     | $D$ | $C$ | $r_s^{(1)}$ |
| 48               | RNA 4908UU            | RNA 4908U     | —              | —             | 150                 | 48                        | 62  | 22  | 0.6         |
|                  | —                     | —             | RNA 6908UU     | RNA 6908U     | 270                 | 48                        | 62  | 40  | 0.6         |
| 50               | RNA 49/42UU           | RNA 49/42U    | —              | —             | 173                 | 50                        | 65  | 22  | 0.6         |
| 52               | RNA 4909UU            | RNA 4909U     | —              | —             | 197                 | 52                        | 68  | 22  | 0.6         |
|                  | —                     | —             | RNA 6909UU     | RNA 6909U     | 355                 | 52                        | 68  | 40  | 0.6         |
| 55               | RNA 49/48UU           | RNA 49/48U    | —              | —             | 187                 | 55                        | 70  | 22  | 0.6         |
| 58               | RNA 4910UU            | RNA 4910U     | —              | —             | 177                 | 58                        | 72  | 22  | 0.6         |
|                  | —                     | —             | RNA 6910UU     | RNA 6910U     | 320                 | 58                        | 72  | 40  | 0.6         |
| 60               | RNA 49/52UU           | RNA 49/52U    | —              | —             | 200                 | 60                        | 75  | 22  | 0.6         |
| 63               | RNA 4911UU            | RNA 4911U     | —              | —             | 265                 | 63                        | 80  | 25  | 1           |
|                  | —                     | —             | RNA 6911UU     | RNA 6911U     | 470                 | 63                        | 80  | 45  | 1           |
| 65               | RNA 49/58UU           | RNA 49/58U    | —              | —             | 275                 | 65                        | 82  | 25  | 1           |
| 68               | RNA 4912UU            | RNA 4912U     | —              | —             | 285                 | 68                        | 85  | 25  | 1           |
|                  | —                     | —             | RNA 6912UU     | RNA 6912U     | 505                 | 68                        | 85  | 45  | 1           |
| 70               | RNA 49/62UU           | RNA 49/62U    | —              | —             | 320                 | 70                        | 88  | 25  | 1           |
| 72               | RNA 4913UU            | RNA 4913U     | —              | —             | 325                 | 72                        | 90  | 25  | 1           |
|                  | —                     | —             | RNA 6913UU     | RNA 6913U     | 580                 | 72                        | 90  | 45  | 1           |
| 75               | RNA 49/68UU           | RNA 49/68U    | —              | —             | 465                 | 75                        | 95  | 30  | 1           |
| 80               | RNA 4914UU            | RNA 4914U     | —              | —             | 495                 | 80                        | 100 | 30  | 1           |
|                  | —                     | —             | RNA 6914UU     | RNA 6914U     | 910                 | 80                        | 100 | 54  | 1           |
| 85               | RNA 4915UU            | RNA 4915U     | —              | —             | 520                 | 85                        | 105 | 30  | 1           |
|                  | —                     | —             | RNA 6915UU     | RNA 6915U     | 960                 | 85                        | 105 | 54  | 1           |

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

| Standard mounting dimension<br>$D_a$<br>Max. mm | Basic dynamic load rating<br>$C$<br>N | Basic static load rating<br>$C_0$<br>N | Allowable rotational speed <sup>(2)</sup><br>$n$<br>min <sup>-1</sup> |
|-------------------------------------------------|---------------------------------------|----------------------------------------|-----------------------------------------------------------------------|
| 58                                              | 37 200                                | 58 400                                 | 4 000                                                                 |
| 58                                              | 63 700                                | 117 000                                | 4 000                                                                 |
| 61                                              | 38 000                                | 60 900                                 | 4 000                                                                 |
| 64                                              | 38 900                                | 63 400                                 | 3 500                                                                 |
| 64                                              | 66 600                                | 127 000                                | 3 500                                                                 |
| 66                                              | 39 600                                | 66 100                                 | 3 500                                                                 |
| 68                                              | 41 300                                | 71 100                                 | 3 500                                                                 |
| 68                                              | 70 800                                | 142 000                                | 3 500                                                                 |
| 71                                              | 42 100                                | 73 600                                 | 3 000                                                                 |
| 75                                              | 52 200                                | 85 700                                 | 3 000                                                                 |
| 75                                              | 89 400                                | 171 000                                | 3 000                                                                 |
| 77                                              | 53 400                                | 89 200                                 | 3 000                                                                 |
| 80                                              | 54 500                                | 92 800                                 | 3 000                                                                 |
| 80                                              | 93 400                                | 186 000                                | 3 000                                                                 |
| 83                                              | 55 700                                | 96 300                                 | 2 500                                                                 |
| 85                                              | 56 800                                | 99 800                                 | 2 500                                                                 |
| 85                                              | 97 400                                | 200 000                                | 2 500                                                                 |
| 90                                              | 73 900                                | 133 000                                | 2 500                                                                 |
| 95                                              | 76 900                                | 143 000                                | 2 500                                                                 |
| 95                                              | 124 000                               | 281 000                                | 2 500                                                                 |
| 100                                             | 79 600                                | 153 000                                | 2 000                                                                 |
| 100                                             | 128 000                               | 299 000                                | 2 000                                                                 |

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Seal, Without Inner Ring

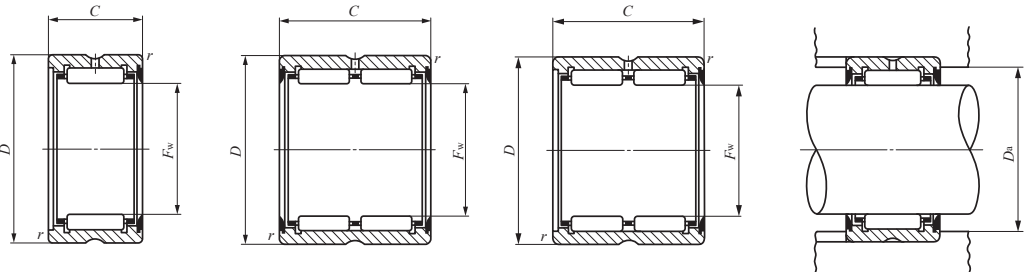


RNA49 ... UU

Shaft dia. 90 – 160mm

| Shaft dia.<br>mm | Identification number |               |                |               | Mass<br>(Ref.)<br>g | Boundary dimensions<br>mm |     |     |                   |
|------------------|-----------------------|---------------|----------------|---------------|---------------------|---------------------------|-----|-----|-------------------|
|                  | With two seals        | With one seal | With two seals | With one seal |                     | $F_w$                     | $D$ | $C$ | $r_{s\min}^{(1)}$ |
| 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               |

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



RNA49 ... U

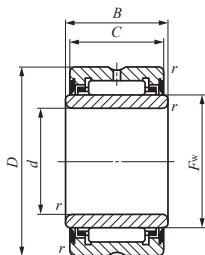
RNA69 ... UU

RNA69 ... U

| Standard mounting dimension<br>$D_a$<br>Max. mm | Basic dynamic load rating<br>$C$<br>N | Basic static load rating<br>$C_0$<br>N | Allowable rotational speed <sup>(2)</sup><br>$n$<br>min <sup>-1</sup> |
|-------------------------------------------------|---------------------------------------|----------------------------------------|-----------------------------------------------------------------------|
| 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                                                                 |

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Seal, With Inner Ring

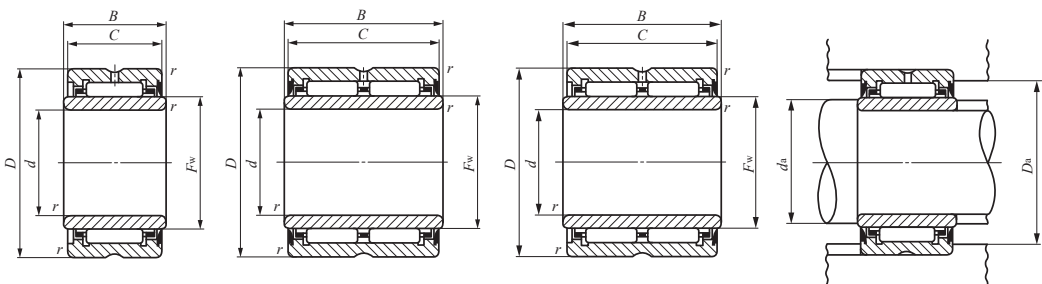


NA49 ... UU  
NA69 ... UU(*d* ≤ 30)

Shaft dia. 10 — 40mm

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

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



NA49 ... U  
NA69 ... U(*d* ≤ 30)

NA69 ... UU

NA69 ... U

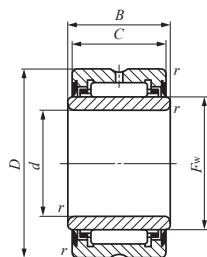
| <i>r</i> <sub>s min</sub><br><sup>(1)</sup> | <i>F</i> <sub>w</sub> | Standard mounting dimensions mm |                               |                               | Basic dynamic load rating<br><i>C</i><br>N | Basic static load rating<br><i>C</i> <sub>0</sub><br>N | Allowable rotational speed <sup>(2)</sup><br>min <sup>-1</sup> | Assembled inner ring |
|---------------------------------------------|-----------------------|---------------------------------|-------------------------------|-------------------------------|--------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------|----------------------|
|                                             |                       | <i>d</i> <sub>a</sub><br>Min.   | <i>d</i> <sub>a</sub><br>Max. | <i>D</i> <sub>a</sub><br>Max. |                                            |                                                        |                                                                |                      |
| 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          |

D

NA  
TAFI  
TRI  
BRI

MACHINED TYPE NEEDLE ROLLER BEARINGS

With Seal, With Inner Ring

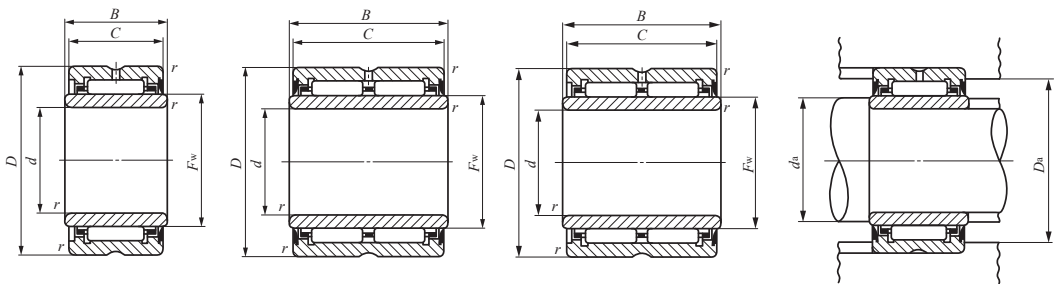


NA49 ... UU

Shaft dia. 45 – 110mm

| Shaft dia.<br>mm | Identification number |               |                |               | Mass<br>(Ref.)<br>g | Boundary dimensions<br>mm |     |    |    |
|------------------|-----------------------|---------------|----------------|---------------|---------------------|---------------------------|-----|----|----|
|                  | With two seals        | With one seal | With two seals | With one seal |                     | 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 |

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



NA49 ... U

NA69 ... UU

NA69 ... U

| $r_{s \min}^{(1)}$ | $F_w$ | Standard mounting dimensions mm |                               |                               | Basic dynamic load rating<br><i>C</i><br>N | Basic static load rating<br><i>C</i> <sub>0</sub><br>N | Allowable rotational speed <sup>(2)</sup><br>min <sup>-1</sup> | Assembled inner ring |          |
|--------------------|-------|---------------------------------|-------------------------------|-------------------------------|--------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------|----------------------|----------|
|                    |       | <i>d</i> <sub>a</sub><br>Min.   | <i>d</i> <sub>a</sub><br>Max. | <i>D</i> <sub>a</sub><br>Max. |                                            |                                                        |                                                                |                      |          |
| 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 |

D  
NA  
TAFI  
TRI  
BRI

MACHINED TYPE NEEDLE ROLLER BEARINGS

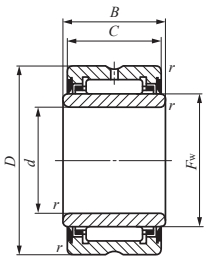
With Seal, With Inner Ring



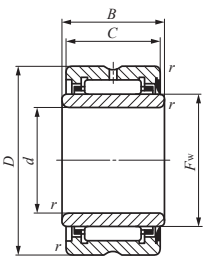
Shaft dia. 120 – 140mm

| Shaft dia.<br>mm | Identification number |               |                |               | Mass<br>(Ref.)<br>g | Boundary dimensions<br>mm |          |          |          |
|------------------|-----------------------|---------------|----------------|---------------|---------------------|---------------------------|----------|----------|----------|
|                  | With two seals        | With one seal | With two seals | With one seal |                     | <i>d</i>                  | <i>D</i> | <i>C</i> | <i>B</i> |
| 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       |

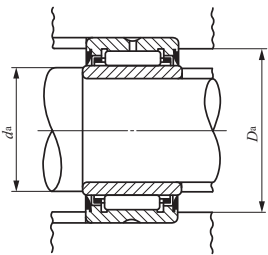
Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable rotational speed applies to grease lubrication.  
Remarks1. The outer ring has an oil groove and an oil hole.  
2. Bearings are provided with prepacked grease. Bearings with a seal on one side are not provided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



NA49...UU



NA49...U



| $r_{s\min}^{(1)}$ | $F_w$ | Standard mounting dimensions mm |                               |                               | Basic dynamic load rating<br><i>C</i><br>N | Basic static load rating<br><i>C</i> <sub>0</sub><br>N | Allowable rotational speed <sup>(2)</sup><br>min <sup>-1</sup> | Assembled inner ring |
|-------------------|-------|---------------------------------|-------------------------------|-------------------------------|--------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------|----------------------|
|                   |       | <i>d</i> <sub>a</sub><br>Min.   | <i>d</i> <sub>a</sub><br>Max. | <i>D</i> <sub>a</sub><br>Max. |                                            |                                                        |                                                                |                      |
| 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        |

D  
NA  
TAFI  
TRI  
BRI

MACHINED TYPE NEEDLE ROLLER BEARINGS

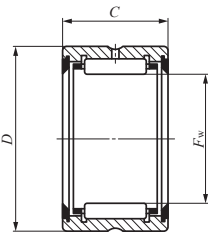
With Seal, Without Inner Ring, Inch Series



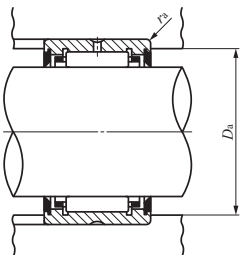
Shaft dia. 15.875 — 50.800mm

| Shaft dia.<br>mm<br>(inch) | Identification number<br><br>With two seals | Mass<br>(Ref.)<br><br>g | Boundary dimensions mm(inch) |                 |                | Standard mounting dimensions mm |                     |
|----------------------------|---------------------------------------------|-------------------------|------------------------------|-----------------|----------------|---------------------------------|---------------------|
|                            |                                             |                         | $F_w$                        | $D$             | $C$            | $D_a$<br>Max.                   | $r_{as\ max}^{(1)}$ |
| 15.875<br>(5/8)            | BR 101816 UU                                | 54                      | 15.875 ( 5/8 )               | 28.575 (1 1/8)  | 25.400 (1 )    | 24.5                            | 0.6                 |
| 19.050<br>(3/4)            | BR 122016 UU                                | 68                      | 19.050 ( 3/4 )               | 31.750 (1 1/4)  | 25.400 (1 )    | 26.5                            | 1.0                 |
| 22.225<br>(7/8)            | BR 142216 UU                                | 76                      | 22.225 ( 7/8 )               | 34.925 (1 3/8)  | 25.400 (1 )    | 29.7                            | 1.0                 |
| 25.400<br>(1)              | BR 162416 UU                                | 83                      | 25.400 (1 )                  | 38.100 (1 1/2)  | 25.400 (1 )    | 32.9                            | 1.0                 |
| 28.575<br>(1 1/8)          | BR 182620 UU                                | 115                     | 28.575 (1 1/8)               | 41.275 (1 5/8)  | 31.750 (1 1/4) | 36.0                            | 1.0                 |
| 31.750<br>(1 1/4)          | BR 202820 UU                                | 124                     | 31.750 (1 1/4)               | 44.450 (1 3/4)  | 31.750 (1 1/4) | 39.2                            | 1.0                 |
| 34.925<br>(1 3/8)          | BR 223020 UU                                | 134                     | 34.925 (1 3/8)               | 47.625 (1 7/8)  | 31.750 (1 1/4) | 42.4                            | 1.0                 |
| 38.100<br>(1 1/2)          | BR 243320 UU                                | 168                     | 38.100 (1 1/2)               | 52.388 (2 1/16) | 31.750 (1 1/4) | 45.1                            | 1.5                 |
| 41.275<br>(1 5/8)          | BR 263520 UU                                | 179                     | 41.275 (1 5/8)               | 55.562 (2 3/16) | 31.750 (1 1/4) | 48.3                            | 1.5                 |
| 44.450<br>(1 3/4)          | BR 283720 UU                                | 193                     | 44.450 (1 3/4)               | 58.738 (2 5/16) | 31.750 (1 1/4) | 51.5                            | 1.5                 |
| 47.625<br>(1 7/8)          | BR 303920 UU                                | 202                     | 47.625 (1 7/8)               | 61.912 (2 7/16) | 31.750 (1 1/4) | 54.7                            | 1.5                 |
| 50.800<br>(2)              | BR 324120 UU                                | 216                     | 50.800 (2 )                  | 65.088 (2 9/16) | 31.750 (1 1/4) | 57.8                            | 1.5                 |

Notes<sup>(1)</sup> Maximum permissible corner radius of the housing  
<sup>(2)</sup> Allowable rotational speed applies to grease lubrication.  
Remarks1. The outer ring has an oil groove and an oil hole.  
2. Bearings are provided with prepacked grease.  
3. If one side sealed type are needed, please contact IKO.



BR ... UU



| Basic dynamic load rating<br>$C$<br>N | Basic static load rating<br>$C_0$<br>N | Allowable rotational speed <sup>(2)</sup><br><br>min <sup>-1</sup> |
|---------------------------------------|----------------------------------------|--------------------------------------------------------------------|
| 18 300                                | 20 000                                 | 12 000                                                             |
| 20 700                                | 24 400                                 | 10 000                                                             |
| 21 600                                | 26 900                                 | 9 000                                                              |
| 23 600                                | 31 300                                 | 8 000                                                              |
| 34 900                                | 49 900                                 | 7 000                                                              |
| 36 000                                | 53 500                                 | 6 500                                                              |
| 38 500                                | 60 000                                 | 5 500                                                              |
| 43 700                                | 66 900                                 | 5 500                                                              |
| 44 800                                | 70 900                                 | 4 500                                                              |
| 47 500                                | 78 200                                 | 4 500                                                              |
| 48 500                                | 82 100                                 | 4 000                                                              |
| 51 000                                | 89 400                                 | 4 000                                                              |

MACHINED TYPE NEEDLE ROLLER BEARINGS

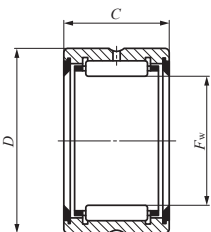
With Seal, Without Inner Ring, Inch Series



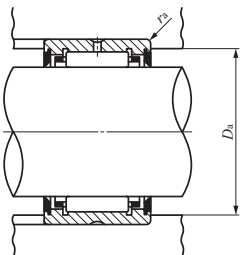
Shaft dia. 57.150 — 95.250mm

| Shaft dia.<br>mm<br>(inch) | Identification number<br><br>With two seals | Mass<br>(Ref.)<br><br>g | Boundary dimensions mm(inch) |                 |                | Standard mounting<br>dimensions mm |                     |
|----------------------------|---------------------------------------------|-------------------------|------------------------------|-----------------|----------------|------------------------------------|---------------------|
|                            |                                             |                         | $F_w$                        | $D$             | $C$            | $D_a$<br>Max.                      | $r_{as\ max}^{(1)}$ |
| 57.150<br>(2 1/4)          | BR 364828 UU                                | 459                     | 57.150 (2 1/4)               | 76.200 (3 )     | 44.450 (1 3/4) | 69.0                               | 1.5                 |
| 63.500<br>(2 1/2)          | BR 405228 UU                                | 499                     | 63.500 (2 1/2)               | 82.550 (3 1/4)  | 44.450 (1 3/4) | 74.3                               | 2.0                 |
| 69.850<br>(2 3/4)          | BR 445628 UU                                | 540                     | 69.850 (2 3/4)               | 88.900 (3 1/2)  | 44.450 (1 3/4) | 80.7                               | 2.0                 |
| 76.200<br>(3)              | BR 486028 UU                                | 585                     | 76.200 (3 )                  | 95.250 (3 3/4)  | 44.450 (1 3/4) | 87.0                               | 2.0                 |
| 82.550<br>(3 1/4)          | BR 526828 UU                                | 891                     | 82.550 (3 1/4)               | 107.950 (4 1/4) | 44.450 (1 3/4) | 99.7                               | 2.0                 |
| 88.900<br>(3 1/2)          | BR 567232 UU                                | 1 098                   | 88.900 (3 1/2)               | 114.300 (4 1/2) | 50.800 (2 )    | 106.1                              | 2.0                 |
| 95.250<br>(3 3/4)          | BR 607632 UU                                | 1 161                   | 95.250 (3 3/4)               | 120.650 (4 3/4) | 50.800 (2 )    | 111.4                              | 2.5                 |

Notes<sup>(1)</sup> Maximum permissible corner radius of the housing  
<sup>(2)</sup> Allowable rotational speed applies to grease lubrication.  
Remarks1. The outer ring has an oil groove and an oil hole.  
2. Bearings are provided with prepacked grease.  
3. If one side sealed type are needed, please contact IKO.



BR ... UU



| Basic dynamic<br>load rating<br>$C$<br>N | Basic static<br>load rating<br>$C_0$<br>N | Allowable<br>rotational<br>speed <sup>(2)</sup><br>min <sup>-1</sup> |
|------------------------------------------|-------------------------------------------|----------------------------------------------------------------------|
| 90 300                                   | 158 000                                   | 3 500                                                                |
| 94 600                                   | 174 000                                   | 3 000                                                                |
| 98 700                                   | 189 000                                   | 2 500                                                                |
| 105 000                                  | 211 000                                   | 2 500                                                                |
| 109 000                                  | 227 000                                   | 2 500                                                                |
| 142 000                                  | 265 000                                   | 2 000                                                                |
| 148 000                                  | 287 000                                   | 2 000                                                                |

D  
NA  
TAFI  
TRI  
BRI

MACHINED TYPE NEEDLE ROLLER BEARINGS

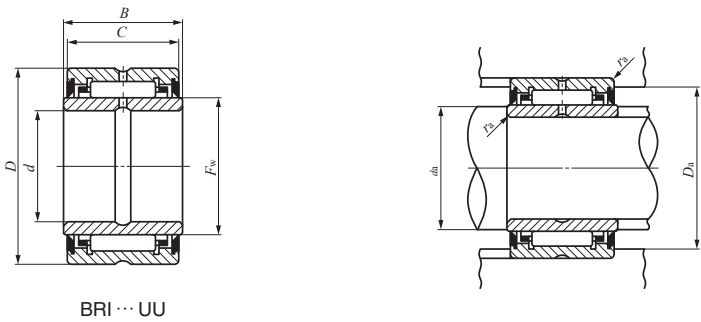
With Seal, With Inner Ring, Inch Series



Shaft dia. 9.525 – 44.450mm

| Shaft dia.<br>mm<br>(inch)   | Identification number          | Mass<br>(Ref.)<br><br>g | Boundary dimensions mm(inch)                           |                                                          |                                                        |        | $F_w$                                                  |
|------------------------------|--------------------------------|-------------------------|--------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------|--------|--------------------------------------------------------|
|                              | With two seals                 |                         | $d$                                                    | $D$                                                      | $C$                                                    | $B$    |                                                        |
| 9.525<br>( $\frac{3}{8}$ )   | BRI 61816 UU                   | 79                      | 9.525 ( $\frac{3}{8}$ )                                | 28.575 (1 $\frac{1}{8}$ )                                | 25.400 (1 )                                            | 25.650 | 15.875 ( $\frac{5}{8}$ )                               |
| 12.700<br>( $\frac{1}{2}$ )  | BRI 82016 UU                   | 99                      | 12.700 ( $\frac{1}{2}$ )                               | 31.750 (1 $\frac{1}{4}$ )                                | 25.400 (1 )                                            | 25.650 | 19.050 ( $\frac{3}{4}$ )                               |
| 15.875<br>( $\frac{5}{8}$ )  | BRI 102216 UU                  | 113.5                   | 15.875 ( $\frac{5}{8}$ )                               | 34.925 (1 $\frac{3}{8}$ )                                | 25.400 (1 )                                            | 25.650 | 22.225 ( $\frac{7}{8}$ )                               |
| 19.050<br>( $\frac{3}{4}$ )  | BRI 122416 UU                  | 127                     | 19.050 ( $\frac{3}{4}$ )                               | 38.100 (1 $\frac{1}{2}$ )                                | 25.400 (1 )                                            | 25.650 | 25.400 (1 )                                            |
| 22.225<br>( $\frac{7}{8}$ )  | BRI 142620 UU                  | 177                     | 22.225 ( $\frac{7}{8}$ )                               | 41.275 (1 $\frac{5}{8}$ )                                | 31.750 (1 $\frac{1}{4}$ )                              | 32.000 | 28.575 (1 $\frac{1}{8}$ )                              |
| 25.400<br>(1)                | BRI 162820 UU                  | 196                     | 25.400 (1 )                                            | 44.450 (1 $\frac{3}{4}$ )                                | 31.750 (1 $\frac{1}{4}$ )                              | 32.000 | 31.750 (1 $\frac{1}{4}$ )                              |
| 28.575<br>(1 $\frac{1}{8}$ ) | BRI 183020 UU                  | 211                     | 28.575 (1 $\frac{1}{8}$ )                              | 47.625 (1 $\frac{7}{8}$ )                                | 31.750 (1 $\frac{1}{4}$ )                              | 32.000 | 34.925 (1 $\frac{3}{8}$ )                              |
| 31.750<br>(1 $\frac{1}{4}$ ) | BRI 203320 UU                  | 254                     | 31.750 (1 $\frac{1}{4}$ )                              | 52.388 (2 $\frac{1}{16}$ )                               | 31.750 (1 $\frac{1}{4}$ )                              | 32.000 | 38.100 (1 $\frac{1}{2}$ )                              |
| 34.925<br>(1 $\frac{3}{8}$ ) | BRI 223520 UU                  | 275                     | 34.925 (1 $\frac{3}{8}$ )                              | 55.562 (2 $\frac{3}{16}$ )                               | 31.750 (1 $\frac{1}{4}$ )                              | 32.000 | 41.275 (1 $\frac{5}{8}$ )                              |
| 38.100<br>(1 $\frac{1}{2}$ ) | BRI 243720 UU<br>BRI 243920 UU | 293<br>362              | 38.100 (1 $\frac{1}{2}$ )<br>38.100 (1 $\frac{1}{2}$ ) | 58.738 (2 $\frac{5}{16}$ )<br>61.912 (2 $\frac{7}{16}$ ) | 31.750 (1 $\frac{1}{4}$ )<br>31.750 (1 $\frac{1}{4}$ ) | 32.000 | 44.450 (1 $\frac{3}{4}$ )<br>47.625 (1 $\frac{7}{8}$ ) |
| 41.275<br>(1 $\frac{5}{8}$ ) | BRI 264120 UU                  | 386                     | 41.275 (1 $\frac{5}{8}$ )                              | 65.088 (2 $\frac{9}{16}$ )                               | 31.750 (1 $\frac{1}{4}$ )                              | 32.000 | 50.800 (2 )                                            |
| 44.450<br>(1 $\frac{3}{4}$ ) | BRI 284828 UU                  | 804                     | 44.450 (1 $\frac{3}{4}$ )                              | 76.200 (3 )                                              | 44.450 (1 $\frac{3}{4}$ )                              | 44.700 | 57.150 (2 $\frac{1}{4}$ )                              |

Notes<sup>(1)</sup> Maximum permissible corner radius of the shaft or housing  
<sup>(2)</sup> 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 are provided with prepacked grease.  
3. If one side sealed type are needed, please contact **IKO**.



| Standard mounting dimensions mm |            |            |                     | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> | Assembled inner ring |
|---------------------------------|------------|------------|---------------------|---------------------------|--------------------------|-------------------------------------------|----------------------|
| Min.                            | $d_a$ Max. | $D_a$ Max. | $r_{as \max}^{(1)}$ | $C$ N                     | $C_0$ N                  | min <sup>-1</sup>                         |                      |
| 14                              | 14.5       | 24.5       | 0.6                 | 18 300                    | 20 000                   | 12 000                                    | LRBZ 61016 B         |
| 17.5                            | 18         | 26.5       | 0.6                 | 20 700                    | 24 400                   | 10 000                                    | LRBZ 81216 B         |
| 21                              | 21.2       | 29.7       | 0.6                 | 21 600                    | 26 900                   | 9 000                                     | LRBZ 101416 B        |
| 24                              | 24.4       | 32.9       | 0.6                 | 23 600                    | 31 300                   | 8 000                                     | LRBZ 121616 B        |
| 27                              | 27.5       | 36.0       | 0.6                 | 34 900                    | 49 900                   | 7 000                                     | LRBZ 141820 B        |
| 30.5                            | 30.7       | 39.2       | 0.6                 | 36 000                    | 53 500                   | 6 500                                     | LRBZ 162020 B        |
| 33.5                            | 33.9       | 42.4       | 0.6                 | 38 500                    | 60 000                   | 5 500                                     | LRBZ 182220 B        |
| 37                              | 37.1       | 45.1       | 0.6                 | 43 700                    | 66 900                   | 5 500                                     | LRBZ 202420 B        |
| 40.2                            | 40.2       | 48.3       | 0.6                 | 44 800                    | 70 900                   | 4 500                                     | LRBZ 222620 B        |
| 43.3                            | 43.4       | 51.5       | 0.6                 | 47 500                    | 78 200                   | 4 500                                     | LRBZ 242820 B        |
| 43.3                            | 45         | 54.7       | 1                   | 48 500                    | 82 100                   | 4 000                                     | LRBZ 243020 B        |
| 48                              | 49         | 57.8       | 1                   | 51 000                    | 89 400                   | 4 000                                     | LRBZ 263220 B        |
| 52.5                            | 55         | 69.0       | 1.5                 | 90 300                    | 158 000                  | 3 500                                     | LRBZ 283628 B        |

MACHINED TYPE NEEDLE ROLLER BEARINGS

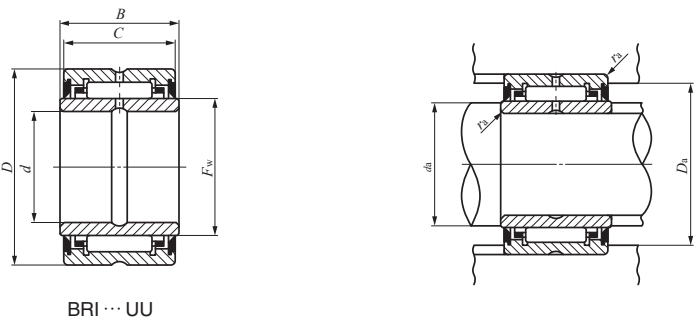
With Seal, With Inner Ring, Inch Series



Shaft dia. 50.800 — 82.550mm

| Shaft dia.<br>mm<br>(inch) | Identification number | Mass<br>(Ref.)<br>g | Boundary dimensions mm(inch) |                 |                |          |                      |
|----------------------------|-----------------------|---------------------|------------------------------|-----------------|----------------|----------|----------------------|
|                            | With two seals        |                     | <i>d</i>                     | <i>D</i>        | <i>C</i>       | <i>B</i> | <i>F<sub>w</sub></i> |
| 50.800<br>(2)              | BRI 325228 UU         | 889                 | 50.800 (2 )                  | 82.550 (3 1/4)  | 44.450 (1 3/4) | 44.700   | 63.500 (2 1/2)       |
| 57.150<br>(2 1/4)          | BRI 365628 UU         | 980                 | 57.150 (2 1/4)               | 88.900 (3 1/2)  | 44.450 (1 3/4) | 44.700   | 69.850 (2 3/4)       |
| 63.500<br>(2 1/2)          | BRI 406028 UU         | 1 065               | 63.500 (2 1/2)               | 95.250 (3 3/4)  | 44.450 (1 3/4) | 44.700   | 76.200 (3 )          |
| 69.850<br>(2 3/4)          | BRI 446828 UU         | 1 421               | 69.850 (2 3/4)               | 107.950 (4 1/4) | 44.450 (1 3/4) | 44.700   | 82.550 (3 1/4)       |
| 76.200<br>(3)              | BRI 487232 UU         | 1 738               | 76.200 (3 )                  | 114.300 (4 1/2) | 50.800 (2 )    | 51.050   | 88.900 (3 1/2)       |
| 82.550<br>(3 1/4)          | BRI 527632 UU         | 1 851               | 82.550 (3 1/4)               | 120.650 (4 3/4) | 50.800 (2 )    | 51.050   | 95.250 (3 3/4)       |

Notes<sup>(1)</sup> Maximum permissible corner radius of the shaft or housing  
<sup>(2)</sup> 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 are provided with prepacked grease.  
3. If one side sealed type are needed, please contact IKO.



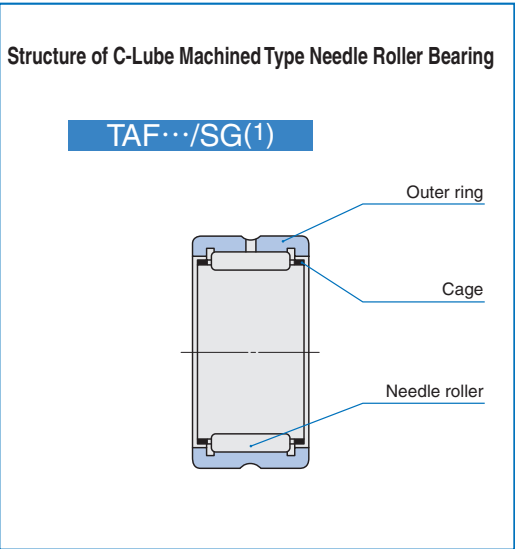
| Standard mounting dimensions<br>mm |                              |                              |                                          | Basic dynamic<br>load rating<br><i>C</i><br>N | Basic static<br>load rating<br><i>C<sub>0</sub></i><br>N | Allowable<br>rotational<br>speed <sup>(2)</sup><br>min <sup>-1</sup> | Assembled inner ring |
|------------------------------------|------------------------------|------------------------------|------------------------------------------|-----------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------|----------------------|
| <i>d<sub>a</sub></i><br>Min.       | <i>d<sub>a</sub></i><br>Max. | <i>D<sub>a</sub></i><br>Max. | <i>r<sub>as</sub></i> max <sup>(1)</sup> |                                               |                                                          |                                                                      |                      |
| 58                                 | 61                           | 74.3                         | 1.5                                      | 94 600                                        | 174 000                                                  | 3 000                                                                | LRBZ 324028 B        |
| 65                                 | 67                           | 80.7                         | 1.5                                      | 98 700                                        | 189 000                                                  | 2 500                                                                | LRBZ 364428 B        |
| 71                                 | 73                           | 87.0                         | 1.5                                      | 105 000                                       | 211 000                                                  | 2 500                                                                | LRBZ 404828 B        |
| 77                                 | 79                           | 99.7                         | 1.5                                      | 109 000                                       | 227 000                                                  | 2 500                                                                | LRBZ 445228 B        |
| 83.5                               | 86                           | 106.1                        | 1.5                                      | 142 000                                       | 265 000                                                  | 2 000                                                                | LRBZ 485632 B        |
| 91                                 | 93                           | 111.4                        | 1.5                                      | 148 000                                       | 287 000                                                  | 2 000                                                                | LRBZ 526032 B        |

D  
NA  
TAFI  
TRI  
BRI

# 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.



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.

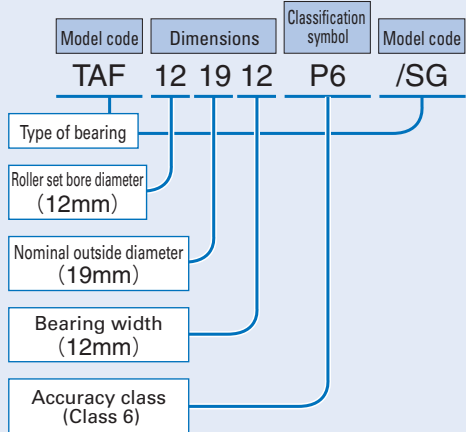
Table 1 Type of bearing

| Type          |                | Needle bearing with cage |
|---------------|----------------|--------------------------|
| Series        |                | 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 [min<sup>-1</sup>]

## 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 |
|-------------------------------------------|------------------------------------|
| $F_w \leq 26$                             | 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

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

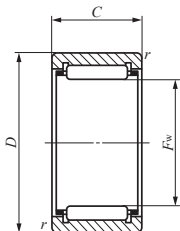
## Precaution for Use

- 1 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.
- 2 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.
- 3 The operating temperature range is -15~+80°C. For continuous operation, the recommended operating temperature is +60°C or less.
- 4 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.

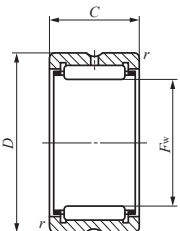
Further, C-Lube Machined Type Needle Roller Bearing for food machinery is also available. If needed, please contact IKO.

C-LUBE MACHINED TYPE NEEDLE ROLLER BEARINGS

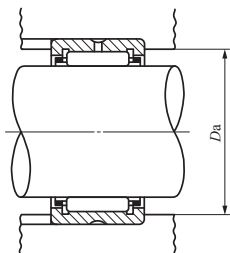
Without Inner Ring



TAF .../SG  
F<sub>w</sub> ≤ 26



TAF .../SG  
F<sub>w</sub> > 26



Shaft dia. 10—45mm

| Shaft dia. | Identification number | Mass (Ref.)<br>g | Boundary dimensions mm |    |    |                                   | Standard mounting dimension<br>D <sub>a</sub><br>Max. mm | Basic dynamic load rating<br>C<br>N | Basic static load rating<br>C <sub>0</sub><br>N |
|------------|-----------------------|------------------|------------------------|----|----|-----------------------------------|----------------------------------------------------------|-------------------------------------|-------------------------------------------------|
|            |                       |                  | F <sub>w</sub>         | D  | C  | r <sub>s</sub> min <sup>(1)</sup> |                                                          |                                     |                                                 |
| 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                                          |

Note<sup>(1)</sup> Minimum allowable value of chamfer dimension r.  
Remarks1. Models with a nominal roller set bore diameter F<sub>w</sub> 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.

| Shaft dia. | Identification number | Mass (Ref.)<br>g | Boundary dimensions mm |    |    |                                   | Standard mounting dimension<br>D <sub>a</sub><br>Max. mm | Basic dynamic load rating<br>C<br>N | Basic static load rating<br>C <sub>0</sub><br>N |
|------------|-----------------------|------------------|------------------------|----|----|-----------------------------------|----------------------------------------------------------|-------------------------------------|-------------------------------------------------|
|            |                       |                  | F <sub>w</sub>         | D  | C  | r <sub>s</sub> min <sup>(1)</sup> |                                                          |                                     |                                                 |
| 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                                          |