



Types

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

Table 1.1 Type of bearing (Standard type)

| Series | Caged Needle Roller Bearings | | Guide Needle Roller Bearings | |
|---------------------|------------------------------|-----------------|------------------------------|-----------------|
| | Without inner ring | With inner ring | Without inner ring | With inner ring |
| 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 TAF/SG | TAFI | | |
| Inch series | BR | BRI | GBR | GBRI |

Table 1.2 Type of bearing (With seal)

| Series | Caged Needle Roller Bearings | | Guide Needle Roller Bearings | |
|---------------------|------------------------------|-----------------|------------------------------|-----------------|
| | Without inner ring | With inner ring | Without inner ring | With inner ring |
| Dimension series 49 | Two side seal RNA 49-U | NA 49-U | — | — |
| Dimension series 69 | One side seal RNA 49-U | NA 49-U | | |
| Dimension series 48 | Two side seal RNA 49-U | NA 49-U | | |
| Dimension series 69 | Two side seal RNA 69-U | NA 69-U | | |
| Dimension series 69 | One side seal RNA 69-U | NA 69-U | | |
| Inch series | Two side seal BR-U | BRI-U | GBR-U | GBRI-U |
| | One side seal BR-U | BRI-U | GBR-U | GBRI-U |

Caged Needle Roller Bearings

This type of bearing combines a collared outer ring with the IKO's unique lightweight rigid cage and needle rollers. During operation, needle rollers are guided precisely by the cage, and an ideal load distribution is obtained.

The metric series consists of the NA48 and NA49 series of ISO Standard, NA69 and TAFI series which are based on the international dimension series, and the heavy duty TRI series which is widely used in Japan. The TAFI series has a sectional height as low as that of the shell type and is used for light loads. The inch series or BRI series is based on the specifications of ANSI Standard of USA.

Caged Needle Roller Bearings without Inner Ring

As shown in the section "Design of shaft and housing" on page A44, any desired radial clearance can be selected by assembling this type of bearing with a shaft which is heat-treated and finished by grinding. These bearings are free from the effects on dimensional accuracy caused by assembling an inner ring,

so that the rotational accuracy is improved. Also, the shaft rigidity can be improved as the shaft diameter can be increased by an amount corresponding to the inner ring thickness.

Caged Needle Roller Bearings with Inner Ring

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

Needle Roller Bearings with Seal

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

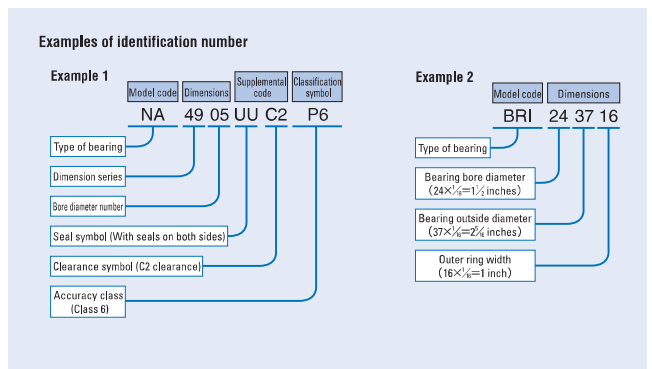
Guide Needle Roller Bearings

These bearings are full complement type bearings and use mallet-shaped rollers which are guided accurately by the guide rail located at the center of the outer ring raceway and the guide groove of the mallet-shaped roller. This minimizes skewing (tilting of the roller from its rotating axis), which is normally a weak point of full complement bearings, and improves the rotational accuracy. This type of bearing is especially suitable for heavy loads, shock loads and oscillating motions.

The bearings are available in metric and inch series. Bearings with and without inner rings are available in both series. In bearings with an inner ring, the width of the inner ring is larger than that of the outer ring. The GBRI series of the inch series includes types with a seal or seals which are incorporated on one or both sides.

Identification Number

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



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 BRI (1)

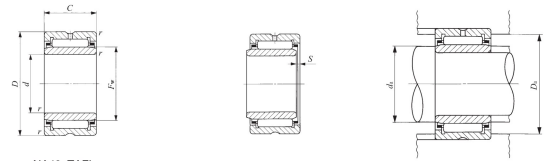
| Nominal bearing bore dia. or outside dia. mm | | Δ_{Dmp} Single plane mean bore diameter deviation | | Δ_{Dmp} Single plane mean outside diameter deviation | | $\Delta_{\beta_s} (\Delta_{\beta_r})$ Deviation of a single inner (or outer) ring width | | K_{1a} Radial runout of assembled bearing inner ring | K_{ca} Radial runout of assembled bearing outer ring |
|----------------------------------------------|---------|----------------------------------------------------------|-----|-------------------------------------------------------------|-----|-----------------------------------------------------------------------------------------|------|--------------------------------------------------------|--------------------------------------------------------|
| | | High | Low | High | Low | High | Low | | |
| Over | Incl. | High | Low | High | Low | High | Low | Max. | Max. |
| — | 19,050 | 0 | -10 | — | — | 0 | -130 | 10 | — |
| 19,050 | 30,162 | 0 | -13 | 0 | -13 | 0 | -130 | 13 | 15 |
| 30,162 | 50,800 | 0 | -13 | 0 | -13 | 0 | -130 | 15 | 20 |
| 50,800 | 82,550 | 0 | -15 | 0 | -15 | 0 | -130 | 20 | 25 |
| 82,550 | 120,650 | 0 | -20 | 0 | -20 | 0 | -130 | 25 | 35 |
| 120,650 | 184,150 | — | — | 0 | -25 | 0 | -130 | 30 | 45 |

Remark: d for Δ_{Dmp} , Δ_{β_s} , Δ_{β_r} , K_{1a} , and K_{ca} and D for Δ_{Dmp} and K_{ca} .
Note (1) For GBR, GBRI, refer to Metric series tables on page A31-A32.



MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring



NA49 TAFI
NA69 ($d \leq 30$)

Shaft dia. 5 – 12mm

| Shaft dia. mm | Identification number | | | | | | Mass (Ref.) | |
|------------------|-----------------------|---------|-------|-------------|-----|------|-------------|----|
| | NA 49 | NA 69 | NA 48 | TAFI | TRI | GTRI | g | d |
| 5 | NA 495 | — | — | — | — | — | 7.3 | 5 |
| | — | — | — | TAFI 51512 | — | — | 11.9 | 5 |
| | — | — | — | TAFI 51516 | — | — | 16.7 | 5 |
| 6 | NA 496 | — | — | — | — | — | 9.1 | 6 |
| | — | — | — | TAFI 61612 | — | — | 13 | 6 |
| | — | — | — | TAFI 61616 | — | — | 17.5 | 6 |
| 7 | NA 497 | — | — | — | — | — | 11.2 | 7 |
| | — | — | — | TAFI 71712 | — | — | 14.3 | 7 |
| | — | — | — | TAFI 71716 | — | — | 19.2 | 7 |
| 8 | NA 498 | — | — | — | — | — | 15 | 8 |
| | — | — | — | TAFI 91912 | — | — | 16.7 | 9 |
| 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 |
| | — | NA 6901 | — | TAFI 122420 | — | — | 42.5 | 12 |
| | — | — | — | — | — | — | 44.5 | 12 |

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

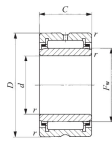
| Boundary dimensions mm | | | | Standard mounting dimensions mm | | Basic dynamic load rating C | Basic static load rating C ₀ | Allowable rotational speed ⁽³⁾ | Assembled inner ring | | |
|------------------------|----|---|-----------------------------------|---------------------------------|------------------|-----------------------------|-----------------------------------------|-------------------------------------------|----------------------|--------|------------|
| D | C | B | r _{s min} ⁽¹⁾ | F _w | S ⁽²⁾ | Min. d ₁₈ | Max. D ₁₈ | N | N | rpm | |
| 13 | 10 | — | 0.15 | 7 | 0.5 | 6.2 | 6.7 | 2 960 | 2 690 | 60 000 | LRT 5710 |
| 15 | 12 | — | 0.2 | 8 | 0.5 | 6.6 | 7.7 | 5 060 | 4 690 | 50 000 | LRT 5812 |
| 15 | 16 | — | 0.2 | 8 | 0.5 | 6.6 | 7.7 | 7 080 | 7 220 | 50 000 | LRT 5816 |
| 15 | 10 | — | 0.15 | 8 | 0.5 | 7.2 | 7.7 | 3 960 | 3 420 | 50 000 | LRT 6810 |
| 16 | 12 | — | 0.2 | 9 | 0.5 | 7.6 | 8.7 | 5 490 | 5 330 | 45 000 | LRT 6912 |
| 16 | 16 | — | 0.2 | 9 | 0.5 | 7.6 | 8.7 | 7 680 | 8 210 | 45 000 | LRT 6916 |
| 17 | 10 | — | 0.15 | 9 | 0.5 | 8.2 | 8.7 | 4 530 | 3 650 | 45 000 | LRT 7910 |
| 17 | 12 | — | 0.2 | 10 | 0.5 | 8.6 | 9.7 | 5 880 | 5 970 | 40 000 | LRT 71012 |
| 17 | 16 | — | 0.2 | 10 | 0.5 | 8.6 | 9.7 | 8 230 | 9 190 | 40 000 | LRT 71016 |
| 19 | 11 | — | 0.2 | 10 | 0.5 | 9.6 | 9.9 | 6 180 | 5 030 | 40 000 | LRT 81011 |
| 19 | 12 | — | 0.3 | 12 | 0.5 | 11 | 11.5 | 6 610 | 7 260 | 35 000 | LRT 91212 |
| 19 | 16 | — | 0.3 | 12 | 0.5 | 11 | 11.5 | 9 250 | 11 200 | 35 000 | LRT 91216 |
| 20 | 11 | — | 0.3 | 12 | 0.5 | 11 | 11.5 | 6 600 | 6 310 | 35 000 | LRT 91211 |
| 22 | 13 | — | 0.3 | 14 | 0.5 | 12 | 13 | 9 230 | 10 100 | 30 000 | LRT 101413 |
| 22 | 16 | — | 0.3 | 14 | 0.5 | 12 | 13 | 11 700 | 13 700 | 30 000 | LRT 101416 |
| 22 | 20 | — | 0.3 | 14 | 0.5 | 12 | 13 | 14 800 | 18 600 | 30 000 | LRT 101420 |
| 24 | 13 | — | 0.3 | 16 | 0.5 | 14 | 15 | 9 660 | 11 100 | 25 000 | LRT 121613 |
| 24 | 16 | — | 0.3 | 16 | 0.5 | 14 | 15 | 12 300 | 15 100 | 25 000 | LRT 121616 |
| 24 | 20 | — | 0.3 | 16 | 0.5 | 14 | 15 | 15 500 | 20 400 | 25 000 | LRT 121620 |
| 24 | 22 | — | 0.3 | 16 | 0.5 | 14 | 15 | 17 100 | 23 000 | 25 000 | LRT 121622 |

D
NA
TAFI
TRI
BRI

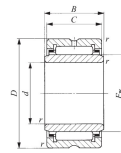


MACHINED TYPE NEEDLE ROLLER BEARINGS

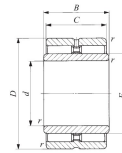
With Inner Ring



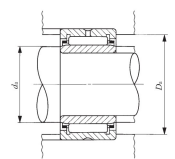
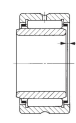
NA49 TAFI
NA69 ($d \leq 30$)



TRI



GTRI



Shaft dia. 15 – 22mm

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

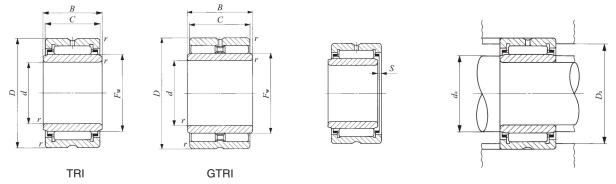
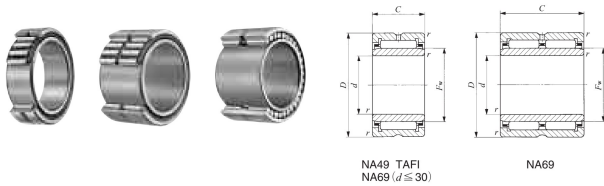
Notes(1) Minimum allowable value of chamfer dimension r
 (2) Allowable axial shift amount of inner ring to outer ring
 (3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
 Remarks1. TAFI series with a bore diameter d of 22 mm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

| Boundary dimensions mm | | | | Standard mounting dimensions mm | | | Basic dynamic load rating C N | Basic static load rating C_0 N | Allowable rotational speed ⁽³⁾ rpm | Assembled inner ring | | |
|------------------------|-----|------|-----------------------------|---------------------------------|--------------------|---------------|---------------------------------------|----------------------------------------|--------------------------------------------------|----------------------|---------------|-------------|
| D | C | B | $r_{s \min}$ ⁽¹⁾ | F_w ⁽²⁾ | S ⁽³⁾ | Min. d_{is} | | | | | Max. D_{is} | |
| 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. mm | Identification number | | | | | | Mass (Ref.) g | d |
|------------------|-----------------------|----------|-------|-------------|-------------|-------------|---------------------|----|
| | NA 49 | NA 69 | NA 48 | TAFI | TRI | GTRI | | |
| 25 | — | — | — | TAFI 253820 | — | — | 82 | 25 |
| | NA 4905 | — | — | TAFI 253830 | — | — | 123 | 25 |
| | — | NA 6905 | — | — | — | — | 92.5 | 25 |
| | — | — | — | — | TRI 254425 | — | 157 | 25 |
| | — | — | — | — | — | GTRI 254425 | 175 | 25 |
| 28 | — | — | — | TAFI 284220 | — | — | 96.5 | 28 |
| | NA 49/28 | — | — | TAFI 284230 | — | — | 145 | 28 |
| | — | NA 69/28 | — | — | — | — | 101 | 28 |
| | — | — | — | — | — | — | 176 | 28 |
| | — | — | — | — | — | GTRI 284530 | 196 | 28 |
| 30 | — | — | — | TAFI 304520 | — | — | 112 | 30 |
| | NA 4906 | — | — | TAFI 304530 | — | — | 171 | 30 |
| | — | NA 6906 | — | — | — | — | 106 | 30 |
| | — | — | — | — | — | — | 184 | 30 |
| | — | — | — | — | TRI 304830 | — | 199 | 30 |
| 32 | — | — | — | TAFI 324720 | — | — | 121 | 32 |
| | NA 49/32 | — | — | TAFI 324730 | — | — | 180 | 32 |
| | — | — | — | — | — | — | 165 | 32 |
| | — | NA 69/32 | — | — | — | — | 245 | 32 |
| | — | — | — | — | TRI 325230 | — | 295 | 32 |
| — | — | — | — | — | GTRI 325230 | 270 | 32 | |

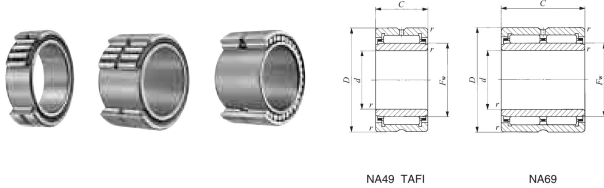
Notes (1) Minimum allowable value of chamfer dimension r
 (2) Allowable axial shift amount of inner ring to outer ring
 (3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
 Remarks 1. The outer ring has an oil groove and an oil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

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



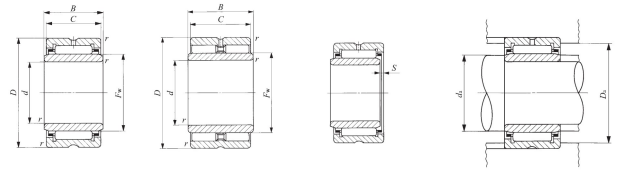
MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring



NA49 TAFI

NA69



TRI

GTRI

Shaft dia. 35 – 45mm

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

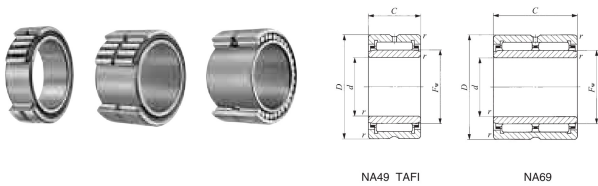
Notes(1) Minimum allowable value of chamfer dimension r
 (2) Allowable axial shift amount of inner ring to outer ring
 (3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
 Remarks 1. The outer ring has an oil groove and an oil 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 ⁽³⁾ | Assembled inner ring | | |
|------------------------|-----|------|------------------------------------|---------------------------------|--------------------|---------------|---------------------------|--------------------------|-------------------------------------------|----------------------|--------|--------------|
| D | C | B | $r_{s \text{ min}}$ ⁽¹⁾ | F_w | S ⁽²⁾ | Min. d_{is} | Max. d_{is} | D_{is} Max. | C | C_0 | rpm | |
| 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 |

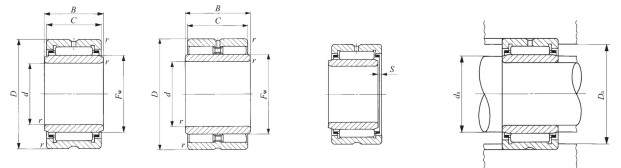


MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring



NA49 TAFI NA69



TRI GTRI

Shaft dia. 50 – 70mm

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

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

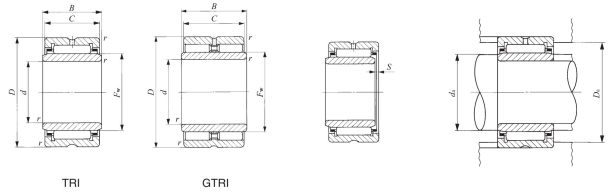
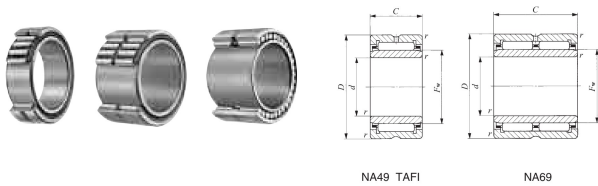
| Boundary dimensions mm | | | | Standard mounting dimensions mm | | | | Basic dynamic load rating C | Basic static load rating C ₀ | Allowable rotational speed ⁽³⁾ | Assembled inner ring |
|------------------------|----|------|-----------------------------------|---------------------------------|-----|----------------------|----------------------|-----------------------------|-----------------------------------------|-------------------------------------------|----------------------|
| D | C | B | r _{s min} ⁽¹⁾ | F _w ⁽²⁾ | S | Min. d _{is} | Max. D _{is} | N | N | rpm | |
| 68 | 25 | — | 0.3 | 55 | 0.5 | 52 | 54 | 45 400 | 94 000 | 7 500 | LRT 505525 |
| 68 | 35 | — | 0.3 | 55 | 1 | 52 | 54 | 61 200 | 138 000 | 7 500 | LRT 505535 |
| 72 | 22 | — | 0.6 | 58 | 0.5 | 54 | 57 | 46 200 | 82 100 | 7 000 | LRT 505822 |
| 72 | 40 | — | 0.6 | 58 | 0.3 | 54 | 57 | 79 200 | 164 000 | 7 000 | LRT 505840 |
| 77 | 45 | 45.5 | 1 | 58 | 2 | 55 | 57 | 104 000 | 191 000 | 7 000 | LRT 505845 |
| 77 | 45 | 45.5 | 1 | 58 | — | 55 | 57 | 135 000 | 280 000 | 2 500 | LRTZ 505845 |
| 72 | 25 | — | 0.3 | 60 | 0.5 | 57 | 59 | 47 500 | 103 000 | 6 500 | LRT 556025 |
| 72 | 35 | — | 0.3 | 60 | 1 | 57 | 59 | 64 100 | 151 000 | 6 500 | LRT 556035 |
| 80 | 25 | — | 1 | 63 | 1 | 60 | 61 | 57 600 | 97 200 | 6 500 | LRT 556325 |
| 80 | 45 | — | 1 | 63 | 0.5 | 60 | 61 | 98 700 | 194 000 | 6 500 | LRT 556345 |
| 81 | 38 | 38.5 | 1 | 62 | 1.5 | 60 | 60.5 | 92 000 | 166 000 | 6 500 | LRT 556238 |
| 81 | 38 | 38.5 | 1 | 62 | — | 60 | 60.5 | 118 000 | 241 000 | 2 500 | LRTZ 556238 |
| 82 | 25 | — | 0.6 | 68 | 0.3 | 64 | 66 | 54 800 | 117 000 | 6 000 | LRT 606825 |
| 82 | 35 | — | 0.6 | 68 | 1 | 64 | 66 | 72 000 | 166 000 | 6 000 | LRT 606835 |
| 85 | 25 | — | 1 | 68 | 1 | 65 | 66 | 60 200 | 105 000 | 6 000 | LRT 606825-1 |
| 85 | 45 | — | 1 | 68 | 0.5 | 65 | 66 | 103 000 | 211 000 | 6 000 | LRT 606845 |
| 89 | 45 | 45.5 | 1 | 70 | 2 | 65 | 68 | 114 000 | 228 000 | 5 500 | LRT 607045 |
| 89 | 45 | 45.5 | 1 | 70 | — | 65 | 68 | 147 000 | 336 000 | 2 000 | LRTZ 607045 |
| 90 | 25 | — | 1 | 72 | 1 | 70 | 70.5 | 62 700 | 113 000 | 5 500 | LRT 657225 |
| 90 | 35 | — | 1 | 73 | 1 | 70 | 71 | 80 400 | 181 000 | 5 500 | LRT 657335 |
| 90 | 45 | — | 1 | 72 | 0.5 | 70 | 70.5 | 108 000 | 227 000 | 5 500 | LRT 657245 |
| 95 | 25 | — | 1 | 80 | 0.3 | 75 | 78 | 59 400 | 137 000 | 5 000 | LRT 708025 |
| 95 | 35 | — | 1 | 80 | 1 | 75 | 78 | 78 100 | 195 000 | 5 000 | LRT 708035 |
| 100 | 30 | — | 1 | 80 | 1.5 | 75 | 78 | 83 200 | 158 000 | 5 000 | LRT 708030 |
| 100 | 54 | — | 1 | 80 | 1 | 75 | 78 | 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. mm | Identification number | | | | | | Mass (Ref.) | |
|------------------|-----------------------|---------|-------|--------------|--------------|--------------|-------------|----|
| | NA 49 | NA 69 | NA 48 | TAFI | TRI | GTRI | g | d |
| 75 | — | — | — | TAFI 7510525 | — | — | 675 | 75 |
| | NA 4915 | — | — | — | — | — | 810 | 75 |
| | — | — | — | TAFI 7510535 | — | — | 945 | 75 |
| | — | NA 6915 | — | — | — | — | 1 480 | 75 |
| | — | — | — | — | TRI 7510845 | — | 1 340 | 75 |
| | — | — | — | — | — | GTRI 7510845 | 1 440 | 75 |
| 80 | — | — | — | TAFI 8011025 | — | — | 710 | 80 |
| | NA 4916 | — | — | — | — | — | 855 | 80 |
| | — | — | — | TAFI 8011035 | — | — | 995 | 80 |
| | — | NA 6916 | — | — | — | — | 1 560 | 80 |
| | — | — | — | — | — | — | — | — |
| | — | — | — | — | — | — | — | — |
| 85 | — | — | — | TAFI 8511526 | — | — | 775 | 85 |
| | NA 4917 | — | — | TAFI 8511536 | — | — | 1 080 | 85 |
| | — | — | — | — | — | — | 1 280 | 85 |
| | — | NA 6917 | — | — | — | — | 2 340 | 85 |
| | — | — | — | — | — | — | — | — |
| | — | — | — | — | — | — | — | — |
| 90 | — | — | — | TAFI 9012026 | — | — | 820 | 90 |
| | NA 4918 | — | — | — | — | — | 1 140 | 90 |
| | — | — | — | TAFI 9012036 | — | — | 1 350 | 90 |
| | — | — | — | — | — | — | — | — |
| | — | NA 6918 | — | — | TRI 9012550 | — | 1 870 | 90 |
| | — | — | — | — | — | — | 2 460 | 90 |
| — | — | — | — | — | GTRI 9012550 | 2 020 | 90 | |

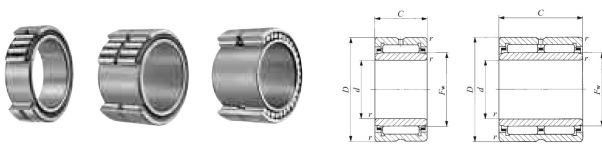
Notes(1) Minimum allowable value of chamfer dimension r
 (2) Allowable axial shift amount of inner ring to outer ring
 (3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
 Remarks 1. The outer ring has an oil groove and an oil 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 ⁽³⁾ | Assembled inner ring | |
|------------------------|----|------|-----------------------------------|---------------------------------|-----|----------------------|----------------------|---------------------------|--------------------------|-------------------------------------------|----------------------|--------------|
| D | C | B | r _{s min} ⁽¹⁾ | F _w ⁽²⁾ | S | Min. d _{is} | Max. D _{is} | C | C ₀ | rpm | | |
| 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 |



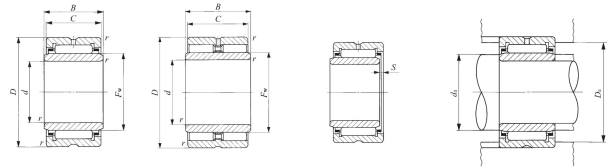
MACHINED TYPE NEEDLE ROLLER BEARINGS

With Inner Ring



NA49 TAFI
NA48

NA69



TRI

GTRI

Shaft dia. 95 – 150mm

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

Notes⁽¹⁾ Minimum allowable value of chamfer dimension r
⁽²⁾ Allowable axial shift amount of inner ring to outer ring
⁽³⁾ Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
 Remarks 1. 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 C N | Basic static load rating C_0 N | Allowable rotational speed ⁽³⁾ rpm | Assembled inner ring | | |
|------------------------|-----|------|----------------------------|---------------------------------|-----|------------|---------------------------------------|----------------------------------------|--------------------------------------------------|----------------------|------------|---------------|
| D | C | B | r_s ⁽¹⁾ mm | F_w ⁽²⁾ | S | Min. d_s | | | | | Max. D_s | |
| 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

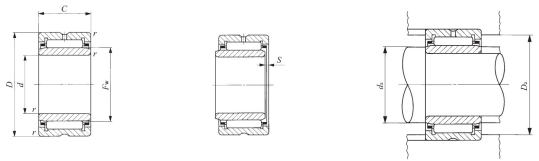
With Inner Ring



Shaft dia. 160 – 340mm

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

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



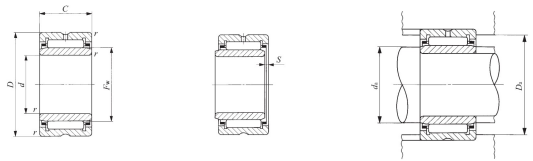
NA49 NA48

| Boundary dimensions mm | | | | Standard mounting dimensions mm | | | Basic dynamic load rating C N | Basic static load rating C ₀ N | Allowable rotational speed ⁽³⁾ rpm | Assembled inner ring | | |
|------------------------|-----|---|-----------------------------------|---------------------------------|------------------|----------------------|-------------------------------------|-------------------------------------------------|--------------------------------------------------|----------------------|----------------------|---------------|
| D | C | B | r _{s min} ⁽¹⁾ | F _w ⁽²⁾ | S ⁽³⁾ | Min. d _{is} | | | | | Max. D _{is} | |
| 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



NA49 NA48

Shaft dia. 360 – 440mm

| Shaft dia. mm | Identification number | | | | | | Mass (Ref.) | |
|------------------|-----------------------|-------|---------|------|-----|------|-------------|-----|
| | NA 49 | NA 69 | NA 48 | TAFI | TRI | GTRI | g | d |
| 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(1) Minimum allowable value of chamfer dimension r
 (2) Allowable axial shift amount of inner ring to outer ring
 (3) Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 60% of this value is allowable.
 Remarks1. The outer ring has an oil groove and an oil hole.
 2. No grease is prepacked. Perform proper lubrication.



| Boundary dimensions mm | | | | Standard mounting dimensions mm | | | Basic dynamic load rating | Basic static load rating | Allowable rotational speed ⁽³⁾ | Assembled inner ring | | |
|------------------------|-----|---|-----------------------------------|---------------------------------|------------------|---------------------|---------------------------|--------------------------|-------------------------------------------|----------------------|-----|---------------|
| D | C | B | r _{s min} ⁽¹⁾ | F _w ⁽²⁾ | S ⁽²⁾ | Min. d ₁ | Max. d ₂ | C | C ₀ | rpm | | |
| 440 | 80 | — | 2.1 | 390 | 2.5 | 371 | 387 | 429 | 680 000 | 2 320 000 | 650 | LRT 36039080 |
| 480 | 118 | — | 3 | 400 | 4 | 373 | 397 | 467 | 1 260 000 | 3 200 000 | 600 | LRT 360400118 |
| 480 | 100 | — | 2.1 | 415 | 3 | 391 | 412 | 469 | 951 000 | 2 860 000 | 600 | LRT 380415100 |
| 520 | 140 | — | 4 | 430 | 5 | 396 | 427 | 504 | 1 540 000 | 4 030 000 | 500 | LRT 380430140 |
| 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 |

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