

COMBINED TYPE NEEDLE ROLLER BEARINGS

- Needle Roller Bearings with Thrust Ball Bearing
- Needle Roller Bearings with Thrust Roller Bearing
- Needle Roller Bearings with Angular Contact Ball Bearing
- Needle Roller Bearings with Three-point Contact Ball Bearing



Structure and Features

IKO Combined Type Needle Roller Bearings are combinations of a radial bearing and a thrust bearing. Caged needle roller bearings are used as radial bearings and thrust ball bearings or thrust roller bearings are used as thrust bearings. They are compact and very economical, and can be subjected to radial loads and axial loads simultaneously. They are widely used for machine tools, textile machinery, and industrial machinery.

Types

The types of Combined Type Needle Roller Bearings shown in Table 1 are available.

Table 1.1 Type of bearing

| Type | Combined with thrust ball bearing | | Combined with thrust roller bearing | |
|-----------------|-----------------------------------|-----------------|-------------------------------------|-----------------|
| | Without inner ring | With inner ring | Without inner ring | With inner ring |
| — | NAX | NAXI | NBX | NBXI |
| With dust cover | NAX ... Z | NAXI ... Z | NBX ... Z | NBXI ... Z |

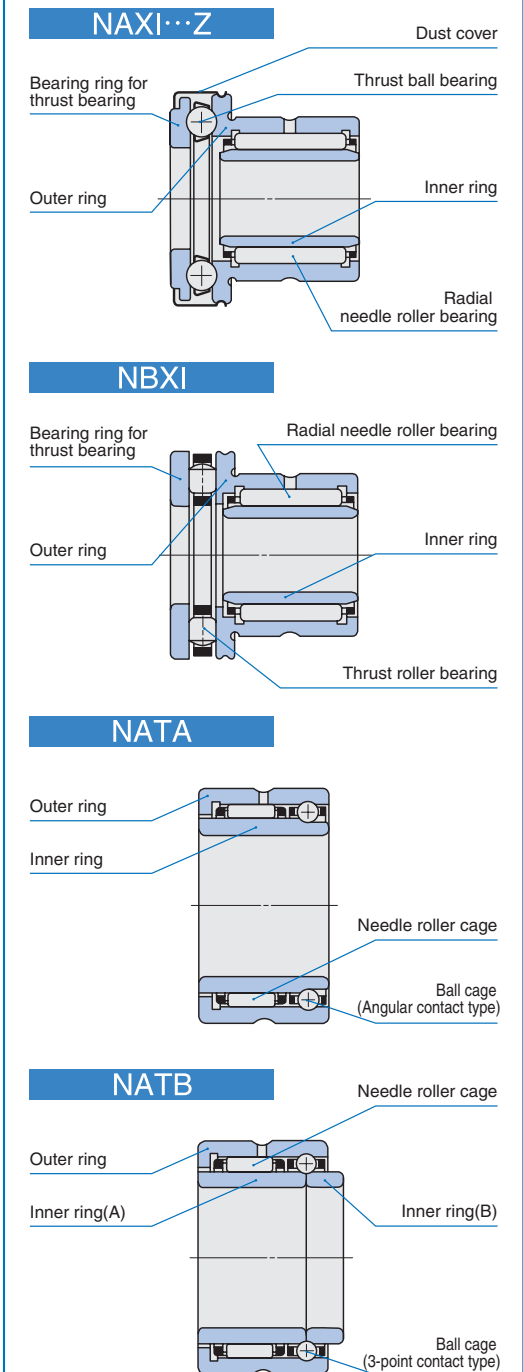
Table 1.2 Type of bearing

| Type | Combined with angular contact ball bearing | Combined with three-point contact ball bearing |
|------------|--|--|
| Model code | NATA | NATB |

Needle Roller Bearings with Thrust Ball Bearing

In this series, needle roller bearings are combined with thrust ball bearings to receive thrust loads. In bearings with a dust cover, the dust cover is formed from a thin steel plate and fixed to a groove cut on the outer cylindrical surface of the outer ring collar. The cover forms a labyrinth with the thrust raceway ring, and is therefore effective in preventing leakage of grease and penetration of dust and dirt. In the case of bearings without an inner ring, the tolerances of roller set bore diameter F_w are shown in Table 14 on page A33. Therefore, the required radial internal clearances can be selected by combining the bearings with shafts that have been heat-treated and finished by grinding as shown in Table 23 on page A42 and Table 26 on page A44.

Structures of Combined Type Needle Roller Bearings



G

NAX
NBX
NATA
NATB

Needle Roller Bearings with Thrust Roller Bearing

In this series, needle roller bearings are combined with thrust roller bearings to receive thrust loads. Their axial load ratings are greater than those of bearings that are combined with thrust ball bearings. Also, elastic deformation of the rolling contact surfaces under load is minimal. Furthermore, the thrust bearing section is finished to high accuracy, and therefore high rotational accuracy is obtained in the case of both vertical and horizontal shafts. Like the needle roller bearings with thrust ball bearing, this series also includes bearings with a dust cover and bearings with an inner ring.

Needle Roller Bearings with Angular Contact Ball Bearing

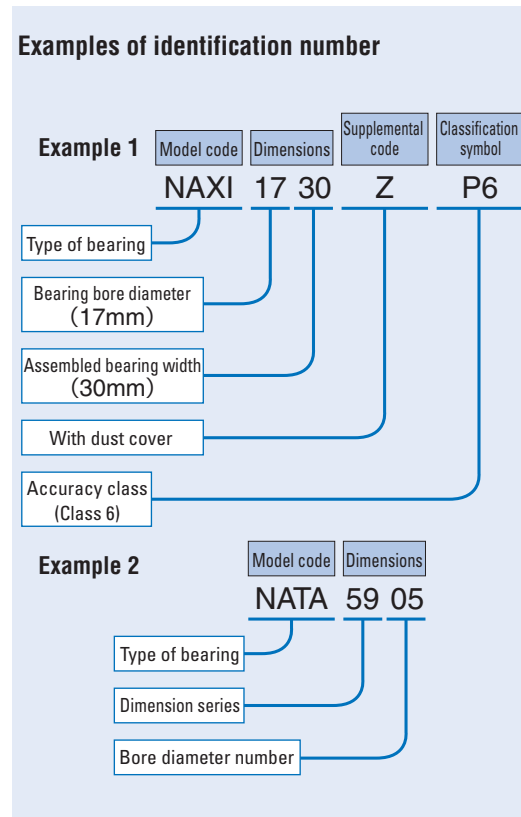
In this series, caged needle roller bearings are combined with angular contact ball bearings to receive thrust loads. These bearings conform to the international dimension series #59, which is based on the ISO Standard. They can withstand heavy radial loads and unidirectional axial loads simultaneously. When the axial load exceeds 25% of the radial load, the radial load will be induced in the angular contact ball bearing, and bearing life will be affected. The relationship between the two loads must therefore be taken into careful consideration.

Needle Roller Bearings with Three-point Contact Ball Bearing

These bearings can withstand heavy radial loads and bi-directional axial loads at the same time during high-speed rotation. Since the non-interchangeable inner rings are separated at the center of the ball raceway surface, they must be firmly tightened against the shaft in the axial direction. The axial clearance of this bearing is 0.1 ~ 0.3 mm, and like NATA59, the axial load should not exceed 25% of the radial load.

Identification Number

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



Accuracy

Dimensional accuracy and rotational accuracy of Combined Type Needle Roller Bearings are based on Table 2 below and Tables 12 and 13 on 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. Thickness variations of thrust rings of NAX(I) and NBX(I) are based on Table 2.4 on page F5. Bore diameter of the small width inner ring of NATB59 is made for a transition fit with k5 tolerance shaft.

Table 2 Tolerances

| Type of bearing | Item | Dimension | Dimension symbol | Tolerance |
|--|--|-----------|------------------|-------------|
| NAX(I) ⁽¹⁾ NBX(I) ⁽¹⁾ | Bore dia. of bearing ring for thrust bearing | | d_i | E7 |
| | Assembled bearing width | | L | 0 - 0.25 |
| | Bearing height of thrust bearing | | H | 0 - 0.20 |
| NATB59 | Width of inner ring | | B | 0 - 0.3 |

Note⁽¹⁾ Also applicable to bearings with dust cover

Clearance

Combined Type Needle Roller Bearings are manufactured to have the radial internal clearance CN shown in Table 18 on page A37.

Fit

The recommended fits for Combined Type Needle Roller Bearings are shown in Table 3.

Table 3 Recommended fits

| Type of bearing | Item | Tolerance class | | |
|--|------|--------------------|-------------------|-------------------|
| | | Shaft | | Housing bore |
| | | Without inner ring | With inner ring | |
| NAX(I) ⁽¹⁾ NBX(I) ⁽¹⁾ | | h5, k5 | k5 | K6, M6 |
| NATA59 NATB59 | | — | k5 ⁽²⁾ | M6 ⁽²⁾ |

Notes⁽¹⁾ The housing bore for the thrust bearing must be machined to be more than 0.5 mm larger than the outside diameters D_1 and D_2 to ensure that it does not incur radial loads.
⁽²⁾ If the fit is made tighter than specified in this table, radial loads will act upon the thrust bearing, limiting its function.

Lubrication

Grease is not prepacked in Combined Type Needle Roller Bearings, so perform proper lubrication for use. Operating without lubrication will increase the wear of the rolling contact surfaces and shorten the bearing life.

Oil Hole

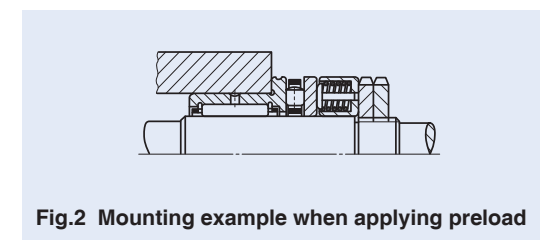
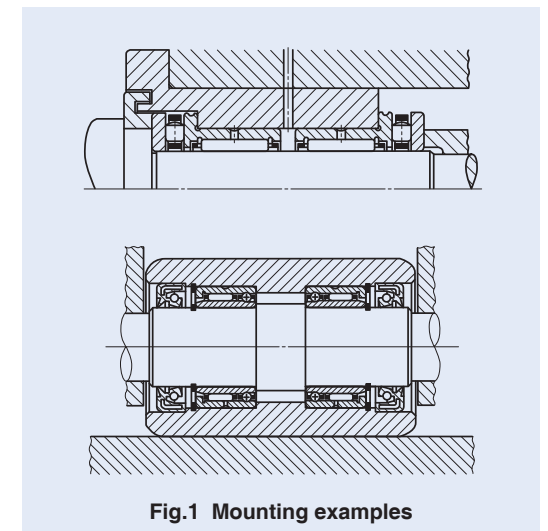
The outer ring of Combined Type Needle Roller Bearings has an oil groove and an oil hole. When outer rings with multiple oil holes or inner rings with oil hole(s) are required, please contact **IKO**.

Rating Life

In Combined Type Needle Roller Bearings, caged needle roller bearings are subjected to radial loads while thrust bearings receive axial loads. Therefore, it is necessary to calculate their lives respectively (page A17).

Mounting

Fig.1 shows mounting examples of Combined Type Needle Roller Bearings. When applying preload to the NAX and NBX models, it is recommended that thrust raceway rings are not tightened directly with nuts, but are tightened using springs as shown in Fig. 2. Mounting two NATA models symmetrically allows them to be subjected to two-way axial loads. When mounting these models, an axial clearance of 0.2 ~ 0.3 mm should be provided in the angular contact ball bearings so that radial loads are not applied to the angular contact ball bearings. Dimensions related to mounting should be based on the table of dimensions.

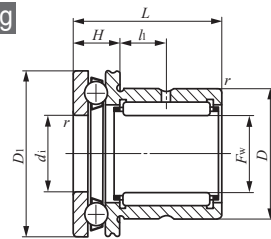


G
NAX
NBX
NATA
NATB

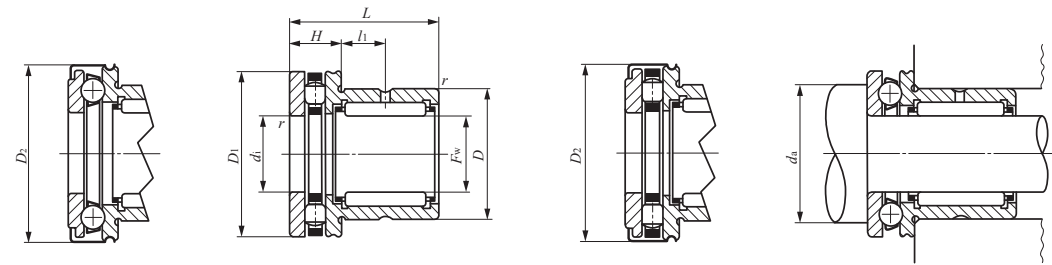
COMBINED TYPE NEEDLE ROLLER BEARINGS

Needle Roller Bearings with Thrust Ball Bearing
Needle Roller Bearings with Thrust Roller Bearing

Without Inner Ring
Without Inner Ring



NAX



NAX...Z

NBX

NBX...Z

Shaft dia. 10 – 70mm

| Shaft dia. mm | Identification number | | | | | | | |
|------------------|-----------------------|---------------|-----------------|---------------|----------|---------------|-----------------|---------------|
| | | Mass (Ref.) g | With dust cover | Mass (Ref.) g | | Mass (Ref.) g | With dust cover | Mass (Ref.) g |
| 10 | NAX 1023 | 38.5 | NAX 1023Z | 40 | — | — | — | — |
| 12 | NAX 1223 | 43.5 | NAX 1223Z | 45.5 | — | — | — | — |
| 15 | NAX 1523 | 47.5 | NAX 1523Z | 48.5 | — | — | — | — |
| | — | — | — | — | NBX 1523 | 54 | NBX 1523Z | 55 |
| 17 | NAX 1725 | 54 | NAX 1725Z | 56 | — | — | — | — |
| | — | — | — | — | NBX 1725 | 61 | NBX 1725Z | 63 |
| 20 | NAX 2030 | 85.5 | NAX 2030Z | 89 | — | — | — | — |
| | — | — | — | — | NBX 2030 | 94 | NBX 2030Z | 97.5 |
| 25 | NAX 2530 | 131 | NAX 2530Z | 135 | — | — | — | — |
| | — | — | — | — | NBX 2530 | 143 | NBX 2530Z | 147 |
| 30 | NAX 3030 | 145 | NAX 3030Z | 151 | — | — | — | — |
| | — | — | — | — | NBX 3030 | 160 | NBX 3030Z | 166 |
| 35 | NAX 3530 | 169 | NAX 3530Z | 176 | — | — | — | — |
| | — | — | — | — | NBX 3530 | 186 | NBX 3530Z | 193 |
| 40 | NAX 4032 | 219 | NAX 4032Z | 227 | — | — | — | — |
| | — | — | — | — | NBX 4032 | 240 | NBX 4032Z | 248 |
| 45 | NAX 4532 | 264 | NAX 4532Z | 273 | — | — | — | — |
| | — | — | — | — | NBX 4532 | 293 | NBX 4532Z | 302 |
| 50 | NAX 5035 | 287 | NAX 5035Z | 297 | — | — | — | — |
| | — | — | — | — | NBX 5035 | 315 | NBX 5035Z | 325 |
| 60 | NAX 6040 | 417 | NAX 6040Z | 454 | — | — | — | — |
| | — | — | — | — | NBX 6040 | 501 | NBX 6040Z | 538 |
| 70 | NAX 7040 | 555 | NAX 7040Z | 606 | — | — | — | — |

Notes⁽¹⁾ Minimum allowable value of chamfer dimension *r*
⁽²⁾ Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 70% of this value is allowable in the NAX series, and a maximum of 25% of this value is allowable in the NBX series.

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

| <i>F_w</i> | Boundary dimensions mm | | | | | | | | | Standard mounting dimension <i>d_a</i> Min. mm | Basic dynamic load rating <i>C</i> | | Basic static load rating <i>C₀</i> | | Allowable rotational speed ⁽²⁾ min ⁻¹ |
|----------------------|------------------------|----------------------|----------------------|----------|----------|----------------------|---|----------------------|----------|--|------------------------------------|----------|---|--------|---|
| | <i>D</i> | <i>D₁</i> | <i>D₂</i> | <i>L</i> | <i>H</i> | <i>l₁</i> | <i>r_{s min}</i> ⁽¹⁾ | <i>d_i</i> | Radial N | | Axial N | Radial N | Axial N | | |
| 10 | 19 | 24 | 25 | 23 | 9 | 6.5 | 0.3 | 10 | 18 | 8 230 | 10 000 | 9 190 | 11 100 | 9 500 | |
| 12 | 21 | 26 | 27 | 23 | 9 | 6.5 | 0.3 | 12 | 20 | 9 250 | 9 670 | 11 200 | 11 100 | 9 000 | |
| 15 | 24 | 28 | 29 | 23 | 9 | 6.5 | 0.3 | 15 | 23 | 12 300 | 9 930 | 14 900 | 12 200 | 8 500 | |
| 15 | 24 | 28 | 29 | 23 | 9 | 6.5 | 0.3 | 15 | 26 | 12 300 | 10 200 | 14 900 | 23 900 | 14 000 | |
| 17 | 26 | 30 | 31 | 25 | 9 | 8 | 0.3 | 17 | 25 | 12 900 | 10 800 | 16 300 | 14 500 | 8 500 | |
| 17 | 26 | 30 | 31 | 25 | 9 | 8 | 0.3 | 17 | 28 | 12 900 | 11 400 | 16 300 | 28 600 | 13 000 | |
| 20 | 30 | 35 | 36 | 30 | 10 | 10.5 | 0.3 | 20 | 29 | 17 600 | 14 200 | 25 400 | 19 700 | 7 500 | |
| 20 | 30 | 35 | 36 | 30 | 10 | 10.5 | 0.3 | 20 | 33 | 17 600 | 19 000 | 25 400 | 48 700 | 11 000 | |
| 25 | 37 | 42 | 43 | 30 | 11 | 9.5 | 0.6 | 25 | 35 | 20 000 | 19 600 | 32 100 | 29 700 | 7 000 | |
| 25 | 37 | 42 | 43 | 30 | 11 | 9.5 | 0.6 | 25 | 40 | 20 000 | 22 700 | 32 100 | 60 700 | 9 000 | |
| 30 | 42 | 47 | 48 | 30 | 11 | 9.5 | 0.6 | 30 | 40 | 25 100 | 20 400 | 40 100 | 33 600 | 6 500 | |
| 30 | 42 | 47 | 48 | 30 | 11 | 9.5 | 0.6 | 30 | 45 | 25 100 | 27 400 | 40 100 | 81 000 | 8 000 | |
| 35 | 47 | 52 | 53 | 30 | 12 | 9 | 0.6 | 35 | 45 | 26 900 | 21 200 | 46 200 | 37 600 | 6 000 | |
| 35 | 47 | 52 | 53 | 30 | 12 | 9 | 0.6 | 35 | 50 | 26 900 | 29 100 | 46 200 | 91 100 | 7 000 | |
| 40 | 52 | 60 | 61 | 32 | 13 | 10 | 0.6 | 40 | 52 | 29 400 | 26 900 | 54 100 | 50 000 | 5 500 | |
| 40 | 52 | 60 | 61 | 32 | 13 | 10 | 0.6 | 40 | 57 | 29 400 | 41 700 | 54 100 | 133 000 | 6 000 | |
| 45 | 58 | 65 | 66.5 | 32 | 14 | 9 | 0.6 | 45 | 57 | 31 000 | 27 900 | 60 200 | 55 100 | 5 000 | |
| 45 | 58 | 65 | 66.5 | 32 | 14 | 9 | 0.6 | 45 | 62 | 31 000 | 40 800 | 60 200 | 133 000 | 5 500 | |
| 50 | 62 | 70 | 71.5 | 35 | 14 | 10 | 0.6 | 50 | 62 | 42 200 | 28 800 | 83 400 | 60 100 | 4 500 | |
| 50 | 62 | 70 | 71.5 | 35 | 14 | 10 | 0.6 | 50 | 67 | 42 200 | 43 300 | 83 400 | 148 000 | 5 000 | |
| 60 | 72 | 85 | 86.5 | 40 | 17 | 12 | 1 | 60 | 75 | 47 500 | 41 400 | 103 000 | 89 700 | 4 000 | |
| 60 | 72 | 85 | 86.5 | 40 | 17 | 12 | 1 | 60 | 82 | 47 500 | 64 600 | 103 000 | 224 000 | 4 000 | |
| 70 | 85 | 95 | 96.5 | 40 | 18 | 11 | 1 | 70 | 85 | 55 500 | 43 100 | 120 000 | 101 000 | 3 500 | |

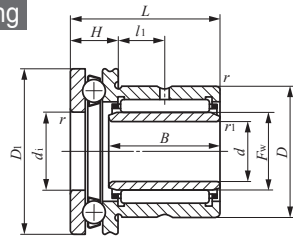
G

NAX
NBX
NATA
NATB

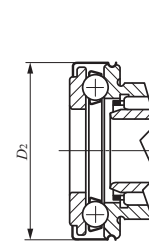
COMBINED TYPE NEEDLE ROLLER BEARINGS

Needle Roller Bearings with Thrust Ball Bearing
Needle Roller Bearings with Thrust Roller Bearing

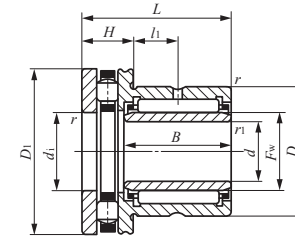
With Inner Ring
With Inner Ring



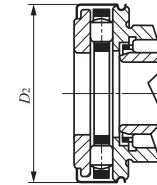
NAXI



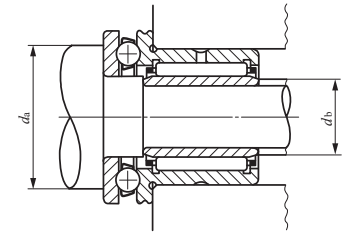
NAXI...Z



NBXI



NBXI...Z



Shaft dia. 7 – 60mm

| Shaft dia. mm | Identification number | | | | | | | d | D | D ₁ |
|------------------|-----------------------|-----------------|------------------|------------------|-----------------|------------------|------------|------|----|----------------|
| | Mass (Ref.) g | With dust cover | Mass (Ref.) g | Mass (Ref.) g | With dust cover | Mass (Ref.) g | | | | |
| 7 | NAXI 723 | 43.5 | NAXI 723Z | 45 | — | — | — | 7 | 19 | 24 |
| 9 | NAXI 923 | 49.5 | NAXI 923Z | 51.5 | — | — | — | 9 | 21 | 26 |
| 12 | NAXI 1223 | 55.5 | NAXI 1223Z | 56.5 | — | — | — | 12 | 24 | 28 |
| | | | | | NBXI 1223 | 62 | NBXI 1223Z | 63 | 12 | 24 |
| 14 | NAXI 1425 | 63.5 | NAXI 1425Z | 65.5 | — | — | — | 14 | 26 | 30 |
| | | | | | NBXI 1425 | 70.5 | NBXI 1425Z | 72.5 | 14 | 26 |
| 17 | NAXI 1730 | 99 | NAXI 1730Z | 103 | — | — | — | 17 | 30 | 35 |
| | | | | | NBXI 1730 | 108 | NBXI 1730Z | 111 | 17 | 30 |
| 20 | NAXI 2030 | 159 | NAXI 2030Z | 163 | — | — | — | 20 | 37 | 42 |
| | | | | | NBXI 2030 | 171 | NBXI 2030Z | 175 | 20 | 37 |
| 25 | NAXI 2530 | 179 | NAXI 2530Z | 185 | — | — | — | 25 | 42 | 47 |
| | | | | | NBXI 2530 | 194 | NBXI 2530Z | 200 | 25 | 42 |
| 30 | NAXI 3030 | 208 | NAXI 3030Z | 215 | — | — | — | 30 | 47 | 52 |
| | | | | | NBXI 3030 | 225 | NBXI 3030Z | 232 | 30 | 47 |
| 35 | NAXI 3532 | 265 | NAXI 3532Z | 273 | — | — | — | 35 | 52 | 60 |
| | | | | | NBXI 3532 | 286 | NBXI 3532Z | 294 | 35 | 52 |
| 40 | NAXI 4032 | 315 | NAXI 4032Z | 324 | — | — | — | 40 | 58 | 65 |
| | | | | | NBXI 4032 | 344 | NBXI 4032Z | 353 | 40 | 58 |
| 45 | NAXI 4535 | 358 | NAXI 4535Z | 368 | — | — | — | 45 | 62 | 70 |
| | | | | | NBXI 4535 | 386 | NBXI 4535Z | 396 | 45 | 62 |
| 50 | NAXI 5040 | 582 | NAXI 5040Z | 619 | — | — | — | 50 | 72 | 85 |
| | | | | | NBXI 5040 | 666 | NBXI 5040Z | 703 | 50 | 72 |
| 60 | NAXI 6040 | 750 | NAXI 6040Z | 801 | — | — | — | 60 | 85 | 95 |

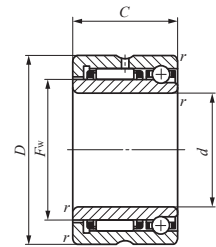
Notes⁽¹⁾ Minimum allowable value of chamfer dimension r or r_1
⁽²⁾ Allowable rotational speed applies to oil lubrication. For grease lubrication, a maximum of 70% of this value is allowable in the NAXI series, and a maximum of 25% of this value is allowable in the NBXI series.

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

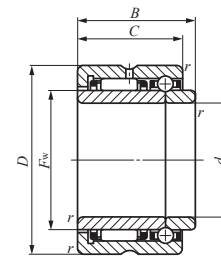
| Boundary dimensions mm | | | | | | | | | | | Standard mounting dimensions mm | | Basic dynamic load rating C | | Basic static load rating C ₀ | | Allowable rotational speed ⁽²⁾ min ⁻¹ | Assembled inner ring |
|---------------------------|----|------|----|----------------|-----------------------------------|------------------------------------|----------------|----------------|------------------------|----------------|---------------------------------------|------------|--------------------------------|------------|--|------------|--|----------------------|
| D ₂ | L | B | H | l ₁ | r _{s min} ⁽¹⁾ | r _{ls min} ⁽¹⁾ | F _w | d _i | d _a Min. | d _b | Radial N | Axial N | Radial N | Axial N | | | | |
| 25 | 23 | 16 | 9 | 6.5 | 0.3 | 0.2 | 10 | 10 | 18 | 9 | 8 230 | 10 000 | 9 190 | 11 100 | 9 500 | LRT 71016 | | |
| 27 | 23 | 16 | 9 | 6.5 | 0.3 | 0.3 | 12 | 12 | 20 | 11 | 9 250 | 9 670 | 11 200 | 11 100 | 9 000 | LRT 91216 | | |
| 29 | 23 | 16.5 | 9 | 6.5 | 0.3 | 0.3 | 15 | 15 | 23 | 14 | 12 300 | 9 930 | 14 900 | 12 200 | 8 500 | LRT 121516 | | |
| 29 | 23 | 16.5 | 9 | 6.5 | 0.3 | 0.3 | 15 | 15 | 26 | 14 | 12 300 | 10 200 | 14 900 | 23 900 | 14 000 | LRT 121516 | | |
| 31 | 25 | 17 | 9 | 8 | 0.3 | 0.3 | 17 | 17 | 25 | 16 | 12 900 | 10 800 | 16 300 | 14 500 | 8 500 | LRT 141717 | | |
| 31 | 25 | 17 | 9 | 8 | 0.3 | 0.3 | 17 | 17 | 28 | 16 | 12 900 | 11 400 | 16 300 | 28 600 | 13 000 | LRT 141717 | | |
| 36 | 30 | 20.5 | 10 | 10.5 | 0.3 | 0.3 | 20 | 20 | 29 | 19 | 17 600 | 14 200 | 25 400 | 19 700 | 7 500 | LRT 172020 | | |
| 36 | 30 | 20.5 | 10 | 10.5 | 0.3 | 0.3 | 20 | 20 | 33 | 19 | 17 600 | 19 000 | 25 400 | 48 700 | 11 000 | LRT 172020 | | |
| 43 | 30 | 20.5 | 11 | 9.5 | 0.6 | 0.3 | 25 | 25 | 35 | 24 | 20 000 | 19 600 | 32 100 | 29 700 | 7 000 | LRT 202520 | | |
| 43 | 30 | 20.5 | 11 | 9.5 | 0.6 | 0.3 | 25 | 25 | 40 | 24 | 20 000 | 22 700 | 32 100 | 60 700 | 9 000 | LRT 202520 | | |
| 48 | 30 | 20.5 | 11 | 9.5 | 0.6 | 0.3 | 30 | 30 | 40 | 29 | 25 100 | 20 400 | 40 100 | 33 600 | 6 500 | LRT 253020 | | |
| 48 | 30 | 20.5 | 11 | 9.5 | 0.6 | 0.3 | 30 | 30 | 45 | 29 | 25 100 | 27 400 | 40 100 | 81 000 | 8 000 | LRT 253020 | | |
| 53 | 30 | 20 | 12 | 9 | 0.6 | 0.3 | 35 | 35 | 45 | 34 | 26 900 | 21 200 | 46 200 | 37 600 | 6 000 | LRT 303520 | | |
| 53 | 30 | 20 | 12 | 9 | 0.6 | 0.3 | 35 | 35 | 50 | 34 | 26 900 | 29 100 | 46 200 | 91 100 | 7 000 | LRT 303520 | | |
| 61 | 32 | 20 | 13 | 10 | 0.6 | 0.3 | 40 | 40 | 52 | 39 | 29 400 | 26 900 | 54 100 | 50 000 | 5 500 | LRT 354020 | | |
| 61 | 32 | 20 | 13 | 10 | 0.6 | 0.3 | 40 | 40 | 57 | 39 | 29 400 | 41 700 | 54 100 | 133 000 | 6 000 | LRT 354020 | | |
| 66.5 | 32 | 20 | 14 | 9 | 0.6 | 0.3 | 45 | 45 | 57 | 44 | 31 000 | 27 900 | 60 200 | 55 100 | 5 000 | LRT 404520 | | |
| 66.5 | 32 | 20 | 14 | 9 | 0.6 | 0.3 | 45 | 45 | 62 | 44 | 31 000 | 40 800 | 60 200 | 133 000 | 5 500 | LRT 404520 | | |
| 71.5 | 35 | 25 | 14 | 10 | 0.6 | 0.3 | 50 | 50 | 62 | 49 | 42 200 | 28 800 | 83 400 | 60 100 | 4 500 | LRT 455025 | | |
| 71.5 | 35 | 25 | 14 | 10 | 0.6 | 0.3 | 50 | 50 | 67 | 49 | 42 200 | 43 300 | 83 400 | 148 000 | 5 000 | LRT 455025 | | |
| 86.5 | 40 | 25.5 | 17 | 12 | 1 | 1 | 60 | 60 | 75 | 59 | 47 500 | 41 400 | 103 000 | 89 700 | 4 000 | LRT 506025 | | |
| 86.5 | 40 | 25.5 | 17 | 12 | 1 | 1 | 60 | 60 | 82 | 59 | 47 500 | 64 600 | 103 000 | 224 000 | 4 000 | LRT 506025 | | |
| 96.5 | 40 | 25.5 | 18 | 11 | 1 | 1 | 70 | 70 | 85 | 68 | 55 500 | 43 100 | 120 000 | 101 000 | 3 500 | LRT 607025 | | |

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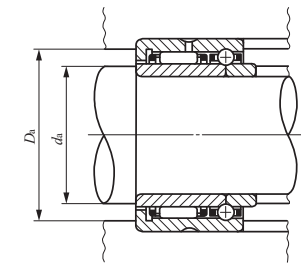
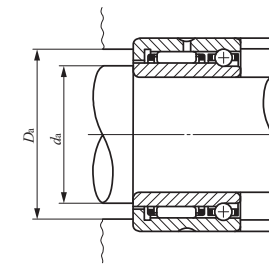
Needle Roller Bearings with Angular Contact Ball Bearing
 Needle Roller Bearings with Three-point Contact Ball Bearing



NATA59



NATB59



Shaft dia. 15 – 70mm

| Shaft dia. mm | Identification number | | | | Boundary dimensions mm | | | | | | |
|------------------|-----------------------|------------------|--------------------------|------------------|---------------------------|-----|----|----|--------------------|-------|--|
| | Angular contact type | Mass (Ref.) g | Three-point contact type | Mass (Ref.) g | d | D | C | B | $r_{s\ min}^{(1)}$ | F_w | |
| 15 | NATA 5902 | 50.5 | NATB 5902 | 53 | 15 | 28 | 18 | 20 | 0.3 | 20 | |
| 17 | NATA 5903 | 55.5 | NATB 5903 | 58.5 | 17 | 30 | 18 | 20 | 0.3 | 22 | |
| 20 | NATA 5904 | 111 | NATB 5904 | 115 | 20 | 37 | 23 | 25 | 0.3 | 25 | |
| 25 | NATA 5905 | 131 | NATB 5905 | 136 | 25 | 42 | 23 | 25 | 0.3 | 30 | |
| 30 | NATA 5906 | 151 | NATB 5906 | 157 | 30 | 47 | 23 | 25 | 0.3 | 35 | |
| 35 | NATA 5907 | 250 | NATB 5907 | 260 | 35 | 55 | 27 | 30 | 0.6 | 42 | |
| 40 | NATA 5908 | 355 | NATB 5908 | 375 | 40 | 62 | 30 | 34 | 0.6 | 48 | |
| 45 | NATA 5909 | 410 | NATB 5909 | 435 | 45 | 68 | 30 | 34 | 0.6 | 55 | |
| 50 | NATA 5910 | 420 | NATB 5910 | 445 | 50 | 72 | 30 | 34 | 0.6 | 58 | |
| 55 | NATA 5911 | 585 | NATB 5911 | 615 | 55 | 80 | 34 | 38 | 1 | 63 | |
| 60 | NATA 5912 | 625 | NATB 5912 | 660 | 60 | 85 | 34 | 38 | 1 | 68 | |
| 65 | NATA 5913 | 665 | NATB 5913 | 710 | 65 | 90 | 34 | 38 | 1 | 75 | |
| 70 | NATA 5914 | 1 070 | NATB 5914 | 1 130 | 70 | 100 | 40 | 45 | 1 | 80 | |

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

| Standard mounting dimensions mm | | Basic dynamic load rating C | | Basic static load rating C ₀ | | Allowable rotational speed ⁽²⁾ min ⁻¹ |
|------------------------------------|---------------|--------------------------------|------------|--|------------|--|
| d_a Min. | D_a Max. | Radial N | Axial N | Radial N | Axial N | |
| 17 | 26 | 7 710 | 1 900 | 10 200 | 2 920 | |
| 19 | 28 | 8 220 | 2 050 | 11 500 | 3 340 | 18 000 |
| 22 | 35 | 14 300 | 3 810 | 18 400 | 6 110 | 16 000 |
| 27 | 40 | 15 800 | 4 300 | 22 100 | 7 520 | 13 000 |
| 32 | 45 | 17 700 | 4 550 | 26 800 | 8 460 | 11 000 |
| 39 | 51 | 24 000 | 4 890 | 42 100 | 9 870 | 9 500 |
| 44 | 58 | 30 600 | 5 350 | 60 400 | 11 800 | 8 500 |
| 49 | 64 | 32 600 | 5 450 | 68 500 | 12 700 | 7 000 |
| 54 | 68 | 33 600 | 5 660 | 72 500 | 13 600 | 7 000 |
| 60 | 75 | 39 500 | 10 400 | 74 400 | 24 700 | 6 500 |
| 65 | 80 | 41 800 | 10 700 | 82 200 | 26 700 | 6 000 |
| 70 | 85 | 43 800 | 11 000 | 90 200 | 28 700 | 5 500 |
| 75 | 95 | 56 400 | 13 500 | 127 000 | 35 000 | 5 000 |

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