

# ROLLER BEARINGS

- Caged Roller Bearings
- Full Complement Roller Bearings
- Roller Bearings for Sheaves

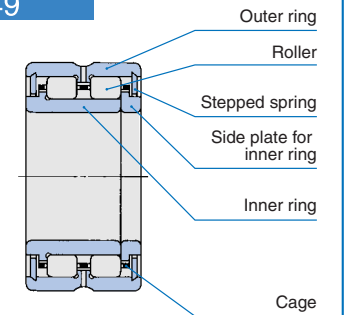


## Structure and Features

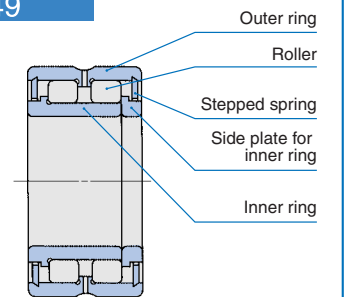
**IKO** Roller Bearings in which rollers are incorporated in two rows are non-separable heavy-duty bearings. They can withstand not only radial loads but axial loads as well, which are supported at the contacts between the shoulders of inner and outer rings and the end faces of rollers. Therefore, they are most suitable for use at the fixing side of a shaft. Like needle roller bearings, they are also compact. Roller bearings include the caged type, full complement type and the type for sheaves, and any bearings suitable for the operating conditions can be selected. In particular, these bearings are used for heavy-duty machines such as construction machinery, and industrial machinery.

### Structures of Roller Bearings

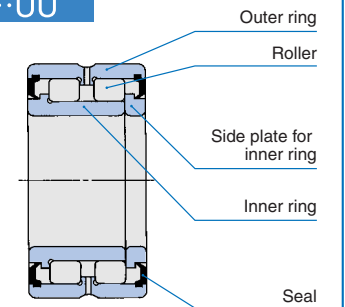
NAU49



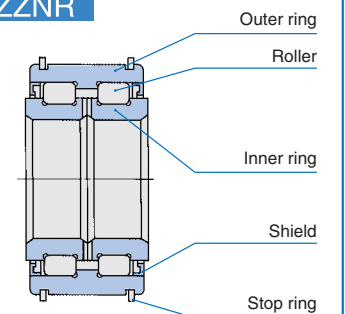
NAG49



NAG49···UU



NAS50···ZZNR



E

NAG  
NAU  
TRU  
NAS

## Types

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

**Table 1 Type of bearing**

| Type        | Caged type             | Full complement type | For sheaves  |
|-------------|------------------------|----------------------|--------------|
| Standard    | NAU49<br>TRU           | NAG49                | —            |
| With seal   | NAU49...UU<br>TRU...UU | NAG49...UU           | NAS50...UUNR |
| With shield | —                      | —                    | NAS50...ZZNR |

### Caged Roller Bearings

These bearings are suitable for high-speed rotations and fluctuating loads. Also, as the axial distance between the double-row rollers is comparatively large, large moment loads can be supported.

Caged roller bearings with seal incorporate seals on both sides. Synthetic resin rubber seals are excellent in the prevention of dust penetration and grease leakage, providing an excellent sealing effect.

### Full Complement Roller Bearings

These bearings are suitable for low-speed rotations or oscillating motions and heavy loads. Similar to the caged type, the structure is advantageous for supporting moment loads.

The bearings with seal incorporate seals on both sides.

### Roller Bearings for Sheaves

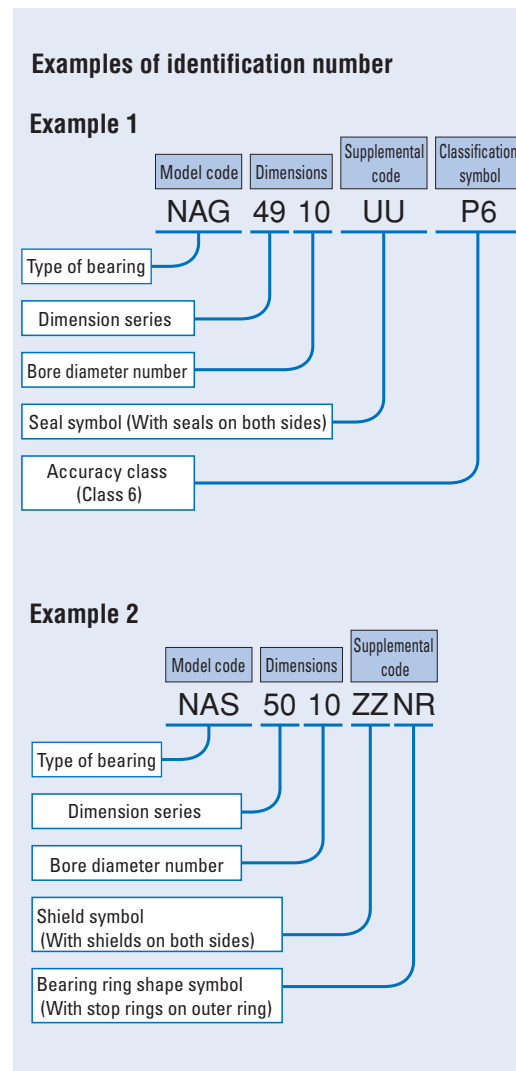
These bearings are the double-row full complement type with a low sectional height designed for use in sheaves. There are two types; the sealed type and the shield type. They can withstand heavy radial loads and shock loads at comparatively low-speed rotations, and can also withstand axial loads.

They can easily be fixed axially to sheaves using the stop rings of the outer ring. As the width of the inner ring is designed to be larger than that of the outer ring, they require no spacer between sheaves. The structure is stable because the double-row rollers can withstand the moment loads caused by rope transition.

The surfaces of these bearings are treated to have high corrosion resistance.

## Identification Number

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



## Accuracy

Roller Bearings are manufactured in accordance with JIS (See page A31.). A side plate for inner ring is assembled on one side of caged or full complement roller bearings. The tolerance of bore diameter of the side plate is shown below. Tolerances of Roller Bearings for Sheaves represent the values before surface treatment. The tolerance of internal distance between cir-clips is shown below.

Tolerance of bore diameter of the side plate  $d$ : E7  
Tolerance of internal distance between cir-clips  $C_1$ : 0~+0.4mm

## Clearance

Roller Bearings are manufactured to the CN clearance shown in Table 18 on page A37. However, Roller Bearings for Sheaves are manufactured so that proper operating clearances are obtained after being mounted with a specified fit.

## Fit

The recommended fits for Roller Bearings are shown in Tables 21 to 22 on pages A41 and A42. The recommended fits for Roller Bearings for Sheaves are shown in Table 2.

**Table 2 Recommended fits for Roller Bearings for Sheaves**

| Tolerance class of shaft | Tolerance class of housing bore |
|--------------------------|---------------------------------|
| g6                       | N7                              |

**Table 3 Bearings with prepacked grease**

○ : With prepacked grease × : Without prepacked grease

| Type                 | Standard | With seals | With shields |
|----------------------|----------|------------|--------------|
| Caged type           | NAU, TRU | ×          | ○            |
| Full complement type | NAG      | ×          | ○            |
| For sheaves          | NAS      | —          | ○            |

**Table 4 Number of oil holes of the inner ring and outer ring**

| Type                 | Nominal bore diameter $d$ mm | Number of oil holes of the outer ring |            |              | Number of oil holes of the inner ring |
|----------------------|------------------------------|---------------------------------------|------------|--------------|---------------------------------------|
|                      |                              | Standard                              | With seals | With shields |                                       |
| Caged type           | $d \leq 17$                  | 0                                     | 0          | —            | 0                                     |
|                      | $17 < d$                     | 2                                     | 2          | —            |                                       |
| Full complement type | $d \leq 17$                  | 0                                     | 0          | —            | 0                                     |
|                      | $17 < d$                     | 2                                     | 2          | —            |                                       |
| For sheaves          | NAS                          | —                                     | 0          | 0            | 2                                     |

Remark The bearings with oil holes are also provided with an oil groove.

## Lubrication

Bearings with prepacked grease are shown in Table 3. For Caged Roller Bearings and Full Complement Roller Bearings, ALVANIA GREASE S2 (SHOWA SHELL SEKIYU K.K.) is prepacked as the lubricating grease. For Roller Bearings for Sheaves, ALVANIA GREASE EP2 (SHOWA SHELL SEKIYU K.K.) is prepacked as the lubricating grease.

In the case of bearings without prepacked grease, perform proper lubrication for use. Operating without lubrication will increase the wear of the rolling contact surfaces and shorten their lives.

## Oil Hole

The number of oil holes of the inner and outer rings is shown in Table 4.

## Operating Temperature Range

The operating temperature range for Roller Bearings is  $-20^{\circ}\text{C} \sim +120^{\circ}\text{C}$ . However, the maximum allowable temperature for Roller Bearings for Sheaves is  $+110^{\circ}\text{C}$ .

## ■ Axial Load Capacity

Axial load capacity is not determined from the basic dynamic load rating based on rolling fatigue, but is determined by the amount of heat generated by sliding contact between the ends of rollers and guide shoulders of the inner and outer rings. It is therefore limited by the load conditions, sliding speeds, lubrication methods, etc.

The axial load capacity of Roller Bearings is obtained from the following equation.

If the axial load increases in comparison with the radial load, it will start to interfere with the smooth rolling motion. The axial load should therefore be within 20% of the radial load.

$$C_A = f_v a f_A \dots\dots\dots(1)$$

where,  $C_A$  : Axial load capacity N

$f_v$  : Speed correction factor

$f_v$  is obtained from Fig.2 by calculating the  $d_m n$  value.

$$d_m n = d_m \times n$$

$d_m$  : Mean value of bearing bore and outside diameters mm

$$\left( d_m \doteq \frac{d + D}{2} \right)$$

$n$  : Rotational speed rpm

When  $d_m n \leq 1000$ ,  $f_v = 1$ .

$a$  : Value determined by type of bearing (See Table 5.)

$f_A$  : Axial load capacity factor (See Fig.1.)

Table 5 Value by type of bearing

| Type of bearing | $a$  |
|-----------------|------|
| NAS 50          | 1    |
| NAG 49          | 0.78 |
| NAU 49, TRU     | 0.7  |

## Calculation example

When a roller bearing for sheaves NAS 5016 ZZ NR is run at  $n = 250$  rpm under grease lubrication and subjected to an intermittent axial load, the axial load capacity is calculated as follows.

As the bearing bore diameter is 80 mm,  $f_A = 18000$  is obtained from the axial load capacity line of Fig. 1 (ii).

$$a = 1$$

$$d_m \doteq \frac{80 + 125}{2} = 102.5$$

$$d_m n = 102.5 \times 250 \doteq 25600$$

From Fig. 2,  $f_v \doteq 0.87$

Therefore, the axial load capacity  $C_A$  is obtained.

$$C_A = f_v a f_A = 0.87 \times 1 \times 18000 \doteq 15700 \text{ N}$$

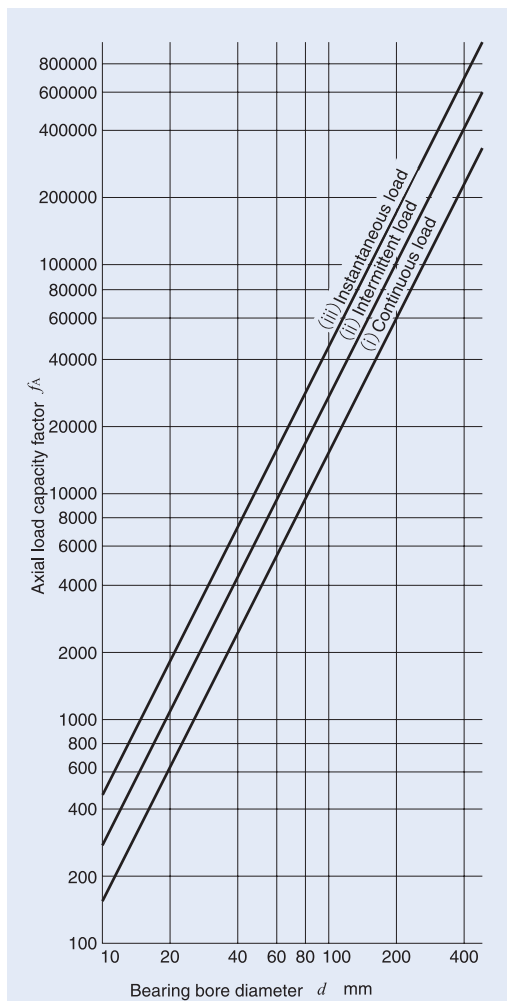


Fig. 1 Axial load capacity factor

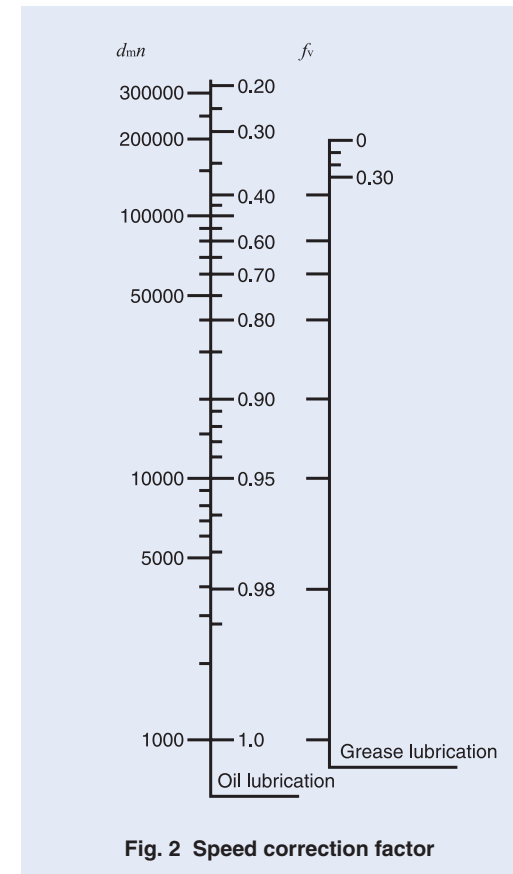


Fig. 2 Speed correction factor

## ■ Mounting

Unlike needle roller bearings, Caged and Full Complement Roller Bearings are non-separable.

As shown in Fig. 3 (1), the inner ring should be press-fitted until it makes close contact with the shaft shoulder, and fixed axially with a nut. Dimensions of the shoulders of the shaft and housing should be based on  $J$  and  $E_W$  shown in the table of dimensions, respectively.

In the case of Roller Bearings for Sheaves, as shown in Fig. 3 (2), the outer ring should be fixed by stop rings after being press-fitted into the sheaves, and the inner ring should be fixed securely in the axial direction.

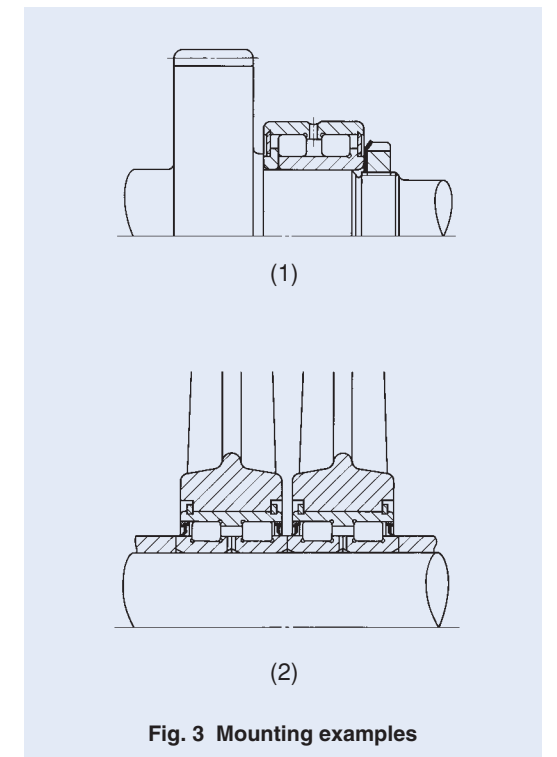


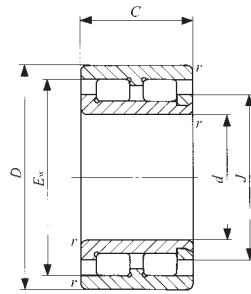
Fig. 3 Mounting examples

E

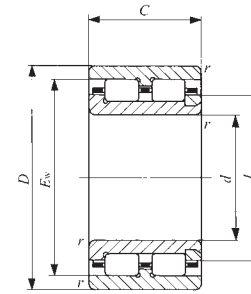
NAG  
NAU  
TRU  
NAS

ROLLER BEARINGS

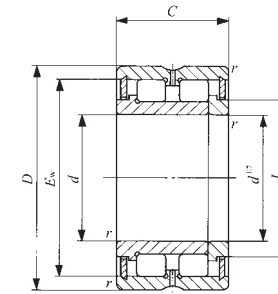
Caged Roller Bearings  
Full Complement Roller Bearings



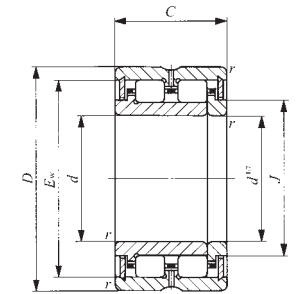
NAG49  
( $d \leq 17$ )



NAU49  
( $d \leq 17$ )



NAG49



NAU49 TRU

Shaft dia. 10 – 35mm

| Shaft dia. mm | Identification number |            |            | Mass (Ref.) g | Boundary dimensions mm |     |     |                    |      |       |
|---------------|-----------------------|------------|------------|---------------|------------------------|-----|-----|--------------------|------|-------|
|               | Full complement type  | Caged type |            |               | $d$                    | $D$ | $C$ | $r_{s \min}^{(1)}$ | $J$  | $E_w$ |
| 10            | NAG 4900              | —          | —          | 25.5          | 10                     | 22  | 13  | 0.3                | 15.5 | 18.5  |
|               | —                     | NAU 4900   | —          | 24.5          | 10                     | 22  | 13  | 0.3                | 15.5 | 18.5  |
| 12            | NAG 4901              | —          | —          | 28.5          | 12                     | 24  | 13  | 0.3                | 17   | 20    |
|               | —                     | NAU 4901   | —          | 27.5          | 12                     | 24  | 13  | 0.3                | 17   | 20    |
| 15            | NAG 4902              | —          | —          | 38            | 15                     | 28  | 13  | 0.3                | 21   | 24    |
|               | —                     | NAU 4902   | —          | 36.5          | 15                     | 28  | 13  | 0.3                | 21   | 24    |
|               | —                     | —          | TRU 153320 | 80.5          | 15                     | 33  | 20  | 0.3                | 19.5 | 27    |
| 17            | NAG 4903              | —          | —          | 41            | 17                     | 30  | 13  | 0.3                | 22.5 | 25.5  |
|               | —                     | NAU 4903   | —          | 39.5          | 17                     | 30  | 13  | 0.3                | 22.5 | 25.5  |
|               | —                     | —          | TRU 173425 | 100           | 17                     | 34  | 25  | 0.3                | 21.5 | 29.5  |
| 20            | NAG 4904              | —          | —          | 76.5          | 20                     | 37  | 17  | 0.3                | 24   | 31.5  |
|               | —                     | NAU 4904   | —          | 76            | 20                     | 37  | 17  | 0.3                | 24   | 31.5  |
|               | —                     | —          | TRU 203820 | 96.5          | 20                     | 38  | 20  | 0.3                | 25   | 32.5  |
|               | —                     | —          | TRU 203825 | 122           | 20                     | 38  | 25  | 0.3                | 25   | 32.5  |
| 25            | NAG 4905              | —          | —          | 89.5          | 25                     | 42  | 17  | 0.3                | 29.5 | 37    |
|               | —                     | NAU 4905   | —          | 89            | 25                     | 42  | 17  | 0.3                | 29.5 | 37    |
|               | —                     | —          | TRU 254425 | 154           | 25                     | 44  | 25  | 0.3                | 30.5 | 38    |
| 28            | —                     | —          | TRU 284530 | 173           | 28                     | 45  | 30  | 0.3                | 31.5 | 39.5  |
| 30            | NAG 4906              | —          | —          | 103           | 30                     | 47  | 17  | 0.3                | 34   | 41.5  |
|               | —                     | NAU 4906   | —          | 102           | 30                     | 47  | 17  | 0.3                | 34   | 41.5  |
|               | —                     | —          | TRU 304830 | 197           | 30                     | 48  | 30  | 0.3                | 35   | 42.5  |
| 32            | —                     | —          | TRU 325230 | 260           | 32                     | 52  | 30  | 0.6                | 38   | 46    |
| 35            | NAG 4907              | —          | —          | 172           | 35                     | 55  | 20  | 0.6                | 40   | 49    |
|               | —                     | NAU 4907   | —          | 168           | 35                     | 55  | 20  | 0.6                | 40   | 49    |
|               | —                     | —          | TRU 355630 | 270           | 35                     | 56  | 30  | 0.6                | 40   | 49    |

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.  
 Considering that the axial load acts under practical operating conditions, up to 1/10 of this value is recommended for actual use.  
 Remarks1. The NAG and NAU series with a bore diameter  $d$  of 17 mm or less have no oil hole. In others, the outer ring has an oil groove and two oil holes.  
 2. No grease is prepacked. Perform proper lubrication.

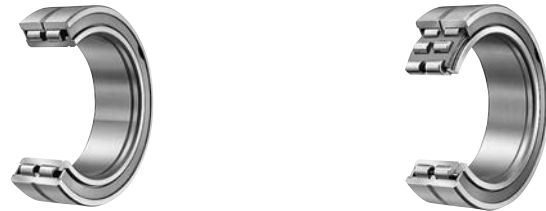
| Basic dynamic load rating $C$<br>N | Basic static load rating $C_0$<br>N | Allowable rotational speed <sup>(2)</sup><br>rpm |
|------------------------------------|-------------------------------------|--|
| 9 650                              | 10 800                              | 17 000   |
| 6 580                              | 6 470                               | 30 000   |
| 10 300                             | 12 000                              | 15 000   |
| 6 950                              | 7 120                               | 25 000   |
| 11 800                             | 15 200                              | 12 000   |
| 7 950                              | 9 020                               | 20 000   |
| 10 400                             | 10 400                              | 20 000   |
| 12 300                             | 16 500                              | 11 000   |
| 8 240                              | 9 670                               | 19 000   |
| 18 000                             | 21 600                              | 18 000   |
| 15 600                             | 18 900                              | 9 500  |
| 10 700                             | 11 300                              | 16 000   |
| 12 100                             | 13 400                              | 16 000   |
| 18 700                             | 23 600                              | 16 000   |
| 17 500                             | 23 200                              | 7 500  |
| 11 900                             | 13 900                              | 13 000   |
| 21 000                             | 28 900                              | 13 000   |
| 28 700                             | 43 800                              | 12 000   |
| 19 400                             | 27 600                              | 6 500  |
| 13 000                             | 16 200                              | 12 000   |
| 29 400                             | 46 600                              | 11 000   |
| 29 800                             | 44 200                              | 10 000   |
| 28 700                             | 43 800                              | 5 500  |
| 19 500                             | 26 300                              | 10 000   |
| 32 200                             | 49 800                              | 10 000   |

E

NAG  
NAU  
TRU  
NAS

**ROLLER BEARINGS**

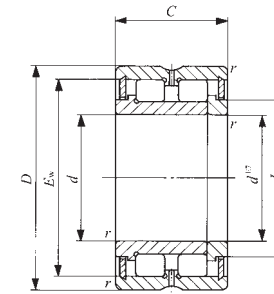
Caged Roller Bearings  
Full Complement Roller Bearings



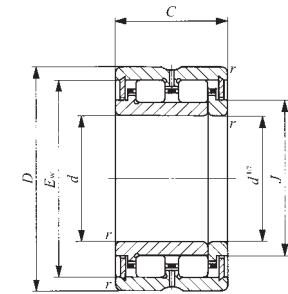
Shaft dia. 40 – 80mm

| Shaft dia. mm | Identification number |                 |                    | Mass (Ref.) g | Boundary dimensions mm |          |          |   |          |                      |
|---------------|-----------------------|-----------------|--------------------|---------------|------------------------|----------|----------|---|----------|----------------------|
|               | Full complement type  | Caged type      |                    |               | <i>d</i>               | <i>D</i> | <i>C</i> | <i>r<sub>s min</sub></i> <sup>(1)</sup> | <i>J</i> | <i>E<sub>w</sub></i> |
| 40            | <b>NAG 4908</b>       | —               | —                  | 225           | 40                     | 62       | 22       | 0.6                                     | 46       | 56                   |
|               | —                     | —               | <b>TRU 405930</b>  | 265           | 40                     | 59       | 30       | 0.6                                     | 45       | 52.5                 |
|               | —                     | <b>NAU 4908</b> | —                  | 220           | 40                     | 62       | 22       | 0.6                                     | 46       | 56                   |
| 42            | —                     | —               | <b>TRU 426230</b>  | 290           | 42                     | 62       | 30       | 0.6                                     | 48       | 56.5                 |
| 45            | <b>NAG 4909</b>       | —               | —                  | 265           | 45                     | 68       | 22       | 0.6                                     | 51       | 61                   |
|               | —                     | —               | <b>TRU 456430</b>  | 295           | 45                     | 64       | 30       | 0.6                                     | 50.5     | 58.5                 |
|               | —                     | <b>NAU 4909</b> | —                  | 260           | 45                     | 68       | 22       | 0.6                                     | 51       | 61                   |
| 50            | <b>NAG 4910</b>       | —               | —                  | 270           | 50                     | 72       | 22       | 0.6                                     | 55.5     | 65.5                 |
|               | —                     | <b>NAU 4910</b> | —                  | 265           | 50                     | 72       | 22       | 0.6                                     | 55.5     | 65.5                 |
|               | —                     | —               | <b>TRU 507745</b>  | 710           | 50                     | 77       | 45       | 1                                       | 58       | 69                   |
| 55            | <b>NAG 4911</b>       | —               | —                  | 395           | 55                     | 80       | 25       | 1                                       | 61.5     | 72.5                 |
|               | —                     | <b>NAU 4911</b> | —                  | 385           | 55                     | 80       | 25       | 1                                       | 61.5     | 72.5                 |
|               | —                     | —               | <b>TRU 558138</b>  | 615           | 55                     | 81       | 38       | 1                                       | 61.5     | 72.5                 |
| 60            | <b>NAG 4912</b>       | —               | —                  | 425           | 60                     | 85       | 25       | 1                                       | 67       | 77.5                 |
|               | —                     | <b>NAU 4912</b> | —                  | 415           | 60                     | 85       | 25       | 1                                       | 67       | 77.5                 |
|               | —                     | —               | <b>TRU 608945</b>  | 880           | 60                     | 89       | 45       | 1                                       | 69.5     | 81.5                 |
| 65            | <b>NAG 4913</b>       | —               | —                  | 455           | 65                     | 90       | 25       | 1                                       | 72       | 83                   |
|               | —                     | <b>NAU 4913</b> | —                  | 440           | 65                     | 90       | 25       | 1                                       | 72       | 83                   |
| 70            | <b>NAG 4914</b>       | —               | —                  | 725           | 70                     | 100      | 30       | 1                                       | 79       | 91.5                 |
|               | —                     | <b>NAU 4914</b> | —                  | 705           | 70                     | 100      | 30       | 1                                       | 79       | 91.5                 |
| 75            | <b>NAG 4915</b>       | —               | —                  | 775           | 75                     | 105      | 30       | 1                                       | 83.5     | 95.5                 |
|               | —                     | <b>NAU 4915</b> | —                  | 750           | 75                     | 105      | 30       | 1                                       | 83.5     | 95.5                 |
|               | —                     | —               | <b>TRU 7510845</b> | 1 240         | 75                     | 108      | 45       | 1                                       | 85.5     | 98.5                 |
| 80            | <b>NAG 4916</b>       | —               | —                  | 815           | 80                     | 110      | 30       | 1                                       | 89.5     | 102                  |
|               | —                     | <b>NAU 4916</b> | —                  | 790           | 80                     | 110      | 30       | 1                                       | 89.5     | 102                  |

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. Considering that the axial load acts under practical operating conditions, up to 1/10 of this value is recommended for actual use.  
 Remarks1. The outer ring has an oil groove and two oil holes.  
 2. No grease is prepacked. Perform proper lubrication.



NAG49



NAU49 TRU

| Basic dynamic load rating <i>C</i> | Basic static load rating <i>C<sub>0</sub></i> | Allowable rotational speed <sup>(2)</sup> |
|------------------------------------|---|---|
| N                                  | N   | rpm                                       |
| 34 600                             | 49 500  | 5 000                                     |
| 34 700                             | 62 500  | 8 500                                     |
| 23 400                             | 29 400  | 8 500                                     |
| 34 600                             | 57 800  | 8 000                                     |
| 36 400                             | 54 700  | 4 500                                     |
| 32 600                             | 59 700  | 8 000                                     |
| 24 800                             | 32 800  | 8 000                                     |
| 38 200                             | 59 900  | 4 000                                     |
| 26 200                             | 36 200  | 7 000                                     |
| 75 700                             | 134 000                                       | 7 000                                     |
| 48 100                             | 77 700  | 3 500                                     |
| 33 000                             | 47 000  | 6 500                                     |
| 61 400                             | 104 000                                       | 6 500                                     |
| 50 300                             | 84 300  | 3 500                                     |
| 34 700                             | 51 400  | 6 000                                     |
| 88 100                             | 152 000                                       | 6 000                                     |
| 53 200                             | 93 000  | 3 000                                     |
| 36 900                             | 57 100  | 5 500                                     |
| 77 700                             | 139 000                                       | 3 000                                     |
| 53 700                             | 84 600  | 5 000                                     |
| 80 000                             | 146 000                                       | 2 500                                     |
| 54 800                             | 88 200  | 5 000                                     |
| 103 000                            | 190 000                                       | 4 500                                     |
| 83 000                             | 157 000                                       | 2 500                                     |
| 57 200                             | 95 500  | 4 500                                     |

E

NAG  
NAU  
TRU  
NAS

**ROLLER BEARINGS**

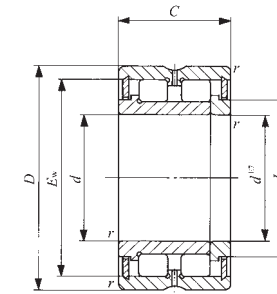
Caged Roller Bearings  
Full Complement Roller Bearings



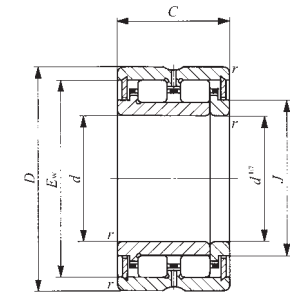
Shaft dia. 85 – 140mm

| Shaft dia. mm | Identification number |                 |                     | Mass (Ref.) g | Boundary dimensions mm |          |          |   |          |                      |
|---------------|-----------------------|-----------------|---------------------|---------------|------------------------|----------|----------|---|----------|----------------------|
|               | Full complement type  | Caged type      |                     |               | <i>d</i>               | <i>D</i> | <i>C</i> | <i>r<sub>s min</sub></i> <sup>(1)</sup> | <i>J</i> | <i>E<sub>w</sub></i> |
| 85            | <b>NAG 4917</b>       | —               | —                   | 1 190         | 85                     | 120      | 35       | 1.5                                     | 96       | 110                  |
|               | —                     | —               | <b>TRU 8511850</b>  | 1 530         | 85                     | 118      | 50       | 1                                       | 94.5     | 107.5                |
|               | —                     | <b>NAU 4917</b> | —                   | 1 150         | 85                     | 120      | 35       | 1.5                                     | 96       | 110                  |
|               | —                     | —               | <b>TRU 8512045</b>  | 1 500         | 85                     | 120      | 45       | 1.5                                     | 96.5     | 110                  |
| 90            | <b>NAG 4918</b>       | —               | —                   | 1 250         | 90                     | 125      | 35       | 1.5                                     | 101      | 115.5                |
|               | —                     | <b>NAU 4918</b> | —                   | 1 210         | 90                     | 125      | 35       | 1.5                                     | 101      | 115.5                |
|               | —                     | —               | <b>TRU 9012550</b>  | 1 740         | 90                     | 125      | 50       | 1.5                                     | 101      | 114                  |
| 95            | <b>NAG 4919</b>       | —               | —                   | 1 300         | 95                     | 130      | 35       | 1.5                                     | 106      | 120.5                |
|               | —                     | <b>NAU 4919</b> | —                   | 1 270         | 95                     | 130      | 35       | 1.5                                     | 106      | 120.5                |
| 100           | <b>NAG 4920</b>       | —               | —                   | 1 850         | 100                    | 140      | 40       | 1.5                                     | 114.5    | 129.5                |
|               | —                     | —               | <b>TRU 10013550</b> | 1 900         | 100                    | 135      | 50       | 1.5                                     | 112      | 125.5                |
|               | —                     | <b>NAU 4920</b> | —                   | 1 770         | 100                    | 140      | 40       | 1.5                                     | 114.5    | 129.5                |
| 105           | —                     | —               | <b>TRU 10515350</b> | 2 890         | 105                    | 153      | 50       | 1.5                                     | 120      | 138                  |
| 110           | <b>NAG 4922</b>       | —               | —                   | 2 010         | 110                    | 150      | 40       | 1.5                                     | 123      | 138.5                |
|               | —                     | <b>NAU 4922</b> | —                   | 1 930         | 110                    | 150      | 40       | 1.5                                     | 123      | 138.5                |
| 120           | <b>NAG 4924</b>       | —               | —                   | 2 780         | 120                    | 165      | 45       | 1.5                                     | 136      | 153.5                |
|               | —                     | <b>NAU 4924</b> | —                   | 2 680         | 120                    | 165      | 45       | 1.5                                     | 136      | 153.5                |
| 125           | —                     | —               | <b>TRU 12517860</b> | 4 490         | 125                    | 178      | 60       | 1.5                                     | 143.5    | 162                  |
| 130           | <b>NAG 4926</b>       | —               | —                   | 3 750         | 130                    | 180      | 50       | 2                                       | 147      | 165.5                |
|               | —                     | <b>NAU 4926</b> | —                   | 3 610         | 130                    | 180      | 50       | 2                                       | 147      | 165.5                |
| 135           | —                     | —               | <b>TRU 13518860</b> | 4 790         | 135                    | 188      | 60       | 1.5                                     | 154      | 172.5                |
| 140           | <b>NAG 4928</b>       | —               | —                   | 3 990         | 140                    | 190      | 50       | 2                                       | 157.5    | 176                  |
|               | —                     | <b>NAU 4928</b> | —                   | 3 840         | 140                    | 190      | 50       | 2                                       | 157.5    | 176                  |

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. Considering that the axial load acts under practical operating conditions, up to 1/10 of this value is recommended for actual use.  
 Remarks1. The outer ring has an oil groove and two oil holes.  
 2. No grease is prepacked. Perform proper lubrication.



NAG49



NAU49 TRU

| Basic dynamic load rating <i>C</i> | Basic static load rating <i>C<sub>0</sub></i> | Allowable rotational speed <sup>(2)</sup> |
|------------------------------------|---|---|
| N                                  | N   | rpm                                       |
| 111 000                            | 200 000                                       | 2 500                                     |
| 114 000                            | 222 000                                       | 4 000                                     |
| 75 400                             | 120 000                                       | 4 000                                     |
| 110 000                            | 215 000                                       | 4 000                                     |
| 114 000                            | 211 000                                       | 2 500                                     |
| 79 500                             | 130 000                                       | 4 000                                     |
| 119 000                            | 240 000                                       | 4 000                                     |
| 117 000                            | 222 000                                       | 2 000                                     |
| 81 000                             | 136 000                                       | 4 000                                     |
| 152 000                            | 292 000                                       | 2 000                                     |
| 124 000                            | 264 000                                       | 3 500                                     |
| 106 000                            | 181 000                                       | 3 500                                     |
| 159 000                            | 286 000                                       | 3 500                                     |
| 161 000                            | 322 000                                       | 1 900                                     |
| 113 000                            | 200 000                                       | 3 500                                     |
| 208 000                            | 431 000                                       | 1 700                                     |
| 146 000                            | 268 000                                       | 3 000                                     |
| 211 000                            | 408 000                                       | 3 000                                     |
| 240 000                            | 495 000                                       | 1 600                                     |
| 166 000                            | 304 000                                       | 2 500                                     |
| 220 000                            | 442 000                                       | 2 500                                     |
| 249 000                            | 531 000                                       | 1 500                                     |
| 174 000                            | 327 000                                       | 2 500                                     |

**ROLLER BEARINGS**

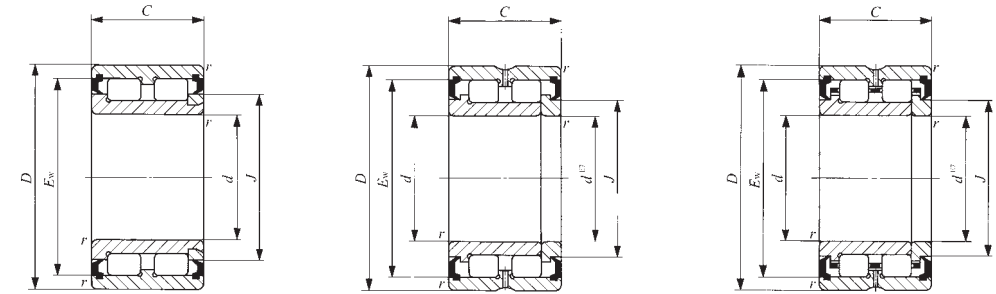
Caged Roller Bearings **With Seal**  
 Full Complement Roller Bearings **With Seal**



Shaft dia. 10 – 40mm

| Shaft dia. mm | Identification number |              | Mass (Ref.) g | Boundary dimensions mm |          |          |   |          |
|---------------|-----------------------|--------------|---------------|------------------------|----------|----------|---|----------|
|               | Full complement type  | Caged type   |               | <i>d</i>               | <i>D</i> | <i>C</i> | <i>r<sub>s min</sub></i> <sup>(1)</sup> | <i>J</i> |
| 10            | NAG 4900UU            | —            | 25.5          | 10                     | 22       | 13       | 0.3                                     | 15.5     |
| 12            | NAG 4901UU            | —            | 28.5          | 12                     | 24       | 13       | 0.3                                     | 17       |
| 15            | NAG 4902UU            | —            | 38            | 15                     | 28       | 13       | 0.3                                     | 21       |
|               | —                     | TRU 153320UU | 80.5          | 15                     | 33       | 20       | 0.3                                     | 19.5     |
| 17            | NAG 4903UU            | —            | 41            | 17                     | 30       | 13       | 0.3                                     | 22.5     |
|               | —                     | TRU 173425UU | 100           | 17                     | 34       | 25       | 0.3                                     | 21.5     |
| 20            | NAG 4904UU            | —            | 76.5          | 20                     | 37       | 17       | 0.3                                     | 24       |
|               | —                     | NAU 4904UU   | 76            | 20                     | 37       | 17       | 0.3                                     | 24       |
|               | —                     | —            | 96.5          | 20                     | 38       | 20       | 0.3                                     | 25       |
| 25            | —                     | TRU 203820UU | 122           | 20                     | 38       | 25       | 0.3                                     | 25       |
|               | NAG 4905UU            | —            | 89.5          | 25                     | 42       | 17       | 0.3                                     | 29.5     |
|               | —                     | NAU 4905UU   | 89            | 25                     | 42       | 17       | 0.3                                     | 29.5     |
| 28            | —                     | TRU 254425UU | 154           | 25                     | 44       | 25       | 0.3                                     | 30.5     |
|               | —                     | —            | 173           | 28                     | 45       | 30       | 0.3                                     | 31.5     |
| 30            | NAG 4906UU            | —            | 103           | 30                     | 47       | 17       | 0.3                                     | 34       |
|               | —                     | NAU 4906UU   | 102           | 30                     | 47       | 17       | 0.3                                     | 34       |
|               | —                     | TRU 304830UU | 197           | 30                     | 48       | 30       | 0.3                                     | 35       |
| 32            | —                     | TRU 325230UU | 260           | 32                     | 52       | 30       | 0.6                                     | 38       |
| 35            | NAG 4907UU            | —            | 172           | 35                     | 55       | 20       | 0.6                                     | 40       |
|               | —                     | NAU 4907UU   | 168           | 35                     | 55       | 20       | 0.6                                     | 40       |
|               | —                     | TRU 355630UU | 270           | 35                     | 56       | 30       | 0.6                                     | 40       |
| 40            | NAG 4908UU            | —            | 225           | 40                     | 62       | 22       | 0.6                                     | 46       |
|               | —                     | TRU 405930UU | 265           | 40                     | 59       | 30       | 0.6                                     | 45       |
|               | —                     | NAU 4908UU   | 220           | 40                     | 62       | 22       | 0.6                                     | 46       |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable rotational speed applies to grease lubrication. Considering that the axial load acts under practical operating conditions, up to 1/10 of this value is recommended for actual use.  
 Remarks1. The NAG and NAU series with a bore diameter, *d*, of 17 mm or less have no oil hole. In others, the outer ring has an oil groove and two oil holes.  
 2. The bearings with seals are provided with prepacked grease.



NAG49...UU  
(*d* ≤ 17)

NAG49...UU

NAU49...UU  
TRU...UU

| <i>E<sub>w</sub></i> | Basic dynamic load rating <i>C</i><br>N | Basic static load rating <i>C<sub>0</sub></i><br>N | Allowable rotational speed <sup>(2)</sup><br>rpm |
|----------------------|---|--|--|
| 19.5                 | 9 650                                   | 10 800   | 10 000   |
| 21                   | 10 300                                  | 12 000   | 9 000  |
| 25                   | 11 800                                  | 15 200   | 7 000  |
| 27                   | 10 400                                  | 10 400   | 9 500  |
| 26.5                 | 12 300                                  | 16 500   | 6 500  |
| 29.5                 | 18 000                                  | 21 600   | 8 500  |
| 31.5                 | 15 600                                  | 18 900   | 5 500  |
| 31.5                 | 10 700                                  | 11 300   | 8 000  |
| 32.5                 | 12 100                                  | 13 400   | 7 500  |
| 32.5                 | 18 700                                  | 23 600   | 7 500  |
| 37                   | 17 500                                  | 23 200   | 4 500  |
| 37                   | 11 900                                  | 13 900   | 6 500  |
| 38                   | 21 000                                  | 28 900   | 6 000  |
| 39.5                 | 28 700                                  | 43 800   | 6 000  |
| 41.5                 | 19 400                                  | 27 600   | 4 000  |
| 41.5                 | 13 000                                  | 16 200   | 5 500  |
| 42.5                 | 29 400                                  | 46 600   | 5 500  |
| 46                   | 29 800                                  | 44 200   | 5 000  |
| 49                   | 28 700                                  | 43 800   | 3 500  |
| 49                   | 19 500                                  | 26 300   | 4 500  |
| 49                   | 32 200                                  | 49 800   | 4 500  |
| 56                   | 34 600                                  | 49 500   | 3 000  |
| 52.5                 | 34 700                                  | 62 500   | 4 000  |
| 56                   | 23 400                                  | 29 400   | 4 000  |

**ROLLER BEARINGS**

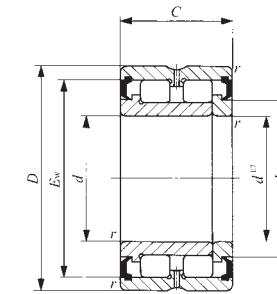
Caged Roller Bearings **With Seal**  
 Full Complement Roller Bearings **With Seal**



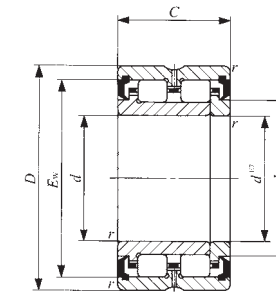
Shaft dia. 42 – 80mm

| Shaft dia. mm | Identification number |            |               | Mass (Ref.) g | Boundary dimensions mm |          |          |   |          |
|---------------|-----------------------|------------|---------------|---------------|------------------------|----------|----------|---|----------|
|               | Full complement type  | Caged type |               |               | <i>d</i>               | <i>D</i> | <i>C</i> | <i>r<sub>s min</sub></i> <sup>(1)</sup> | <i>J</i> |
| 42            | —                     | —          | TRU 426230UU  | 290           | 42                     | 62       | 30       | 0.6                                     | 48       |
| 45            | NAG 4909UU            | —          | —             | 265           | 45                     | 68       | 22       | 0.6                                     | 51       |
|               | —                     | NAU 4909UU | TRU 456430UU  | 295           | 45                     | 64       | 30       | 0.6                                     | 50.5     |
| 50            | —                     | —          | —             | 260           | 45                     | 68       | 22       | 0.6                                     | 51       |
|               | NAG 4910UU            | —          | —             | 270           | 50                     | 72       | 22       | 0.6                                     | 55.5     |
|               | —                     | NAU 4910UU | —             | 265           | 50                     | 72       | 22       | 0.6                                     | 55.5     |
| 55            | —                     | —          | TRU 507745UU  | 710           | 50                     | 77       | 45       | 1                                       | 58       |
|               | NAG 4911UU            | —          | —             | 395           | 55                     | 80       | 25       | 1                                       | 61.5     |
|               | —                     | NAU 4911UU | —             | 385           | 55                     | 80       | 25       | 1                                       | 61.5     |
| 60            | —                     | —          | TRU 558138UU  | 615           | 55                     | 81       | 38       | 1                                       | 61.5     |
|               | NAG 4912UU            | —          | —             | 425           | 60                     | 85       | 25       | 1                                       | 67       |
|               | —                     | NAU 4912UU | —             | 415           | 60                     | 85       | 25       | 1                                       | 67       |
| 65            | —                     | —          | TRU 608945UU  | 880           | 60                     | 89       | 45       | 1                                       | 69.5     |
|               | NAG 4913UU            | —          | —             | 455           | 65                     | 90       | 25       | 1                                       | 72       |
|               | —                     | NAU 4913UU | —             | 440           | 65                     | 90       | 25       | 1                                       | 72       |
| 70            | NAG 4914UU            | —          | —             | 725           | 70                     | 100      | 30       | 1                                       | 79       |
|               | —                     | NAU 4914UU | —             | 705           | 70                     | 100      | 30       | 1                                       | 79       |
| 75            | NAG 4915UU            | —          | —             | 775           | 75                     | 105      | 30       | 1                                       | 83.5     |
|               | —                     | NAU 4915UU | —             | 750           | 75                     | 105      | 30       | 1                                       | 83.5     |
|               | —                     | —          | TRU 7510845UU | 1 240         | 75                     | 108      | 45       | 1                                       | 85.5     |
| 80            | NAG 4916UU            | —          | —             | 815           | 80                     | 110      | 30       | 1                                       | 89.5     |
|               | —                     | NAU 4916UU | —             | 790           | 80                     | 110      | 30       | 1                                       | 89.5     |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable rotational speed applies to grease lubrication. Considering that the axial load acts under practical operating conditions, up to 1/10 of this value is recommended for actual use.  
 Remarks1. The outer ring has an oil groove and two oil holes.  
 2. The bearings with seals are provided with prepacked grease.



NAG49...UU



NAU49...UU  
TRU...UU

| <i>E<sub>w</sub></i> | Basic dynamic load rating <i>C</i> | Basic static load rating <i>C<sub>0</sub></i> | Allowable rotational speed <sup>(2)</sup> |
|----------------------|------------------------------------|---|---|
|                      | N                                  | N   | rpm                                       |
| 56.5                 | 34 600                             | 57 800  | 4 000                                     |
| 61                   | 36 400                             | 54 700  | 2 500                                     |
| 58.5                 | 32 600                             | 59 700  | 3 500                                     |
| 61                   | 24 800                             | 32 800  | 3 500                                     |
| 65.5                 | 38 200                             | 59 900  | 2 500                                     |
| 65.5                 | 26 200                             | 36 200  | 3 500                                     |
| 69                   | 75 700                             | 134 000                                       | 3 500                                     |
| 72.5                 | 48 100                             | 77 700  | 2 000                                     |
| 72.5                 | 33 000                             | 47 000  | 3 000                                     |
| 72.5                 | 61 400                             | 104 000                                       | 3 000                                     |
| 77.5                 | 50 300                             | 84 300  | 2 000                                     |
| 77.5                 | 34 700                             | 51 400  | 3 000                                     |
| 81.5                 | 88 100                             | 152 000                                       | 3 000                                     |
| 83                   | 53 200                             | 93 000  | 1 900                                     |
| 83                   | 36 900                             | 57 100  | 2 500                                     |
| 91.5                 | 77 700                             | 139 000                                       | 1 800                                     |
| 91.5                 | 53 700                             | 84 600  | 2 500                                     |
| 95.5                 | 80 000                             | 146 000                                       | 1 700                                     |
| 95.5                 | 54 800                             | 88 200  | 2 500                                     |
| 98.5                 | 103 000                            | 190 000                                       | 2 000                                     |
| 102                  | 83 000                             | 157 000                                       | 1 600                                     |
| 102                  | 57 200                             | 95 500  | 2 000                                     |

E

NAG  
NAU  
TRU  
NAS



**ROLLER BEARINGS**

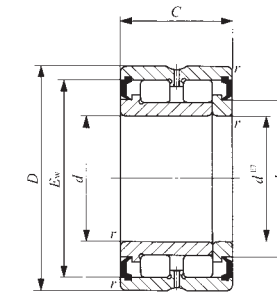
Caged Roller Bearings **With Seal**  
 Full Complement Roller Bearings **With Seal**



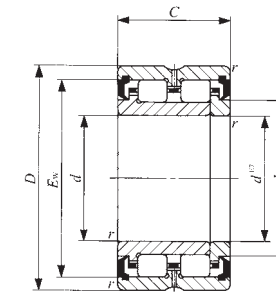
Shaft dia. 85 – 140mm

| Shaft dia. mm | Identification number |                   |                       | Mass (Ref.) g | Boundary dimensions mm |          |          |   |          |
|---------------|-----------------------|-------------------|-----------------------|---------------|------------------------|----------|----------|---|----------|
|               | Full complement type  | Caged type        |                       |               | <i>d</i>               | <i>D</i> | <i>C</i> | <i>r<sub>s min</sub></i> <sup>(1)</sup> | <i>J</i> |
| 85            | <b>NAG 4917UU</b>     | —                 | —                     | 1 190         | 85                     | 120      | 35       | 1.5                                     | 96       |
|               | —                     | —                 | <b>TRU 8511850UU</b>  | 1 530         | 85                     | 118      | 50       | 1                                       | 94.5     |
|               | —                     | <b>NAU 4917UU</b> | —                     | 1 150         | 85                     | 120      | 35       | 1.5                                     | 96       |
|               | —                     | —                 | <b>TRU 8512045UU</b>  | 1 500         | 85                     | 120      | 45       | 1.5                                     | 96.5     |
| 90            | <b>NAG 4918UU</b>     | —                 | —                     | 1 250         | 90                     | 125      | 35       | 1.5                                     | 101      |
|               | —                     | <b>NAU 4918UU</b> | —                     | 1 210         | 90                     | 125      | 35       | 1.5                                     | 101      |
|               | —                     | —                 | <b>TRU 9012550UU</b>  | 1 740         | 90                     | 125      | 50       | 1.5                                     | 101      |
| 95            | <b>NAG 4919UU</b>     | —                 | —                     | 1 300         | 95                     | 130      | 35       | 1.5                                     | 106      |
|               | —                     | <b>NAU 4919UU</b> | —                     | 1 270         | 95                     | 130      | 35       | 1.5                                     | 106      |
| 100           | <b>NAG 4920UU</b>     | —                 | —                     | 1 850         | 100                    | 140      | 40       | 1.5                                     | 114.5    |
|               | —                     | —                 | <b>TRU 10013550UU</b> | 1 900         | 100                    | 135      | 50       | 1.5                                     | 112      |
|               | —                     | <b>NAU 4920UU</b> | —                     | 1 770         | 100                    | 140      | 40       | 1.5                                     | 114.5    |
| 105           | —                     | —                 | <b>TRU 10515350UU</b> | 2 890         | 105                    | 153      | 50       | 1.5                                     | 120      |
| 110           | <b>NAG 4922UU</b>     | —                 | —                     | 2 010         | 110                    | 150      | 40       | 1.5                                     | 123      |
|               | —                     | <b>NAU 4922UU</b> | —                     | 1 930         | 110                    | 150      | 40       | 1.5                                     | 123      |
| 120           | <b>NAG 4924UU</b>     | —                 | —                     | 2 780         | 120                    | 165      | 45       | 1.5                                     | 136      |
|               | —                     | <b>NAU 4924UU</b> | —                     | 2 680         | 120                    | 165      | 45       | 1.5                                     | 136      |
| 125           | —                     | —                 | <b>TRU 12517860UU</b> | 4 490         | 125                    | 178      | 60       | 1.5                                     | 143.5    |
| 130           | <b>NAG 4926UU</b>     | —                 | —                     | 3 750         | 130                    | 180      | 50       | 2                                       | 147      |
|               | —                     | <b>NAU 4926UU</b> | —                     | 3 610         | 130                    | 180      | 50       | 2                                       | 147      |
| 135           | —                     | —                 | <b>TRU 13518860UU</b> | 4 790         | 135                    | 188      | 60       | 1.5                                     | 154      |
| 140           | <b>NAG 4928UU</b>     | —                 | —                     | 3 990         | 140                    | 190      | 50       | 2                                       | 157.5    |
|               | —                     | <b>NAU 4928UU</b> | —                     | 3 840         | 140                    | 190      | 50       | 2                                       | 157.5    |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable rotational speed applies to grease lubrication. Considering that the axial load acts under practical operating conditions, up to 1/10 of this value is recommended for actual use.  
 Remarks1. The outer ring has an oil groove and two oil holes.  
 2. The bearings with seals are provided with prepacked grease.



NAG49...UU

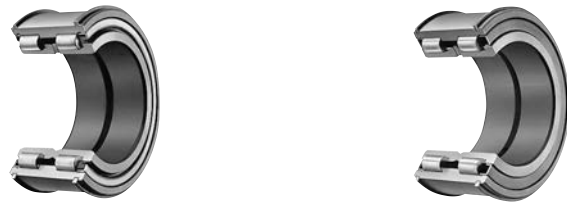


NAU49...UU  
TRU...UU

| <i>E<sub>w</sub></i> | Basic dynamic load rating <i>C</i> | Basic static load rating <i>C<sub>0</sub></i> | Allowable rotational speed <sup>(2)</sup> |
|----------------------|------------------------------------|---|---|
|                      | N                                  | N   | rpm                                       |
| 110                  | 111 000                            | 200 000                                       | 1 500                                     |
| 107.5                | 114 000                            | 222 000                                       | 2 000                                     |
| 110                  | 75 400                             | 120 000                                       | 2 000                                     |
| 110                  | 110 000                            | 215 000                                       | 2 000                                     |
| 115.5                | 114 000                            | 211 000                                       | 1 400                                     |
| 115.5                | 79 500                             | 130 000                                       | 1 900                                     |
| 114                  | 119 000                            | 240 000                                       | 1 900                                     |
| 120.5                | 117 000                            | 222 000                                       | 1 300                                     |
| 120.5                | 81 000                             | 136 000                                       | 1 800                                     |
| 129.5                | 152 000                            | 292 000                                       | 1 200                                     |
| 125.5                | 124 000                            | 264 000                                       | 1 700                                     |
| 129.5                | 106 000                            | 181 000                                       | 1 700                                     |
| 138                  | 159 000                            | 286 000                                       | 1 600                                     |
| 138.5                | 161 000                            | 322 000                                       | 1 100                                     |
| 138.5                | 113 000                            | 200 000                                       | 1 600                                     |
| 153.5                | 208 000                            | 431 000                                       | 1 000                                     |
| 153.5                | 146 000                            | 268 000                                       | 1 400                                     |
| 162                  | 211 000                            | 408 000                                       | 1 400                                     |
| 165.5                | 240 000                            | 495 000                                       | 950                                       |
| 165.5                | 166 000                            | 304 000                                       | 1 300                                     |
| 172.5                | 220 000                            | 442 000                                       | 1 300                                     |
| 176                  | 249 000                            | 531 000                                       | 900                                       |
| 176                  | 174 000                            | 327 000                                       | 1 200                                     |

**ROLLER BEARINGS**

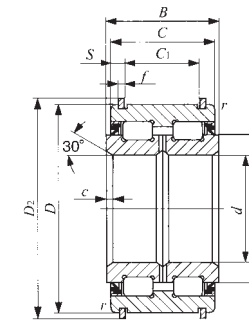
Roller Bearings for Sheaves



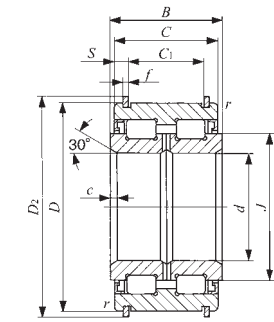
Shaft dia. 40 – 170mm

| Shaft dia. mm | Identification number |              | Mass (Ref.) kg | Boundary dimensions mm |          |                       |          |          |                       |          |
|---------------|-----------------------|--------------|----------------|------------------------|----------|-----------------------|----------|----------|-----------------------|----------|
|               | Sealed type           | Shield type  |                | <i>d</i>               | <i>D</i> | <i>D</i> <sub>2</sub> | <i>B</i> | <i>C</i> | <i>C</i> <sub>1</sub> | <i>S</i> |
| 40            | NAS 5008UUNR          | NAS 5008ZZNR | 0.55           | 40                     | 68       | 71.8                  | 38       | 37       | 28                    | 4.5      |
| 45            | NAS 5009UUNR          | NAS 5009ZZNR | 0.70           | 45                     | 75       | 78.8                  | 40       | 39       | 30                    | 4.5      |
| 50            | NAS 5010UUNR          | NAS 5010ZZNR | 0.75           | 50                     | 80       | 83.8                  | 40       | 39       | 30                    | 4.5      |
| 55            | NAS 5011UUNR          | NAS 5011ZZNR | 1.15           | 55                     | 90       | 94.8                  | 46       | 45       | 34                    | 5.5      |
| 60            | NAS 5012UUNR          | NAS 5012ZZNR | 1.20           | 60                     | 95       | 99.8                  | 46       | 45       | 34                    | 5.5      |
| 65            | NAS 5013UUNR          | NAS 5013ZZNR | 1.30           | 65                     | 100      | 104.8                 | 46       | 45       | 34                    | 5.5      |
| 70            | NAS 5014UUNR          | NAS 5014ZZNR | 1.90           | 70                     | 110      | 114.5                 | 54       | 53       | 42                    | 5.5      |
| 75            | NAS 5015UUNR          | NAS 5015ZZNR | 2.00           | 75                     | 115      | 119.5                 | 54       | 53       | 42                    | 5.5      |
| 80            | NAS 5016UUNR          | NAS 5016ZZNR | 2.65           | 80                     | 125      | 129.5                 | 60       | 59       | 48                    | 5.5      |
| 85            | NAS 5017UUNR          | NAS 5017ZZNR | 2.80           | 85                     | 130      | 134.5                 | 60       | 59       | 48                    | 5.5      |
| 90            | NAS 5018UUNR          | NAS 5018ZZNR | 3.70           | 90                     | 140      | 145.4                 | 67       | 66       | 54                    | 6        |
| 95            | NAS 5019UUNR          | NAS 5019ZZNR | 3.90           | 95                     | 145      | 150.4                 | 67       | 66       | 54                    | 6        |
| 100           | NAS 5020UUNR          | NAS 5020ZZNR | 4.05           | 100                    | 150      | 155.4                 | 67       | 66       | 54                    | 6        |
| 110           | NAS 5022UUNR          | NAS 5022ZZNR | 6.50           | 110                    | 170      | 175.4                 | 80       | 79       | 65                    | 7        |
| 120           | NAS 5024UUNR          | NAS 5024ZZNR | 6.95           | 120                    | 180      | 188.4                 | 80       | 79       | 65                    | 7        |
| 130           | NAS 5026UUNR          | NAS 5026ZZNR | 10.5           | 130                    | 200      | 208.4                 | 95       | 94       | 77                    | 8.5      |
| 140           | NAS 5028UUNR          | NAS 5028ZZNR | 11.0           | 140                    | 210      | 218.4                 | 95       | 94       | 77                    | 8.5      |
| 150           | NAS 5030UUNR          | NAS 5030ZZNR | 13.5           | 150                    | 225      | 233.4                 | 100      | 99       | 81                    | 9        |
| 160           | NAS 5032UUNR          | NAS 5032ZZNR | 16.5           | 160                    | 240      | 248.4                 | 109      | 108      | 89                    | 9.5      |
| 170           | NAS 5034UUNR          | NAS 5034ZZNR | 22.5           | 170                    | 260      | 270                   | 122      | 121      | 99                    | 11       |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable rotational speed applies to grease lubrication. Considering that the axial load acts under practical operating conditions, up to 1/10 of this value is recommended for actual use.  
 Remarks1. The inner ring has an oil groove and two oil holes.  
 2. Roller Bearings for Sheaves are provided with prepacked grease.



NAS50...UUNR



NAS50...ZZNR

| <i>f</i> | <i>c</i> | <i>r</i> <sub>s min</sub> <sup>(1)</sup> | <i>J</i> | Basic dynamic load rating | Basic static load rating | Allowable rotational speed <sup>(2)</sup> |
|----------|----------|--|----------|---------------------------|--------------------------|---|
|          |          |  |          | <i>C</i>                  | <i>C</i> <sub>0</sub>    |   |
|          |          |  |          | N                         | N                        | rpm                                       |
| 2        | 1.5      | 0.6                                      | 50       | 79 500                    | 116 000                  | 2 500                                     |
| 2        | 1.5      | 0.6                                      | 56       | 95 500                    | 144 000                  | 2 000                                     |
| 2        | 1.5      | 0.6                                      | 61       | 100 000                   | 158 000                  | 2 000                                     |
| 2.5      | 2        | 0.6                                      | 68       | 118 000                   | 193 000                  | 1 800                                     |
| 2.5      | 2        | 0.6                                      | 73       | 123 000                   | 208 000                  | 1 700                                     |
| 2.5      | 2        | 0.6                                      | 78       | 128 000                   | 224 000                  | 1 600                                     |
| 2.5      | 2        | 0.6                                      | 84       | 171 000                   | 284 000                  | 1 400                                     |
| 2.5      | 2        | 0.6                                      | 91       | 179 000                   | 308 000                  | 1 300                                     |
| 2.5      | 2        | 0.6                                      | 97       | 251 000                   | 428 000                  | 1 300                                     |
| 2.5      | 2        | 0.6                                      | 101      | 257 000                   | 446 000                  | 1 200                                     |
| 2.5      | 2.5      | 0.6                                      | 110      | 305 000                   | 540 000                  | 1 100                                     |
| 2.5      | 2.5      | 0.6                                      | 114      | 312 000                   | 562 000                  | 1 100                                     |
| 2.5      | 2.5      | 0.6                                      | 118      | 318 000                   | 584 000                  | 1 000                                     |
| 2.5      | 3        | 1  | 130      | 384 000                   | 697 000                  | 900                                       |
| 3        | 3        | 1  | 139.5    | 400 000                   | 750 000                  | 850                                       |
| 3        | 3        | 1  | 156      | 537 000                   | 1 000 000                | 750                                       |
| 3        | 3        | 1  | 167      | 543 000                   | 1 070 000                | 700                                       |
| 3        | 3.5      | 1  | 176.5    | 623 000                   | 1 210 000                | 650                                       |
| 3        | 3.5      | 1.5                                      | 188.5    | 720 000                   | 1 390 000                | 650                                       |
| 4        | 3.5      | 1.5                                      | 204.5    | 857 000                   | 1 730 000                | 600                                       |

**ROLLER BEARINGS**

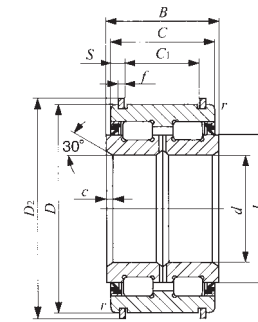
Roller Bearings for Sheaves



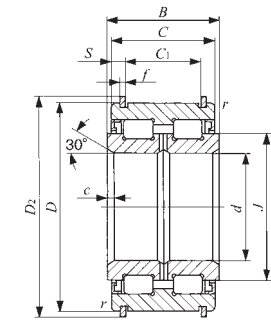
Shaft dia. 180 – 440mm

| Shaft dia. mm | Identification number |              | Mass (Ref.) kg | Boundary dimensions mm |          |                       |          |          |                       |          |
|---------------|-----------------------|--------------|----------------|------------------------|----------|-----------------------|----------|----------|-----------------------|----------|
|               | Sealed type           | Shield type  |                | <i>d</i>               | <i>D</i> | <i>D</i> <sub>2</sub> | <i>B</i> | <i>C</i> | <i>C</i> <sub>1</sub> | <i>S</i> |
| 180           | NAS 5036UUNR          | NAS 5036ZZNR | 30.0           | 180                    | 280      | 294                   | 136      | 135      | 110                   | 12.5     |
| 190           | NAS 5038UUNR          | NAS 5038ZZNR | 31.5           | 190                    | 290      | 306                   | 136      | 135      | 110                   | 12.5     |
| 200           | NAS 5040UUNR          | NAS 5040ZZNR | 40.5           | 200                    | 310      | 326                   | 150      | 149      | 120                   | 14.5     |
| 220           | NAS 5044UUNR          | NAS 5044ZZNR | 52.0           | 220                    | 340      | 356                   | 160      | 159      | 130                   | 14.5     |
| 240           | NAS 5048UUNR          | NAS 5048ZZNR | 55.5           | 240                    | 360      | 376                   | 160      | 159      | 130                   | 14.5     |
| 260           | NAS 5052UUNR          | NAS 5052ZZNR | 85.0           | 260                    | 400      | 416                   | 190      | 189      | 154                   | 17.5     |
| 280           | NAS 5056UUNR          | NAS 5056ZZNR | 90.9           | 280                    | 420      | 440                   | 190      | 189      | 154                   | 17.5     |
| 300           | NAS 5060UU            | NAS 5060ZZ   | 130            | 300                    | 460      | —                     | 218      | 216      | —                     | —        |
| 320           | NAS 5064UU            | NAS 5064ZZ   | 135            | 320                    | 480      | —                     | 218      | 216      | —                     | —        |
| 340           | NAS 5068UU            | NAS 5068ZZ   | 180            | 340                    | 520      | —                     | 243      | 241      | —                     | —        |
| 360           | NAS 5072UU            | NAS 5072ZZ   | 190            | 360                    | 540      | —                     | 243      | 241      | —                     | —        |
| 380           | NAS 5076UU            | NAS 5076ZZ   | 200            | 380                    | 560      | —                     | 243      | 241      | —                     | —        |
| 400           | NAS 5080UU            | NAS 5080ZZ   | 265            | 400                    | 600      | —                     | 272      | 270      | —                     | —        |
| 420           | NAS 5084UU            | NAS 5084ZZ   | 275            | 420                    | 620      | —                     | 272      | 270      | —                     | —        |
| 440           | NAS 5088UU            | NAS 5088ZZ   | 310            | 440                    | 650      | —                     | 280      | 278      | —                     | —        |

Notes<sup>(1)</sup> Minimum allowable value of chamfer dimension *r*  
<sup>(2)</sup> Allowable rotational speed applies to grease lubrication. Considering that the axial load acts under practical operating conditions, up to 1/10 of this value is recommended for actual use.  
 Remarks1. The bearings with a bore diameter *d* of 300 mm or more has neither stop rings nor stop ring grooves.  
 2. The inner ring has an oil groove and two oil holes.  
 3. Roller Bearings for Sheaves are provided with prepacked grease.



NAS50...UUNR



NAS50...ZZNR

| <i>f</i> | <i>c</i> | <i>r</i> <sub>s min</sub> <sup>(1)</sup> | <i>J</i> | Basic dynamic load rating | Basic static load rating   | Allowable rotational speed <sup>(2)</sup> |
|----------|----------|--|----------|---------------------------|----------------------------|---|
|          |          |  |          | <i>C</i><br>N             | <i>C</i> <sub>0</sub><br>N | rpm                                       |
| 5        | 3.5      | 1.5                                      | 217      | 1 070 000                 | 2 140 000                  | 550                                       |
| 5        | 3.5      | 1.5                                      | 225      | 1 120 000                 | 2 230 000                  | 500                                       |
| 5        | 3.5      | 1.5                                      | 242      | 1 310 000                 | 2 650 000                  | 500                                       |
| 6        | 4        | 1.5                                      | 260      | 1 510 000                 | 3 110 000                  | 450                                       |
| 6        | 4        | 1.5                                      | 278.5    | 1 570 000                 | 3 350 000                  | 400                                       |
| 7        | 5        | 2  | 312      | 2 130 000                 | 4 510 000                  | 350                                       |
| 7        | 5        | 2  | 335      | 2 210 000                 | 4 860 000                  | 350                                       |
| —        | 5        | 2  | 359      | 2 670 000                 | 5 870 000                  | 300                                       |
| —        | 5        | 2  | 375      | 2 700 000                 | 6 140 000                  | 300                                       |
| —        | 6        | 2.5                                      | 404      | 3 370 000                 | 7 560 000                  | 300                                       |
| —        | 6        | 2.5                                      | 423      | 3 420 000                 | 7 940 000                  | 250                                       |
| —        | 6        | 2.5                                      | 442      | 3 580 000                 | 8 300 000                  | 250                                       |
| —        | 6        | 2.5                                      | 471      | 4 250 000                 | 10 100 000                 | 250                                       |
| —        | 6        | 2.5                                      | 490      | 4 390 000                 | 10 400 000                 | 250                                       |
| —        | 8        | 3  | 516      | 4 570 000                 | 10 900 000                 | 200                                       |

E

NAG  
NAU  
TRU  
NAS