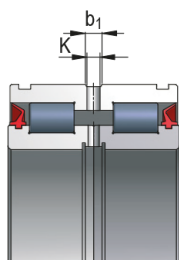
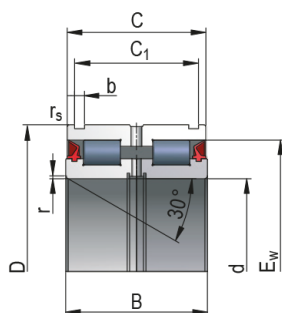


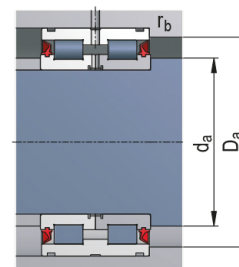
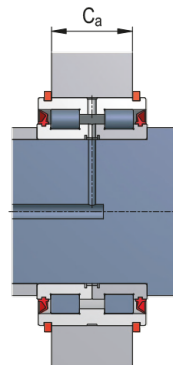
# Full complement cylindrical roller bearings, type NNF



NNF



NNF



NNF

## Bearing Designation

**NNF5019-PP**

## Dimensions (mm)

|        |     |
|--------|-----|
| d      | 95  |
| D      | 145 |
| B      | 67  |
| C      | 66  |
| rs min | 0,6 |

## Abutment and Fillet Dimensions (mm)

|                |       |                    |     |
|----------------|-------|--------------------|-----|
| E <sub>w</sub> | 130,9 | d <sub>a</sub> min | 101 |
| b              | 4,2   | D <sub>a</sub> max | 140 |
| C <sub>1</sub> | 59,2  | r <sub>a</sub> max | 1   |
| C <sub>a</sub> | 51    | r <sub>b</sub> max | 0,6 |
| b <sub>1</sub> | 6     | r                  | 1,5 |
|                |       | K                  | 3,5 |

## Basic Load Rating (kN)

|                |     |
|----------------|-----|
| C              | 297 |
| C <sub>0</sub> | 559 |

## Limiting Speed for Lubrication (min<sup>-1</sup>)

|        |     |
|--------|-----|
| Grease | 900 |
|--------|-----|

## Weight [kg]

4,00

## Snap Ring

DIN 471

145x4

## Tolerance Class

| Tolerance Class | Inner Ring       |     |                 |     |       |           |          |               |      |          |                   |     |                                |     |                           |
|-----------------|------------------|-----|-----------------|-----|-------|-----------|----------|---------------|------|----------|-------------------|-----|--------------------------------|-----|---------------------------|
|                 | Cylindrical Bore |     |                 |     |       |           |          |               |      |          | Tapered Bore 1:12 |     |                                |     |                           |
|                 | $\Delta_{dmp}$   |     | V               |     |       | $V_{dmp}$ | $K_{ia}$ | $\Delta_{Bs}$ |      | $V_{Bs}$ | $\Delta_{dmp}$    |     | $\Delta_{d1mp} - \Delta_{dmp}$ |     | <sup>1)</sup><br>$V_{dp}$ |
|                 |                  |     | Diameter Series |     |       |           |          |               |      |          |                   |     |                                |     |                           |
|                 |                  |     | 7,8,9           | 0,1 | 2,3,4 |           |          |               |      |          |                   |     |                                |     |                           |
|                 | max              | min | max             | max | max   | max       | max      | min           | max  | max      | min               | max | min                            | max |                           |
|                 | $\mu m$          |     |                 |     |       |           |          |               |      |          |                   |     |                                |     |                           |
| P0              | 0                | -20 | 25              | 25  | 15    | 15        | 25       | 0             | -200 | 25       | -                 | -   | -                              | -   | -                         |
| P6              | 0                | -15 | 19              | 19  | 11    | 11        | 13       | 0             | -200 | 25       | 35                | 0   | 35                             | 0   | 25                        |

| Tolerance Class | Inner Ring        |     |                                |     |                           |  |                   |     |                                |     |                           |
|-----------------|-------------------|-----|--------------------------------|-----|---------------------------|--|-------------------|-----|--------------------------------|-----|---------------------------|
|                 | Tapered Bore 1:12 |     |                                |     |                           |  | Tapered Bore 1:30 |     |                                |     |                           |
|                 | $\Delta_{dmp}$    |     | $\Delta_{d1mp} - \Delta_{dmp}$ |     | <sup>1)</sup><br>$V_{dp}$ |  | $\Delta_{dmp}$    |     | $\Delta_{d1mp} - \Delta_{dmp}$ |     | <sup>1)</sup><br>$V_{dp}$ |
|                 |                   |     |                                |     |                           |  |                   |     |                                |     |                           |
|                 | max               | min | max                            | min | max                       |  | max               | min | max                            | min | max                       |
|                 | $\mu m$           |     |                                |     |                           |  |                   |     |                                |     |                           |
| P0              | 35                | 0   | 35                             | 0   | 25                        |  | 20                | 0   | 35                             | 0   | 22                        |

| Tolerance Class | Outer Ring     |     |                 |     |       |                                      |           |          |                                                                           |
|-----------------|----------------|-----|-----------------|-----|-------|--------------------------------------|-----------|----------|---------------------------------------------------------------------------|
|                 | $\Delta_{Dmp}$ |     | $V_{Dp}$        |     |       |                                      | $V_{Dmp}$ | $K_{ea}$ | $\Delta_{CS}, V_{CS}$                                                     |
|                 |                |     | Diameter Series |     |       | bearings <sup>2)</sup><br>with seals |           |          |                                                                           |
|                 |                |     | 7,8,9           | 0,1 | 2,3,4 |                                      |           |          |                                                                           |
|                 | max            | min | max             | max | max   | max                                  | max       | max      |                                                                           |
|                 | $\mu m$        |     |                 |     |       |                                      |           |          |                                                                           |
| P0              | 0              | -18 | 23              | 23  | 14    | 30                                   | 14        | 40       | Corresponds to $\Delta_{BS}, V_{BS}$<br>of the same bearing<br>inner ring |
| P6              | 0              | -15 | 19              | 19  | 11    | 25                                   | 11        | 20       |                                                                           |

1) Valid in any bore radial plane

2) P0 - Valid only for bearings in diameter series 2, 3 and 4 \* P6 - Valid only for bearings in diameter series 0, 1, 2, 3 and 4

## Radial Clearance - Cylindrical Bore

| C2      |     | normal |     | C3  |     | C4  |     | C5  |     |
|---------|-----|--------|-----|-----|-----|-----|-----|-----|-----|
| min     | max | min    | max | min | max | min | max | min | max |
| $\mu m$ |     |        |     |     |     |     |     |     |     |
| 15      | 50  | 50     | 85  | 75  | 110 | 105 | 140 | 155 | 190 |

## Tolerance Symbols and Their Meaning

|                 |                                                                                                                                          |                |                                                                                                         |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------------------------|
| $d$             | nominal bore diameter                                                                                                                    | $H_4$          | rated height of spherical-roller bearing                                                                |
| $d_1$           | nominal diameter of larger theoretical tapered bore diameter                                                                             | $\Delta_{Bs}$  | inner ring single width deviation                                                                       |
| $d_2$           | nominal diameter of the shaft washer of double direction thrust bearings                                                                 | $\Delta_{Cs}$  | outer ring single width deviation                                                                       |
| $\Delta_{ds}$   | deviation of single bore diameter from nominal                                                                                           | $\Delta_{Ts}$  | bearing single width deviation (total)                                                                  |
| $\Delta_{dmp}$  | mean cylindrical bore diameter deviation in single radial plane (for tapered bore $\Delta_{dmp}$ is valid for theoretical bore diameter) | $\Delta_{T1s}$ | cone sub-unit effective width deviation                                                                 |
| $\Delta_{d1mp}$ | deviation of mean larger theoretical diameter of tapered bore                                                                            | $\Delta_{T2s}$ | cup sub-unit effective width deviation                                                                  |
| $\Delta_{d2mp}$ | mean shaft washer bore diameter deviation of double direction thrust bearings in single radial plane                                     | $\Delta_{Hs}$  | height deviation of single direction axial bearings from nominal value                                  |
| $V_{dp}$        | single bore diameter variation in single radial plane                                                                                    | $\Delta_{H1s}$ | height deviation of single direction axial ball bearings with sphered housing washer from nominal value |
| $V_{dmp}$       | mean cylindrical bore diameter variation                                                                                                 | $\Delta_{H2s}$ | height deviation of double direction axial bearings from nominal value                                  |
| $V_{d2p}$       | shaft washer bore diameter variation of double direction thrust bearings in single radial plane                                          | $\Delta_{H3s}$ | height deviation of double direction axial ball bearings with sphered housing washer from nominal value |
| $D$             | nominal outside diameter                                                                                                                 | $\Delta_{H4s}$ | height deviation of axial spherical-roller bearing from the rated value                                 |
| $\Delta_{Ds}$   | deviation of single outside diameter from the nominal dimension                                                                          | $C$            | outer ring nominal width                                                                                |
| $\Delta_{Dmp}$  | mean outside cylindrical surface diameter deviation in single plane                                                                      | $V_{Bs}$       | inner ring single width variation                                                                       |
| $V_{Dp}$        | single outside cylindrical surface diameter variation in single radial plane                                                             | $V_{Cs}$       | outer ring single width variation                                                                       |
| $V_{Dmp}$       | mean outside cylindrical surface diameter variation                                                                                      | $K_{ia}$       | radial runout of assembled bearing inner ring                                                           |
| $B$             | inner ring nominal width                                                                                                                 | $K_{ea}$       | radial runout of assembled bearing outer ring                                                           |
| $T$             | total nominal width of tapered roller bearings                                                                                           | $S_i$          | shaft washer raceway axial runout                                                                       |
| $T_1$           | nominal effective width of cup sub-unit                                                                                                  | $S_e$          | housing washer raceway axial runout                                                                     |
| $T_2$           | nominal effective width of cone sub-unit                                                                                                 | $S_{ia}$       | inner ring flat seat face axial runout of assembled bearing                                             |
| $H$             | rated width of unidirectional axial bearing                                                                                              | $S_{ea}$       | outer ring flat seat face axial runout of assembled bearing                                             |
| $H_1$           | rated height of unidirectional ball axial bearing including the body ring                                                                | $S_d$          | flat seat face axial runout                                                                             |
| $H_2$           | rated height of bidirectional axial bearing                                                                                              | $S_D$          | runout of outside cylindrical surface towards outer ring face                                           |
| $H_3$           | rated height of bidirectional axial ball bearing including body rings                                                                    | $S_s$          | runout of supporting face towards seat face for single row tapered roller bearings                      |