

## PDF technical sheet 6309NR

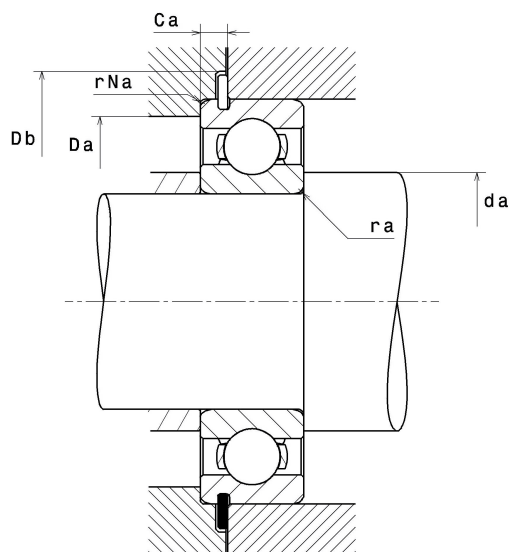


### Single row deep groove ball bearings

| Product definition     |          |
|------------------------|----------|
| d                      | 1.7717 " |
| D                      | 3.9370 " |
| B                      | 0.9843 " |
| a min                  | 0.1209 " |
| a max                  | 0.1291 " |
| Ca min                 | 0.2138 " |
| Ca max                 | 0.2260 " |
| rs min                 | 0.0591 " |
| rNs min                | 0.0197 " |
| D3 max                 | 3.8110 " |
| b min                  | 0.1063 " |
| b max                  | 0.1181 " |
| r0 max                 | 0.0236 " |
| D4 max                 | 4.1929 " |
| f                      | 0.0969 " |
| Snap ring reference    | R100     |
| Radial clearance class | CN       |
| Mass                   | 2.87 oz  |
| Brand                  | NTN      |



| Product performance                           |           |
|-----------------------------------------------|-----------|
| Dynamic load, C                               | 53 kN     |
| Static load, C0                               | 32 kN     |
| Fatigue limit load, Cu                        | 1.45 kN   |
| f0                                            | 13.1      |
| Nlim (oil)                                    | 8,200 RPM |
| Nlim (grease)                                 | 7,000 RPM |
| Min operating temperature, Tmin               | -4 °C     |
| Max operating temperature, Tmax               | 248 °C    |
| Characteristic cage frequency, FTF            | 0.38 Hz   |
| Characteristic rolling element frequency, BSF | 4.00 Hz   |
| Characteristic outer ring frequency, BPF0     | 3.06 Hz   |
| Characteristic inner ring frequency, BPF1     | 4.94 Hz   |



### Abutment dimensions

|         |          |
|---------|----------|
| da min  | 2.0866 " |
| Da max  | 3.6220 " |
| ra max  | 0.0591 " |
| rNa max | 0.0197 " |
| Db min  | 4.2520 " |

### Calculation factors

#### Equivalent dynamic radial load

$$P = X \cdot Fr + Y \cdot Fa$$

| $\frac{f_0 F_a}{C_0}$ | e    | Fa / Fr ≤ e |   | Fa / Fr > e |      |
|-----------------------|------|-------------|---|-------------|------|
|                       |      | X           | Y | X           | Y    |
| 0.172                 | 0.19 | 1           | 0 | 0.56        | 2.3  |
| 0.345                 | 0.22 |             |   |             | 1.99 |
| 0.689                 | 0.26 |             |   |             | 1.71 |
| 1.03                  | 0.28 |             |   |             | 1.55 |
| 1.38                  | 0.3  |             |   |             | 1.45 |
| 2.07                  | 0.34 |             |   |             | 1.31 |
| 3.45                  | 0.38 |             |   |             | 1.15 |
| 5.17                  | 0.42 |             |   |             | 1.04 |
| 6.89                  | 0.44 |             |   |             | 1    |

#### Equivalent static radial load

$$P_0 = X_0 \cdot Fr + Y_0 \cdot Fa$$

| $X_0$ | $Y_0$ |
|-------|-------|
| 0.6   | 0.5   |

For single or DT bearing arrangement:

If  $P_0 < Fr$ , then use  $P_0 = Fr$