

## PDF technical sheet 6311C4



### Single row deep groove ball bearings

Deep groove ball bearing, radial contact, pressed steel cage, open

#### Product definition

|                        |          |
|------------------------|----------|
| d                      | 2.1654 " |
| D                      | 4.7244 " |
| B                      | 1.1417 " |
| rs min                 | 0.0787 " |
| Radial clearance class | C4       |
| Mass                   | 4.83 oz  |
| Brand                  | NTN      |



#### Product performance

|                                               |           |
|-----------------------------------------------|-----------|
| Dynamic load, C                               | 71.50 kN  |
| Static load, C0                               | 45 kN     |
| Fatigue limit load, Cu                        | 2.05 kN   |
| f0                                            | 13.2      |
| Nlim (oil)                                    | 6,800 RPM |
| Nlim (grease)                                 | 5,800 RPM |
| Min operating temperature, Tmin               | -76 °C    |
| Characteristic cage frequency, FTF            | 0.38 Hz   |
| Characteristic rolling element frequency, BSF | 4.08 Hz   |
| Characteristic outer ring frequency, BPF0     | 3.07 Hz   |
| Characteristic inner ring frequency, BPF1     | 4.93 Hz   |



### Abutment dimensions

|        |          |
|--------|----------|
| da min | 2.5197 " |
| Da max | 4.3701 " |
| ra max | 0.0787 " |

### Calculation factors

#### Equivalent dynamic radial load

$$P = X.F_r + Y.F_a$$

| $\frac{f_0 F_a}{C_0}$ | e    | $F_a / F_r \leq e$ |   | $F_a / F_r > e$ |      |
|-----------------------|------|--------------------|---|-----------------|------|
|                       |      | 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

$$P_0 = X_0.F_r + Y_0.F_a$$

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

For single or DT bearing arrangement :

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