

## PDF technical sheet 7914UCG/GNP42U3G

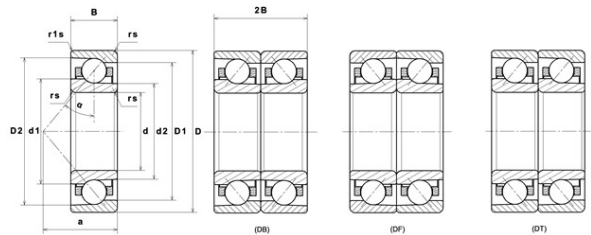


### High precision angular contact ball bearings

High precision angular contact ball bearing, moulded polyamide cage centred on balls

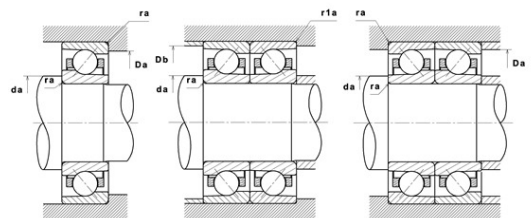
#### Product definition

|                         |          |
|-------------------------|----------|
| d                       | 2.7559 " |
| D                       | 3.9370 " |
| B                       | 0.6299 " |
| d1                      | 3.1614 " |
| d2                      | 3.0709 " |
| D1                      | 3.5315 " |
| D2                      | 3.7126 " |
| a                       | 0.7638 " |
| Contact angle, $\alpha$ | 15 °     |
| rs min                  | 0.0394 " |
| r1s min                 | 0.0236 " |
| f0                      | 16.4     |
| Precision class         | P42      |
| Mass                    | 1.20 oz  |
| Brand                   | NTN      |



#### Product performance

|   |                 |
|---|-----------------|
| Dynamic load, C                               | 29.70 kN        |
| Static load, C0                               | 30 kN           |
| Nlim (oil)                                    | 22,100 RPM      |
| Nlim (grease)                                 | 13,800 RPM      |
| Preload level                                 | GN              |
| Peload value                                  | 177 kN          |
| axial rigidity                                | 83.9 N/ $\mu$ m |
| radial rigidity                               | 480 N/ $\mu$ m  |
| Min operating temperature, Tmin               | -4 °C           |
| Max operating temperature, Tmax               | 248 °C          |
| Characteristic cage frequency, FTF            | 0.45 Hz         |
| Characteristic rolling element frequency, BSF | 9.64 Hz         |
| Characteristic outer ring frequency, BPF0     | 11.26 Hz        |
| Characteristic inner ring frequency, BPF1     | 13.74 Hz        |



### Abutment dimensions

|         |          |
|---------|----------|
| da min  | 2.9724 " |
| Da max  | 3.7205 " |
| Db max  | 3.7598 " |
| r1a max | 0.0236 " |
| ra max  | 0.0394 " |
| D6      | 3.1850 " |

### Calculation factors

#### Equivalent dynamic radial load

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

| Series  | e    | Single or DT bearing arrangement |      |             |      | DB or DF arrangement |      |             |      |      |
|---|------|----------------------------------|------|-------------|------|----------------------|------|-------------|------|------|
|   |      | Fa / Fr ≤ e                      |      | Fa / Fr > e |      | Fa / Fr ≤ e          |      | Fa / Fr > e |      |      |
|   |      | X                                | Y    | X           | Y    | X                    | Y    | X           | Y    |      |
| 70 (NTN & SNR)<br>72 (NTN & SNR)<br>78 (NTN)<br>79 (NTN)<br>719 (SNR) | 15°  | 0.178                            | 0.38 | 1           | 0    | 0.44                 | 1.47 | 1           | 0.72 | 2.39 |
|   |      | 0.357                            | 0.4  |             |      |                      | 1.4  |             |      | 2.28 |
|   |      | 0.714                            | 0.43 |             |      |                      | 1.3  |             |      | 2.11 |
|   |      | 1.07                             | 0.46 |             |      |                      | 1.23 |             |      | 2    |
|   |      | 1.43                             | 0.47 |             |      |                      | 1.19 |             |      | 1.93 |
|   |      | 2.14                             | 0.5  |             |      |                      | 1.12 |             |      | 1.82 |
|   |      | 3.57                             | 0.55 |             |      |                      | 1.02 |             |      | 1.66 |
|   |      | 5.35                             | 0.56 |             |      |                      |      |             |      | 1.63 |
|   | 7.14 | 0.56                             | 1    | 1.63        |      |                      |      |             |      |      |
|   | 25°  | 0.68                             |      | 0.41        | 0.87 |                      | 0.92 | 0.67        | 1.41 |      |
| 30°   | 0.8  |                                  | 0.39 | 0.76        |      | 0.78                 | 0.63 | 1.24        |      |      |

#### Equivalent static radial load

$$Po = Xo \cdot Fr + Yo \cdot Fa$$

| Series  | e   | Single or DT bearing arrangement |      | DB or DF arrangement |      |
|---|-----|----------------------------------|------|----------------------|------|
|   |     | Xo                               | Yo   | Xo                   | Yo   |
| 70 (NTN & SNR)<br>72 (NTN & SNR)<br>78 (NTN)<br>79 (NTN)<br>719 (SNR) | 15° | 0.5                              | 0.46 | 1                    | 0.92 |
|   | 25° |                                  | 0.38 |                      | 0.76 |
|   | 30° |                                  | 0.33 |                      | 0.66 |

For single or DT bearing arrangement :

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