

PDF technical sheet

7019UCG/GNP42U3G



High precision angular contact ball bearings

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

Product definition	
d	3.7402 "
D	5.7087 "
B	0.9449 "
d1	4.4055 "
d2	4.2520 "
D1	5.0472 "
D2	5.3583 "
a	1.1102 "
Contact angle, α	15 °
rs min	0.0591 "
r1s min	0.0394 "
f0	15.9
Precision class	P42
Mass	4.30 oz
Brand	NTN



Product performance	
Dynamic load, C	76 kN
Static load, C0	76.50 kN
Nlim (oil)	15,600 RPM
Nlim (grease)	9,800 RPM
Preload level	GN
Peload value	460 kN
axial rigidity	122.9 N/ μ m
radial rigidity	705 N/ μ m
Min operating temperature, Tmin	-4 °C
Max operating temperature, Tmax	248 °C
Characteristic cage frequency, FTF	0.44 Hz
Characteristic rolling element frequency, BSF	7.84 Hz
Characteristic outer ring frequency, BPF0	9.67 Hz
Characteristic inner ring frequency, BPF1	12.34 Hz



Abutment dimensions

da min	4.0748 "
Da max	5.3740 "
Db max	5.4921 "
r1a max	0.0394 "
ra max	0.0591 "
D6	4.4055 "

Calculation factors

Equivalent dynamic radial load

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

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) 72 (NTN & SNR) 78 (NTN) 79 (NTN) 719 (SNR)	15°	0.178	0.38	1	0	0.44	1.47	1	1.65	0.72	2.39
		0.357	0.4				1.4		1.57		2.28
		0.714	0.43				1.3		1.46		2.11
		1.07	0.46				1.23		1.38		2
		1.43	0.47				1.19		1.34		1.93
		2.14	0.5				1.12		1.26		1.82
		3.57	0.55				1.02		1.14		1.66
		5.35	0.56						1.12		1.63
		7.14	0.56				1		1.12		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

$$P_o = X_o.F_r + Y_o.F_a$$

Series			Single or DT bearing arrangement		DB or DF arrangement	
			X _o	Y _o	X _o	Y _o
70 (NTN & SNR) 72 (NTN & SNR) 78 (NTN) 79 (NTN) 719 (SNR)	15°	0.5	0.5	0.46	1	0.92
	25°			0.38		0.76
	30°			0.33		0.66

For single or DT bearing arrangement :

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