

PDF technical sheet

7209HG1UJ84



High precision angular contact ball bearings

High precision angular contact ball bearing, laminated resin cage centred on outer ring

Product definition	
d	1.7717 "
D	3.3465 "
B	0.7480 "
d1	2.2598 "
D1	2.8524 "
D2	3.1091 "
a	0.9843 "
Contact angle, α	25 °
rs min	0.0433 "
r1s min	0.0236 "
f0	14.516
Precision class	P4
Mass	1.47 oz
Brand	SNR



Product performance	
Dynamic load, C	41 kN
Static load, C0	29.70 kN
Fatigue limit load, Cu	1.67 kN
Nlim (oil)	22,000 RPM
Nlim (grease)	14,500 RPM
Axial displacement K Factor	0.61
Preload level	8
Peload value	1,100 kN
axial rigidity	255 N/ μ m
radial rigidity	498 N/ μ m
Min operating temperature, Tmin	-22 °C
Max operating temperature, Tmax	248 °C
Characteristic cage frequency, FTF	0.41 Hz
Characteristic rolling element frequency, BSF	4.96 Hz
Characteristic outer ring frequency, BPF0	5.76 Hz
Characteristic inner ring frequency, BPF1	8.24 Hz



Abutment dimensions

da min	2.0472 "
db min	2.0472 "
Da max	3.0709 "
Db max	3.0709 "
r1a max	0.0236 "
ra max	0.0394 "
D6	2.4291 "

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) 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

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

Series			Single or DT bearing arrangement		DB or DF arrangement	
			X ₀	Y ₀	X ₀	Y ₀
70 (NTN & SNR) 72 (NTN & SNR) 78 (NTN) 79 (NTN) 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 $Po = Fr$