

PDF technical sheet ML7010CVUJ84S



High precision angular contact ball bearings

High precision angular contact ball bearing, high speed series ML, laminated resin cage centred on outer ring

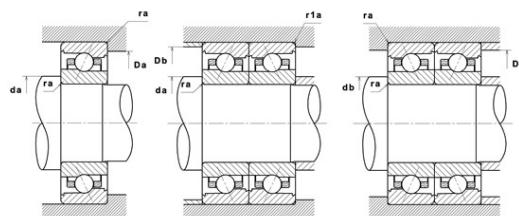
Product definition

d	1.9685 "
D	3.1496 "
B	0.6299 "
d1	2.3504 "
d2	2.2598 "
D1	2.8114 "
D2	2.9059 "
a	0.7087 "
Contact angle, α	17 °
rs min	0.0394 "
r1s min	0.0236 "
f0	8.377
Precision class	P4S
Mass	0.90 oz
Brand	SNR



Product performance

Dynamic load, C	11.60 kN
Static load, C0	8.10 kN
Fatigue limit load, Cu	0.46 kN
Nlim (oil)	34,000 RPM
Nlim (grease)	25,000 RPM
Axial displacement K Factor	1.13
Preload level	8
Peloid value	180 kN
axial rigidity	74 N/ μ m
radial rigidity	349 N/ μ m
Min operating temperature, Tmin	-22 °C
Max operating temperature, Tmax	248 °C
Characteristic cage frequency, FTF	0.45 Hz
Characteristic rolling element frequency, BSF	9.96 Hz
Characteristic outer ring frequency, BPF0	11.31 Hz
Characteristic inner ring frequency, BPF1	13.69 Hz



Abutment dimensions

da min	2.1850 "
db min	2.1850 "
Da max	2.9331 "
Db max	2.9331 "
r1a max	0.0236 "
ra max	0.0394 "
D6	2.4370 "

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 $Po = Fr$