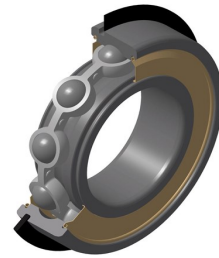
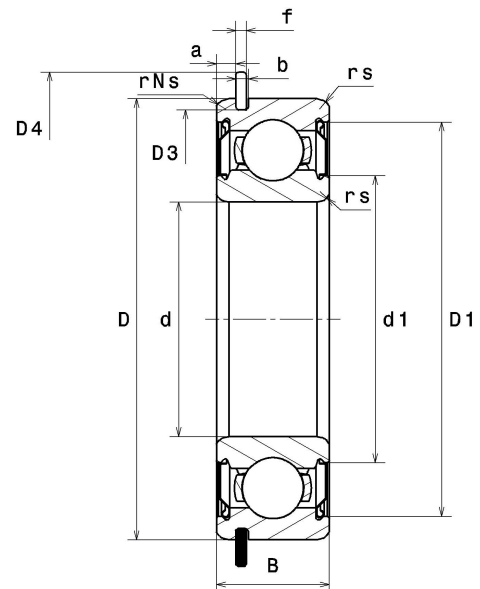


PDF technical sheet 6311ZZNR/2AS

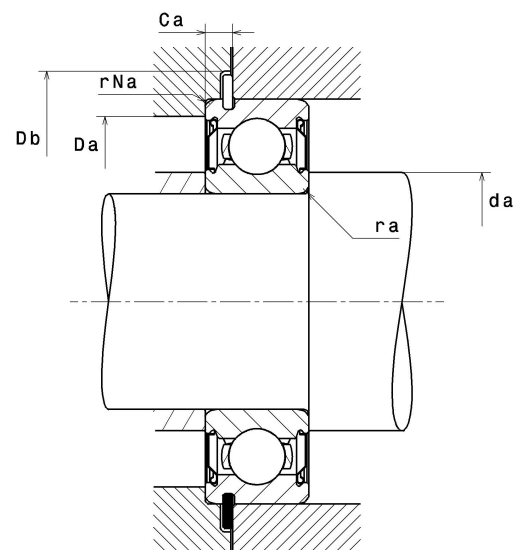


Single row deep groove ball bearings

Product definition	
d	2.1654 "
D	4.7244 "
B	1.1417 "
a min	0.1520 "
a max	0.1598 "
Ca min	0.2591 "
Ca max	0.2709 "
rs min	0.0787 "
rNs min	0.0197 "
D3 max	4.5358 "
b min	0.1220 "
b max	0.1339 "
r0 max	0.0236 "
D4 max	5.1063 "
f	0.1110 "
Snap ring reference	R120
Radial clearance class	CN
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 (grease)	5,800 RPM
Min operating temperature, Tmin	-4 °C
Max operating temperature, Tmax	248 °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, BPFI	4.93 Hz



Abutment dimensions

da min	2.5197 "
Da max	4.3701 "
ra max	0.0787 "
rNa max	0.0197 "
Db min	5.1772 "

Calculation factors

Equivalent dynamic radial load

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

$\frac{f_0 F_a}{C_0}$	e	Fa / Fr ≤ e		Fa / Fr > 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

$$P_0 = X_0 \cdot Fr + Y_0 \cdot Fa$$

X_0	Y_0
0.6	0.5

For single or DT bearing arrangement:

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