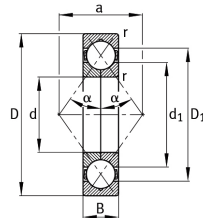




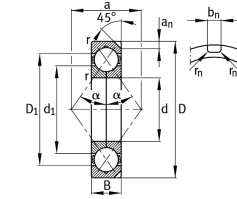
Four Point Contact Ball Bearings:

Four Point contact ball bearings have the inner ring and outer ring raceways that are offset relative to each other in the axial direction. As a result, the line through the points of contact between the ball and the raceways is not perpendicular to the bearing axis but makes an angle less than 90 degrees and is defined as the contact angle. Due to this Angular Contact Ball Bearings are capable of taking radial loads and also axial loads in one direction.

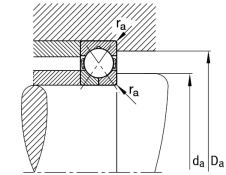
Suffix and Corresponding Description For Four Point Contact Ball Bearings	
Suffix	Description of Suffix
C2	Axial Internal Clearance C2 (Clearance lesser than CN)
No Symbol	(CN) Normal Internal Clearance
C3	Axial Internal Clearance C3 (Clearance Larger than Normal)
C4	Axial Internal Clearance C4 (Clearance Larger than C3)
MPA	Solid Brass Cage, guided on outer Ring
TVP	Solid Cage made from glass fiber reinforced Polyamide PA66
N2	Two retaining slots in outer ring



Without retaining slots
 $\alpha = 35^\circ$

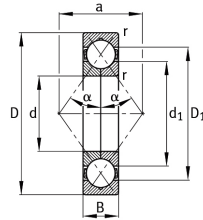


N2, two retaining slots
 $\alpha = 35^\circ$

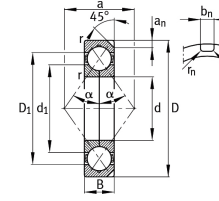


Mounting dimensions

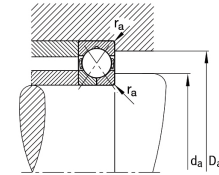
Boundary Dimensions											Basic Load Rating		Limiting Speed	Bearing Designation	Shoulder Dimensions			Mass
(mm)											(KN)		(rpm)		(mm)			(kg)
d	D	B	D ₁	d ₁	a	a _n	b _n	r _n	r	Cr	Cor	d _a			D _a	r _a	Approx	
												(min)			(max)	(max)		
20	52	15	41.4	30.6	26	-	-	-	1.1	30	19.6	28,000	QJ304-MPA	27	45	1	0.184	
25	52	15	43.1	34.2	27	-	-	-	1	25.5	18.6	26,000	QJ205-MPA	31	46	1	0.171	
25	62	17	49.5	37.5	31	-	-	-	1.1	44	31.5	14,000	QJ305-TVP	32	55	1	0.256	
30	62	16	50.7	40.3	32	-	-	-	1	36.5	27.5	20,000	QJ206-MPA	36	56	1	0.254	
30	72	19	58	43.9	36	-	-	-	1.1	58.5	43	11,000	QJ306-TVP	37	65	1	0.379	
35	72	17	59.1	47.9	38	-	-	-	1.1	44	35.5	18,000	QJ207-MPA	42	65	1	0.359	
35	80	21	64.8	50.7	41	-	-	-	1.5	62	51	9,500	QJ307-TVP	44	71	1.5	0.516	
40	80	18	66.8	53.6	42	-	-	-	1.1	56	46.5	9,500	QJ208-TVP	47	73	1	0.399	
40	90	23	73.4	56.6	46	-	-	-	1.5	86.5	68	8,500	QJ308-TVP	49	81	1.5	0.695	
45	85	19	72	58.4	45	-	-	-	1.1	64	57	8,500	QJ209-TVP	52	78	1	0.467	
45	100	25	81.7	63.6	51	-	-	-	1.5	102	83	7,500	QJ309-TVP	54	91	1.5	0.934	
50	90	20	76.4	63.6	49	-	-	-	1.1	61	56	13,000	QJ210-MPA	57	83	1	0.609	
50	110	27	89.6	70.8	56	-	-	-	2	110	91.5	11,000	QJ310-MPA	61	99	2	1.39	
55	100	21	84.7	70.6	54	-	-	-	1.5	80	76.5	7,000	QJ211-TVP	64	91	1.5	0.697	
55	120	29	97.8	77.5	61	-	-	-	2	127	108	10,000	QJ311-MPA	66	109	2	1.76	
60	110	22	93	77.3	60	-	-	-	1.5	96.5	93	6,300	QJ212-TVP	69	101	1.5	0.889	
60	130	31	106.9	84.2	67	-	-	-	2.1	146	127	9,000	QJ312-MPA	72	118	2.1	2.2	
65	120	23	101.5	84.1	65	-	-	-	1.5	104	104	9,500	QJ213-MPA	74	111	1.5	1.27	
65	140	33	114.4	90.9	72	-	-	-	2.1	163	146	8,500	QJ313-MPA	77	128	2.1	2.71	
70	125	24	106.3	89	68	-	-	-	1.5	118	122	5,600	QJ214-TVP	79	116	1.5	1.22	
70	150	35	123.6	97.6	77	-	-	-	2.1	183	166	8,000	QJ314-MPA	82	138	2.1	3.29	
75	130	25	111.5	94	72	-	-	-	1.5	125	129	5,300	QJ215-TVP	84	121	1.5	1.34	
75	160	37	131	104.3	82	10.1	8.5	2	2.1	212	204	7,000	QJ315-N2-MPA	87	148	2.1	3.95	
80	140	26	119.6	100.9	77	-	-	-	2	132	137	8,000	QJ216-MPA	91	129	2	1.84	
80	170	39	140.8	110.6	88	10.1	8.5	2	2.1	224	220	7,000	QJ316-N2-MPA	92	158	2.1	4.65	
85	150	28	128.6	107.5	82	-	-	-	2	153	160	7,000	QJ217-MPA	96	139	2	2.3	
85	180	41	148.6	117.8	93	11.7	10.5	2	3	245	255	6,300	QJ317-N2-MPA	99	166	2.5	5.54	
90	160	30	136.1	114.2	88	8.1	6.5	1	2	176	186	7,000	QJ218-N2-MPA	101	149	2	2.8	
90	190	43	157.1	124.5	98	11.7	10.5	2	3	265	285	6,000	QJ318-N2-MPA	104	176	2.5	6.44	
95	170	32	144.4	121	93	8.1	6.5	1	2.1	200	212	6,300	QJ219-N2-MPA	107	158	2.1	3.41	



Without retaining slots
 $\alpha = 35^\circ$



N2, two retaining slots
 $\alpha = 35^\circ$



Mounting dimensions

Boundary Dimensions											Basic Load Rating		Limiting Speed	Bearing Designation	Shoulder Dimensions			Mass
(mm)											(KN)		(rpm)		(mm)			(kg)
d	D	B	D ₁	d ₁	a	a _n	b _n	r _n	r	Cr	Cor	d _a			D _a	r _a	Approx	
												(min)			(max)	(max)		
95	200	45	165.4	131.2	103	11.7	10.5	2	3	285	310	6,000	QJ319-N2-MPA	109	186	2.5	7.45	
100	180	34	153.6	127.7	98	10.1	8.5	2	2.1	224	240	6,000	QJ220-N2-MPA	112	168	2.1	4.1	
100	215	47	176.6	138.9	110	11.7	10.5	2	3	325	365	5,600	QJ320-N2-MPA	114	201	2.5	9.04	
105	190	36	161.6	134.7	103	10.1	8.5	2	2.1	232	260	6,000	QJ221-N2-MPA	117	178	2.1	4.81	
110	200	38	169.8	141.6	109	10.1	8.5	2	2.1	250	285	5,600	QJ222-N2-MPA	122	188	2.1	5.66	
110	240	50	195.5	156.4	123	11.7	10.5	2	3	345	415	5,300	QJ322-N2-MPA	124	226	2.5	12.2	
120	215	40	183.6	152.8	117	11.7	10.5	2	2.1	280	340	5,300	QJ224-N2-MPA	132	203	2.1	6.74	
120	260	55	210.6	169.8	133	11.7	10.5	2	3	380	480	5,000	QJ324-N2-MPA	134	246	2.5	15.6	
130	230	40	195	165.4	127	11.7	10.5	2	3	290	365	5,000	QJ226-N2-MPA	144	216	2.5	7.66	
130	280	58	228	184	144	12.7	10.5	2	4	425	570	4,800	QJ326-N2-MPA	147	263	3	19.2	
140	250	42	210.5	180	137	11.7	10.5	2	3	315	415	4,800	QJ228-N2-MPA	154	236	2.5	9.69	
140	300	62	243	197	154	12.7	10.5	2	4	475	655	4,300	QJ328-N2-MPA	157	283	3	23.2	
150	270	45	226.7	193.7	147	11.7	10.5	2	3	345	480	4,500	QJ230-N2-MPA	164	256	2.5	12.2	
150	320	65	261	211.3	165	12.7	10.5	2	4	510	735	3,800	QJ330-N2-MPA	167	303	3	28	
160	290	48	240	210	158	12.7	10.5	2	3	375	530	4,300	QJ232-N2-MPA	174	276	2.5	15.3	
160	340	68	279.9	222.7	175	12.7	10.5	2	4	585	865	3,600	QJ332-N2-MPA	177	323	3	32.8	
170	310	52	260.5	221.4	168	12.7	10.5	2	4	425	630	3,800	QJ234-N2-MPA	187	293	3	18.9	
170	360	72	292	238	186	12.7	10.5	2	4	585	915	3,200	QJ334-N2-MPA	187	343	3	38.4	
180	320	52	269	231	175	12.7	10.5	2	4	430	670	3,600	QJ236-N2-MPA	197	303	3	19.6	
180	380	75	311	249.1	196	12.7	10.5	2	4	680	1080	3,000	QJ336-N2-MPA	197	363	3	44.9	
190	340	55	286.3	245.8	186	12.7	10.5	2	4	455	735	3,200	QJ238-N2-MPA	207	323	3	23.8	
190	400	78	327	262.5	207	12.7	10.5	2	5	735	1250	2,800	QJ338-N2-MPA	210	380	4	52.1	
200	360	58	302	258.6	196	12.7	10.5	2	4	510	850	3,000	QJ240-N2-MPA	217	343	3	28	
220	400	65	336	284.6	217	12.7	10.5	2	4	630	1120	2,800	QJ244-N2-MPA	237	383	3	38.6	
220	460	88	378	302	238	15	12.5	2.5	5	900	1660	2,800	QJ344-N2-MPA	240	440	4	77.1	
240	440	72	367	312.5	238	15	12.5	2.5	4	680	1270	2,800	QJ248-N2-MPA	257	423	3	53.1	
240	500	95	410	330.7	259	15	12.5	2.5	5	1020	1960	2,600	QJ348-N2-MPA	260	480	4	98.2	