



MINIATURE & EXTRA SMALL BALL BEARINGS

JVN Bearings FZE



Introduction

Deep Groove Ball Bearings with an outer diameter less than 9 mm are known as Miniature Ball Bearings. Deep Groove Ball Bearings having an outside diameter more than 9 mm, and bore diameter less than 10 mm are known as Extra Small Ball Bearings.

They are available in a wide range, as defined by the ISO standard plan. These types could also be made to meet customer's special dimensional requirements, but with some basic design limitations.

These bearings are also available in Stainless Steel material.

Miniature and Extra Small Ball Bearings are

- Capable of carrying relatively smaller loads
- Suitable for low, medium and high speed applications
- Suited for low noise and low torque applications

JVN can offer following variants

- Open basic design types
- As Sealed types
- As Flange types
- With Snap Ring groove
- With Snap Ring groove and Snap Ring
- With C2, CN, C3, and C4 radial clearance
- Standard precision grade (ISO Grade 0 - ABEC1) and higher precision grade (ISO Grade ABEC3)
- With extended Inner Ring
- Pressed Steel, riveted, Plastic and machined Brass Cage

Apart from the list of items presented in the following pages, many other special type of JVN Miniature and Extra Small Ball Bearings have been developed to meet specific application requirements. Technical information for such Bearings, is available on request.

Note:

For Reference Purpose Only. Mentioned Speed Ratings are with Oil Lubrication. For Grease Lubrication, please use 75% of the indicated values.

Nomenclature

JVN standard suffixes for Deep Groove Ball Bearings

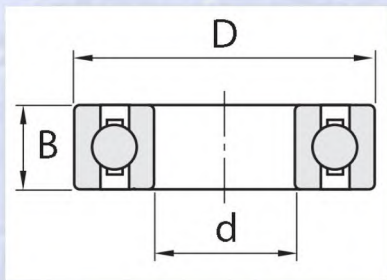
A	Modified internal design.
C2	Radial internal clearance less than normal.
CN	Normal radial internal clearance. Generally, no special suffix is used in JVN Bearings for normal radial internal clearance.
C3	Radial internal clearance higher than normal.
C4	Radial internal clearance higher than C3.
E	Electric motor quality.
N	Snap Ring groove in the Outer Ring.
NR	Snap Ring groove in the Outer Ring, with Snap Ring.
P or TN	Plastic / Polyamide / Nylon Cage.
P5	Dimensional and running accuracy confirming to ISO class 5.
P6	Dimensional and running accuracy confirming to ISO class 6.
RS	Rubber Seal with Steel sheet reinforcement on one side of the Bearing.
RSL	Double lip type Rubber Seal with special groove in the Inner Ring, fixed only at one side of Bearing.
2RS	Rubber Seal with Steel sheet reinforcement on both sides of the Bearing.
2RSL	Double lip type Rubber Seal with special groove in the Inner Ring, fixed at both Bearing sides.
Z	Metallic shield on one side of the Bearing.
ZZ	Metallic shield on both sides of the Bearing.
F	Used as a prefix for a Flange on Outer Ring.

Note: Most of the Bearings listed in the following pages of this chapter are available with above suffixes, subject to design or manufacturing constraints.

Note:

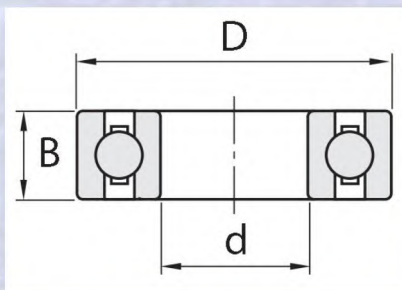
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600 Series: Single Row



Principal Dimensions						Basic Load Ratings		Speed Ratings		Mass
						N		Referenc e speed	Limiting speed	
Designation			mm			Dynamic	Static			
			d	D	B	C	C0	r/min		kg
603	603 ZZ	603 2RS	3	10	4	553	203	49,500	66,000	0.0014
604	604 ZZ	604 2RS	4	12	4	806	280	1,20,000	75,000	0.0021
605	605 ZZ	605 2RS	5	14	5	1050	500	100	60	0.0045
606	606 ZZ	606 ZZ	6	17	6	1940	720	95	58	0.006
607	607 ZZ	607 2RS	7	19	6	2340	950	85,000	53,000	0.008
608	608 ZZ	608 2RS	8	22	7	3450	1370	75,000	48,000	0.012

620 Series: Single Row

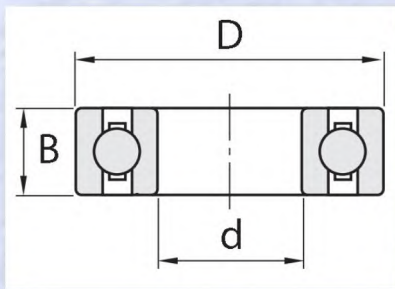


Principal Dimensions						Basic Load Ratings		Speed Ratings		Mass
						N		Referenc e speed	Limiting speed	
Designation			mm			Dynamic	Static			
			d	D	B	C	C0	r/min		kg
623	623 ZZ	623 2RS	3	10	4	540	180	1,30,000	80,000	0.0015
624	624 ZZ	624 2RS	4	13	5	936	290	1,10,000	67,000	0.0031
625	625 ZZ	625 2RS	5	16	5	1140	380	95,000	60,000	0.005
626	626 ZZ	626 2RS	6	19	6	2340	950	80,000	50,000	0.0081
627	627 ZZ	627 2RS	7	22	7	3450	1370	70,000	45,000	0.012
628	628 ZZ	628 2RS	8	24	8	3900	1660	63,000	40,000	0.018
629	629 ZZ	629 2RS	9	26	8	4750	1960	60,000	38,000	0.02

Note:

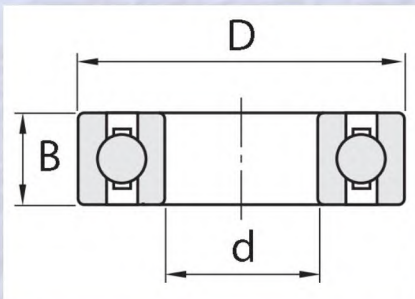
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630 Series: Single Row



Principal Dimensions						Basic Load Ratings		Speed Ratings		Mass
						N		Referenc e speed	Limiting speed	
Designation			mm			Dynamic	Static			
			d	D	B	C	C0	r/min		kg
634	634 ZZ	634 2RS	4	16	5	1110	380	95,000	60,000	0.0054
635	635 ZZ	635 2RS	5	19	6	2340	950	80,000	50,000	0.0085
636	636 ZZ	636 2RS	6	22	7	2970	1224	40,800	30,600	0.013
637	637 ZZ	637 2RS	7	26	9	3600	1422	36,000	27,000	0.024
638	638 ZZ	638 2RS	8	28	9	4095	1773	33,600	25,200	0.027
639	639 ZZ	639 2RS	9	30	10	4590	2151	31,200	23,400	0.034

680 Series: Single Row

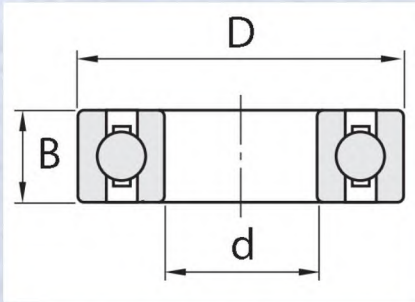


Principal Dimensions						Basic Load Ratings		Speed Ratings		Mass
						N		Referenc e speed	Limiting speed	
Designation			mm			Dynamic	Static			
			d	D	B	C	C0	r/min	kg	
683	683 ZZ	683 2RS	3	7	2	346	116	81,000	65,000	0.01
684	684 ZZ	684 2RS	4	9	4	585	225	81,000	61,000	0.01
685	685 ZZ	685 2RS	5	11	3	643	255	62,400	46,800	0.012
686	686 ZZ	686 2RS	6	13	5	972	396	57,600	43,200	0.019
687	687 ZZ	687 2RS	7	14	5	1053	459	54,000	40,500	0.002
688	688 ZZ	688 2RS	8	16	5	1125	537	51,600	38,700	0.003
689	689 ZZ	689 2RS	9	17	5	1557	729	49,200	36,900	0.058

Note:

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690 Series: Single Row

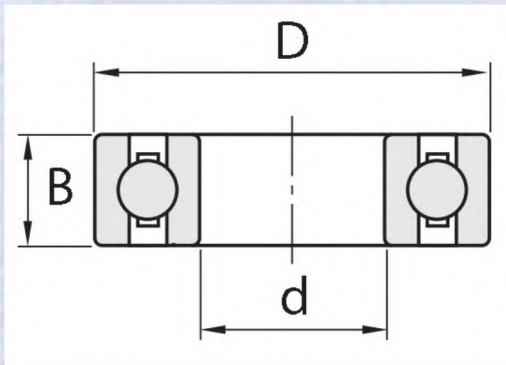


Principal Dimensions						Basic Load Ratings		Speed Ratings		Mass
						N		Referenc e speed	Limitin g speed	
Designation			mm			Dynamic	Stati c			
			d	D	B	C	C0	r/min		kg
693	693 ZZ	693 2RS	3	8	4	504	161	80,000	60,000	0.0008
694	694 ZZ	694 2RS	4	11	4	820	275	82,000	50,000	0.0017
695	695 ZZ	695 2RS	5	13	4	972	387	60,000	45,000	0.0025
696	696 ZZ	696 2RS	6	15	5	1566	603	56,400	42,300	0.0039
697	697 ZZ	697 2RS	7	17	5	1449	643	50,400	37,800	0.0049
698	698 ZZ	698 2RS	8	19	6	2016	814	52,000	39,000	0.0071
699	699 ZZ	699 2RS	9	20	6	1908	886	48,000	36,000	0.0076

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Other Types of Miniature & Extra Small Ball Bearings

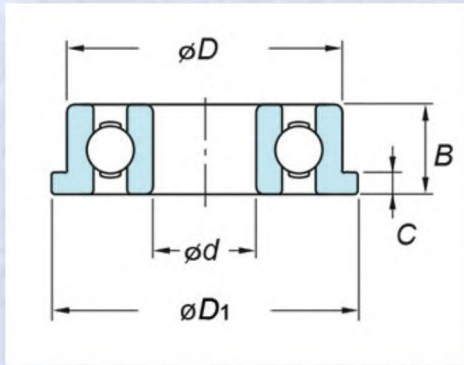


Principal Dimensions				Basic Load Ratings		Speed Ratings	Mass
				N			
Designation	mm			Dynamic	Static	r/min	gms
	d	D	B	C	C0		
015M04	1.5	4	1.2	101	30	1,08,000	0.100
015M05	1.5	5	2	216	62	90,000	0.220
015M06	1.5	6	2.5	297	89	81,000	0.350
2M05	2	5	2	169	53	90,000	0.170
2M06	2	6	2.5	297	89	81,000	0.300
2M07	2	7	2.5	346	115	67,500	0.450
025M08	2.5	8	2.5	504	161	60,300	0.550
3M06	3	6	2	188	66	72,000	0.200
3M08	3	8	2.5	504	161	60,300	0.500
3M09	3	9	3	576	203	58,500	0.800
4M07	4	8	2	355	126	60,300	0.400
4M08	4	9	2.5	576	203	54,900	0.650
4M10	4	11	4	643	255	47,700	1.600
5M08	5	8	2	250	118	56,700	0.250
5M09	5	9	2.5	391	151	54,000	0.550
5M10	5	10	3	391	151	52,200	0.900
7M11	7	11	2.5	409	181	45,000	0.700
7M13	7	13	3	747	337	43,200	1.500
687	7	14	3.5	1053	459	40,500	2.00
697	7	17	5	1449	643	37,800	4.800
8M12	8	12	2.2	481	244	43,200	0.700
8M14	8	14	3.5	738	346	40,500	1.900
688	8	16	4	1125	531	38,700	3.000
689	9	17	4	1557	729	36,900	5.800

Note:

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Flange Type: Single Row

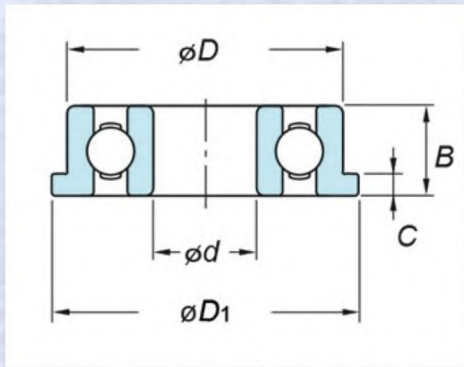


Principal Dimensions				Basic Load Ratings		Basic Load Ratings		Speed Ratings	Mass
				N		Dynamic	Static		
Designation	mm			Dynamic	Static	C	C1		
	d	D	D1	B	C	N		r/min	gms
F015M04	1.5	4	5	1.2	0.4	101	30	1,08,000	0.120
F015M05	1.5	5	6.5	2	0.6	216	62	90,000	0.260
F015M06	1.5	6	7.5	2.5	0.6	297	89	81,000	0.420
F682	2	5	6.1	1.5	0.5	169	53	90,000	0.190
F2M05	2	5	6.2	2	0.6	169	53	90,000	0.210
F692	2	6	7.5	2.3	0.6	297	89	81,000	0.350
F2M06	2	6	7.2	2.5	0.6	297	89	81,000	0.360
F2M07	2	7	8.2	2.5	0.6	346	115	67,500	0.490
F602	2	7	9.5	2.8	0.7	346	115	67,500	0.600
F68/2.5	2.5	6	7.1	1.8	0.5	188	66	72,000	0.250
F69/2.5	2.5	7	8.5	2.5	0.7	346	115	67,500	0.500
F025M08	2.5	8	9.2	2.5	0.6	504	161	60,300	0.680
F60/2.5	2.5	9	9.5	2.8	0.7	495	157	60,300	0.710
F3M06	3	6	7.2	2	0.6	188	66	72,000	0.260
F683	3	7	8.1	2	0.5	346	116	65,700	0.380
F3M08	3	8	9.2	2.5	0.6	504	161	60,300	0.560
F693	3	8	9.5	3	0.7	504	161	60,300	0.710
F3M09	3	9	10.2	2.5	0.6	576	203	59,400	0.840
F603	3	9	10.5	3	0.7	576	203	58,500	0.930
F623	3	10	11.5	4	1	553	203	49,500	1.650
F4M07	4	7	8.2	2	0.6	283	103	61,200	0.300
F4M08	4	8	9.2	2	0.6	355	126	60,300	0.470
F684	4	9	10.3	2.5	0.6	576	203	54,900	0.740
F4M10	4	10	11.2	3	0.6	585	212	49,500	1.00
F694	4	11	12.5	4	1	643	255	47,700	1.800
F604	4	12	13.5	4	1	873	324	42,300	3.100
F624	4	13	15	5	1	1170	436	40,500	4.100

Note:

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Flange Type: Single Row



Principal Dimensions			Basic Load Ratings		Basic Load Ratings		Speed Ratings	Mass
			N		Dynamic	Static		
Designation	mm			Dynamic	Static	C	C1	
	d	D	D1	B	C	N		r/min
F5M08	5	8	9.2	2	0.6	250	118	56,700
F5M09	5	9	10.2	2.5	0.6	391	151	54,000
F5M10	5	10	11.2	3	0.6	391	151	52,200
F685	5	11	12.5	3	0.8	643	255	46,800
F695	5	13	15	4	1	972	387	45,000
F605	5	14	16	5	1	1197	454	40,500
F625	5	16	18	5	1	1557	603	38,700
F6M10	6	10	11.2	2.5	0.6	445	197	47,700
F6M12	6	12	13.2	3	0.6	643	263	45,000
F686	6	13	15	3.5	1	972	396	43,200
F696	6	15	17	5	1.2	1566	603	42,300
F606	6	17	19	6	1.2	2034	756	37,800
F626	6	19	22	6	1.5	2358	954	34,200
F7M11	7	11	12.2	2.5	0.6	409	181	45,000
F7M13	7	13	14.2	3	0.6	747	337	43,200
F687	7	14	16	3.5	1	1053	459	40,500
F697	7	17	19	5	1.2	1449	643	37,800
F607	7	19	22	6	1.5	2358	954	36,000
F8M12	8	12	13.2	2.5	0.6	481	244	43,200
F8M14	8	14	15.6	3.5	0.8	738	346	40,500
F688	8	16	18	4	1	1125	531	38,700
F698	8	19	22	6	1.5	2016	814	37,800
F608	8	22	25	7	1.5	2970	1224	34,200
F689	9	17	19	4	1	1557	729	36,900
F699	9	20	23	6	1.5	1908	886	36,000

Note:

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