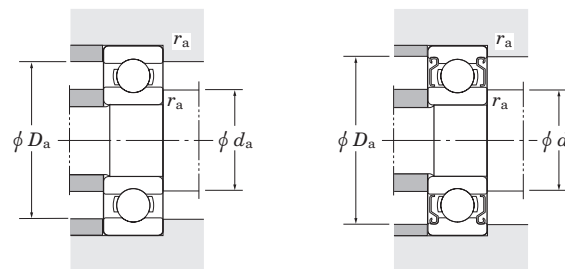
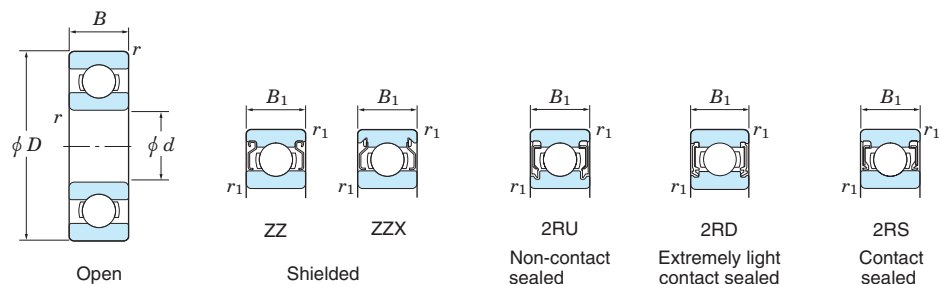


Extra-small ball bearings, miniature ball bearings

d 1 ~ (4) mm

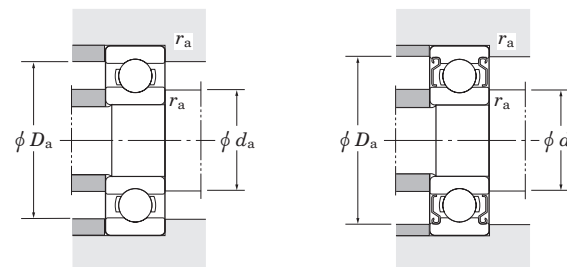
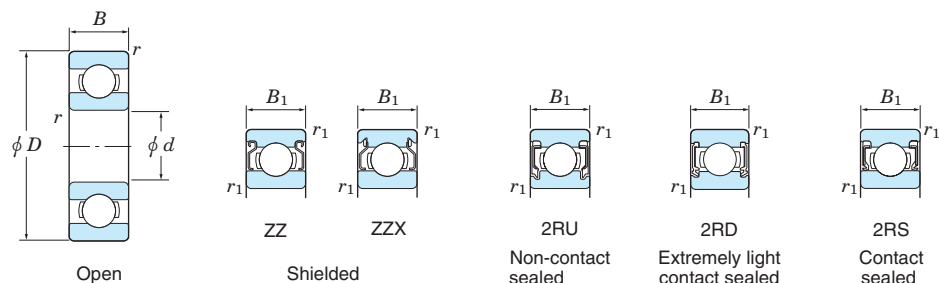


Boundary dimensions (mm)						Basic load ratings (kN)		Factor	Limiting speeds (min ⁻¹)			Bearing No.					Mounting dimensions (mm)			(Refer.) Mass (g)	
d	D	B	B ₁	r ⁽¹⁾ _{min.}	r ⁽¹⁾ _{min.}	C _r	C _{0r}		[Open ZZ, 2RU]	(2RD) min.	(2RS)	[Open Z]	Open	Shielded	Non-contact sealed	Extremely light shielded	Contact sealed	d _a min.	D _a max.		r _a max.
1	3	1	—	0.07	—	0.10	0.03	11.6	130 000	—	—	150 000	681	—	—	—	—	1.6	2.4	0.05	0.03
	3	1.5	—	0.08	—	0.08	0.02	12.8	130 000	—	—	150 000	ML1003	—	—	—	—	1.6	2.4	0.07	0.05
	4	1.6	—	0.1	—	0.14	0.04	11.4	120 000	—	—	140 000	691	—	—	—	—	1.8	3.2	0.1	0.1
1.2	4	1.8	—	0.08	—	0.11	0.03	11.4	120 000	—	—	140 000	ML1204	—	—	—	—	1.8	3.4	0.07	0.1
1.5	4	1.2	2	0.1	0.1	0.11	0.03	13.2	120 000	—	—	140 000	68/1.5	W68/1.5 ZZ	—	—	—	2.3	3.2	0.1	0.1
	5	2	2.6	0.15	0.15	0.24	0.07	13.3	110 000	—	—	130 000	69/1.5	W69/1.5 ZZX	—	—	—	2.7	3.8	0.15	0.1
	6	2.5	3	0.1	0.1	0.33	0.10	11.4	86 000	—	—	100 000	ML1506	WML1506 ZZX	—	—	—	2.3	5.2	0.1	0.3
2	5	1.5	2.3	0.1	0.1	0.17	0.05	13.3	98 000	—	—	110 000	682	W682 ZZX	—	—	—	2.8	4.4	0.1	0.1
	5	2	2.5	0.1	0.08	0.17	0.05	13.3	98 000	—	—	110 000	ML2005	WML2005 ZZ	—	—	—	2.6	4.2	0.07	0.1
	6	2.3	3	0.15	0.1	0.33	0.10	11.4	86 000	—	—	100 000	692	W692 ZZ	—	—	—	3.2	4.8	0.1	0.2
	6	2.5	3	0.1	0.1	0.33	0.10	11.4	86 000	—	—	100 000	ML2006	WML2006 ZZX	—	—	—	2.8	5.2	0.1	0.3
	7	2.5	3	0.15	0.15	0.39	0.13	12.6	67 000	—	—	79 000	ML2007	WML2007 ZZX	—	—	—	3.2	5.8	0.15	0.4
	7	2.8	3.5	0.15	0.15	0.39	0.13	12.6	67 000	—	—	79 000	602	W602 ZZX	—	—	—	3.2	5.8	0.15	0.5
	7	2.5	3	0.15	0.15	0.39	0.13	12.6	67 000	—	—	79 000									
2.5	6	1.8	2.6	0.1	0.1	0.19	0.06	14.3	75 000	—	—	89 000	68/2.5	W68/2.5 ZZ	—	—	—	3.3	5.2	0.1	0.2
	7	2.5	3.5	0.15	0.15	0.31	0.11	13.7	66 000	—	—	79 000	69/2.5	W69/2.5 ZZ	—	—	—	3.7	5.8	0.15	0.4
	8	2.5	—	0.1	—	0.43	0.15	13.4	63 000	—	—	75 000	ML2508/1B	—	—	—	—	3.3	7.2	0.1	0.6
	8	2.8	4	0.15	0.1	0.55	0.17	11.5	64 000	—	—	76 000	ML2508	WML2508 ZZX	—	—	—	3.7	6.8	0.1	0.6
3	6	2	2.5	0.08	0.05	0.19	0.06	14.3	75 000	—	—	89 000	ML3006	WML3006 ZZ	—	—	—	3.6	5.4	0.05	0.2
	7	2	3	(0.15)	(0.15)	0.31	0.11	13.7	66 000	—	—	79 000	683	W683 ZZ	—	—	—	4.2	5.8	0.1	0.3
	8	2.5	—	0.1	—	0.40	0.14	13.4	63 000	—	—	75 000	ML3008	—	—	—	—	3.8	7.2	0.1	0.5
	8	3	4	0.15	0.15	0.55	0.17	11.5	64 000	—	—	76 000	693	W693 ZZ	—	—	—	4.2	6.8	0.15	0.6
	9	3	5	0.15	0.15	0.43	0.16	14.0	60 000	—	—	72 000	603	W603 ZZX	—	—	—	4.2	7.8	0.15	0.9
	10	4	4	0.15	0.15	0.63	0.22	12.8	52 000	—	44 000	63 000	623	623 ZZ	—	—	623 2RS	4.2	8.8	0.15	1.6
	13	5	5	0.2	0.2	1.30	0.49	12.3	44 000	—	—	54 000	633	633 ZZ	—	—	—	4.6	11.4	0.2	3.0
4	7	2	2.5	0.08	0.05	0.26	0.11	15.1	64 000	—	—	76 000	ML4007	WML4007 ZZ	—	—	—	4.6	6.4	0.05	0.2
	8	2	3	0.1	0.08	0.40	0.14	14.6	61 000	—	—	73 000	ML4008	WML4008 ZZ	—	—	—	4.8	7.2	0.08	0.4
	9	2.5	4	(0.15)	(0.15)	0.64	0.23	12.8	59 000	—	—	70 000	684	W684 ZZ	—	—	—	5.2	7.8	0.1	0.6

[Note] 1) Numerical values in () do not conform to JIS B 1521.

Extra-small ball bearings, miniature ball bearings

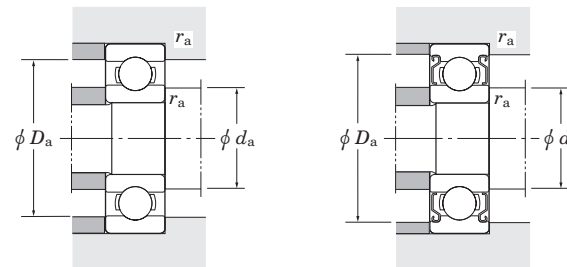
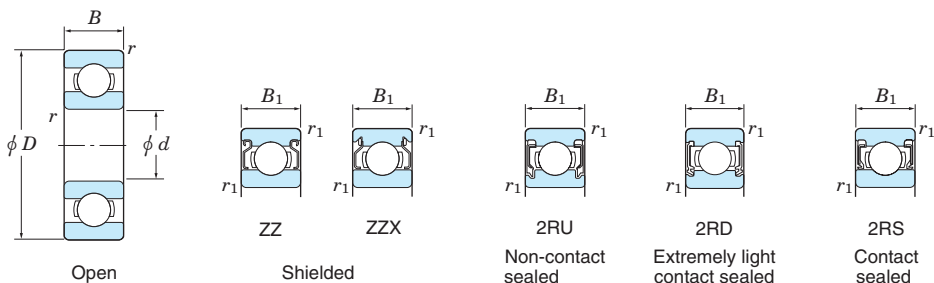
d (4) ~ (7) mm



Boundary dimensions (mm)						Basic load ratings (kN)		Factor f_0	Limiting speeds (min ⁻¹)				Bearing No.					Mounting dimensions (mm)			(Refer.) Mass (g)
d	D	B	B ₁	r _{min.}	r _{1 min.}	C _r	C _{0r}		Grease lub.	Oil lub.	Open	Shielded	Non-contact sealed	Extremely light shielded	Contact sealed	d _{a min.}	D _{a max.}	r _{a max.}			
4	10	3	4	0.15	0.1	0.65	0.23	13.3	56 000	—	—	67 000	ML4010	WML4010 ZZ	—	—	—	5.2	8.8	0.1	1.0
	11	4	4	0.15	0.15	0.96	0.35	12.4	54 000	—	44 000	65 000	694	694 ZZ	694 2RU	—	694 2RS	5.2	9.8	0.15	1.8
	12	4	4	0.2	0.2	0.96	0.35	12.4	53 000	—	—	63 000	604	604 ZZ	—	—	—	5.6	10.4	0.2	2.1
	13	5	5	0.2	0.2	1.30	0.48	12.3	44 000	—	39 000	54 000	624	624 ZZ	624 2RU	—	624 2RS	5.6	11.4	0.2	2.9
	16	5	5	0.3	0.3	1.35	0.52	12.4	40 000	—	—	49 000	634	634 ZZ	—	—	—	6	14	0.3	5.3
5	8	2	2.5	0.08	0.05	0.22	0.09	15.7	59 000	—	—	70 000	ML5008	WML5008 ZZ	—	—	—	5.6	7.4	0.05	0.3
	9	2.5	3	0.1	0.08	0.43	0.17	15.3	56 000	—	—	67 000	ML5009	WML5009 ZZ	—	—	—	5.8	8.2	0.08	0.5
	10	3	4	0.1	0.1	0.43	0.17	14.8	55 000	—	—	65 000	ML5010	WML5010 ZZ	—	—	—	5.8	9	0.1	0.9
	11	3	5	0.15	0.15	0.71	0.28	12.8	53 000	—	—	63 000	685	W685 ZZ	—	—	—	6.2	9.8	0.15	1.0
	13	4	4	0.2	0.2	1.10	0.43	12.3	50 000	45 000	42 000	60 000	695	695 ZZ	695 2RU	695 2RD	695 2RS	6.6	11.4	0.2	2.2
	14	5	5	0.2	0.2	1.30	0.49	12.3	50 000	—	—	60 000	605	605 ZZ	—	—	—	6.6	12.4	0.2	3.5
	16	5	5	0.3	0.3	1.75	0.67	12.4	40 000	36 000	33 000	49 000	625	625 ZZ	625 2RU	—	625 2RS	7	14	0.3	5.0
	19	6	6	0.3	0.3	2.35	0.89	12.3	35 000	32 000	27 000	43 000	635	635 ZZ	635 2RU	—	635 2RS	7	17	0.3	8.5
6	10	2.5	3	0.1	0.08	0.50	0.22	15.7	53 000	—	—	63 000	ML6010	WML6010 ZZ	—	—	—	6.8	9.2	0.08	0.6
	12	3	4	0.15	0.1	0.71	0.29	14.5	49 000	—	37 000	59 000	ML6012	WML6012 ZZ	—	—	WML6012 2RS	7.2	10.8	0.1	1.3
	13	3.5	5	0.15	0.15	1.10	0.44	13.7	48 000	43 000	36 000	57 000	686	W686 ZZ	—	—	W686 2RS	7.2	11.8	0.15	1.8
	15	5	5	0.2	0.2	1.35	0.52	12.4	45 000	41 000	32 000	54 000	696	696 ZZ	696 2RU	696 2RD	696 2RS	7.6	13.4	0.2	3.9
	17	6	6	0.3	0.3	1.95	0.74	12.2	43 000	39 000	—	51 000	606	606 ZZ	606 2RU	606 2RD	—	8	15	0.3	5.8
	19	6	6	0.3	0.3	2.35	0.89	12.3	35 000	32 000	27 000	43 000	626	626 ZZ	626 2RU	626 2RD	626 2RS	8	17	0.3	8.1
	19	8	8	0.3	0.3	2.60	1.05	12.3	40 000	—	—	47 000	ML6019	ML6019 ZZ	—	—	—	7	18	0.3	9.0
	22	7	7	0.3	0.3	3.30	1.35	12.4	31 000	—	23 000	37 000	636	636 ZZ	—	—	636 2RS	8	20	0.3	13
7	11	2.5	3	0.1	0.08	0.43	0.23	16.1	49 000	—	—	59 000	ML7011	WML7011 ZZX	—	—	—	7.8	10.2	0.08	0.7
	13	3	4	0.15	0.15	0.54	0.28	14.9	47 000	—	—	55 000	ML7013	WML7013 ZZ	—	—	—	8.2	11.8	0.15	1.4
	14	3.5	5	0.15	0.15	1.15	0.51	14.2	45 000	—	—	54 000	687	W687 ZZ	—	—	—	8.2	12.8	0.15	2.0
	17	5	5	0.3	0.3	1.60	0.71	14.0	42 000	—	28 000	50 000	697	697 ZZ	—	—	697 2RS	9	15	0.3	5.3
	19	6	6	0.3	0.3	2.35	0.89	12.3	40 000	36 000	27 000	47 000	607	607 ZZ	607 2RU	607 2RD	607 2RS	9	17	0.3	7.6
	22	7	7	0.3	0.3	3.30	1.35	12.4	31 000	28 000	23 000	37 000	627	627 ZZ	627 2RU	627 2RD	627 2RS	9	20	0.3	13
	22	8	8	0.3	0.3	3.30	1.35	12.4	34 000	—	—	41 000	ML7022	ML7022 ZZ	—	—	—	9	20	0.3	14

Extra-small ball bearings, miniature ball bearings

d (7) ~ 9 mm



d	Boundary dimensions (mm)					Basic load ratings (kN)		Factor f_0	Limiting speeds (min^{-1})				Bearing No.					Mounting dimensions (mm)			(Refer.) Mass (g)
	D	B	B_1	$r_1^{(1)}$ min.	$r_1^{(1)}$ min.	C_r	C_{0r}		Grease lub.	Oil lub.	Open	Shielded	Non-contact sealed	Extremely light shielded	Contact sealed	d_a min.	D_a max.	r_a max.			
7	26	9	9	0.3	0.3	4.55	1.95	12.3	26 000	—	—	32 000	637	637 ZZ	—	—	—	9	24	0.3	24
8	12	2.5	3.5	0.1	0.08	0.54	0.27	16.4	47 000	—	—	55 000	ML8012	WML8012 ZZ	—	—	—	8.8	11.2	0.08	0.8
	14	3.5	4	0.15	0.15	0.81	0.39	15.3	44 000	—	—	52 000	ML8014	WML8014 ZZ	—	—	—	9.2	12.8	0.15	1.8
	16	4	5	0.2	0.2	1.25	0.59	14.0	42 000	38 000	28 000	50 000	688	W688 ZZ	W688 2RU	W688 2RD	W688 2RS	9.6	14.4	0.2	3.2
	19	6	6	0.3	0.3	2.25	0.91	12.9	39 000	35 000	27 000	46 000	698	698 ZZ	—	698 2RD	698 2RS	10	17	0.3	7.2
	22	7	7	0.3	0.3	3.30	1.35	12.4	34 000	31 000	23 000	41 000	608	608 ZZ	608 2RU	608 2RD	608 2RS	10	20	0.3	12
	24	8	8	0.3	0.3	3.35	1.40	12.8	28 000	—	22 000	35 000	628	628 ZZ	628 2RU	—	628 2RS	10	22	0.3	18
	28	9	9	0.3	0.3	4.55	1.95	12.3	26 000	23 000	—	32 000	638	638 ZZ	—	638 2RD	—	10	26	0.3	29
9	17	4	5	0.2	0.2	1.35	0.66	14.9	39 000	35 000	—	46 000	689	W689 ZZ	W689 2RU	W689 2RD	—	10.6	15.4	0.2	3.5
	20	6	6	0.3	0.3	2.45	1.05	13.3	35 000	32 000	25 000	42 000	699	699 ZZ	—	699 2RD	699 2RS	11	18	0.3	7.5
	24	7	7	0.3	0.3	3.35	1.40	12.8	33 000	30 000	22 000	40 000	609	609 ZZ	609 2RU	609 2RD	609 2RS	11	22	0.3	15
	26	8	8	(0.6)	(0.6)	4.55	1.95	12.4	27 000	24 000	19 000	33 000	629	629 ZZ	629 2RU	629 2RD	629 2RS	12.1	22	0.3	20
	30	10	10	0.6	0.6	4.65	2.10	12.3	24 000	—	—	29 000	639	639 ZZ	—	—	—	13	26	0.6	35

[Note] 1) Numerical values in () do not conform to JIS B 1521.