



Ball & Roller Bearings



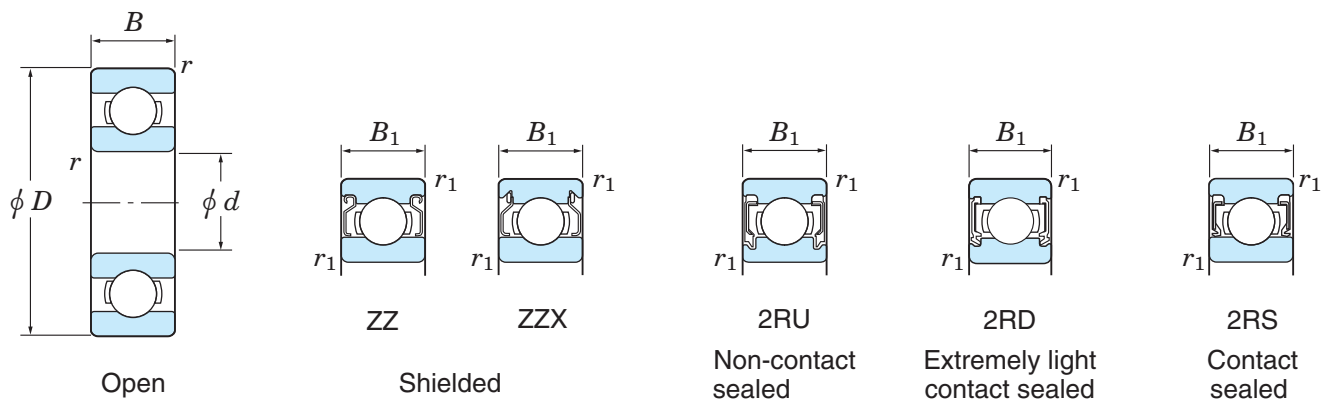
JTEKT

JTEKT CORPORATION

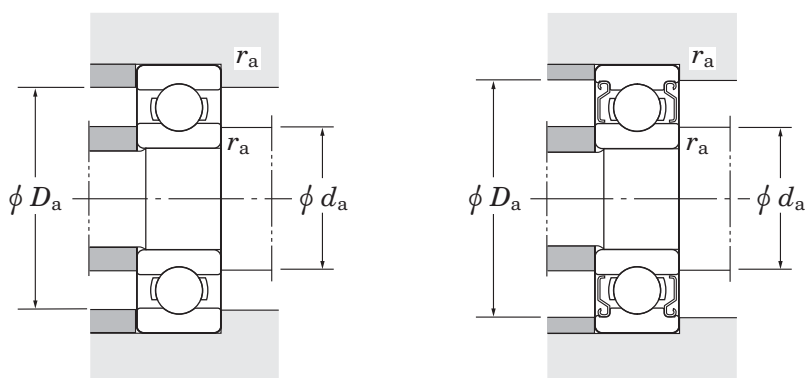
CAT. NO. B2001E-3

Extra-small ball bearings, miniature ball bearings

d (4) ~ (7) mm



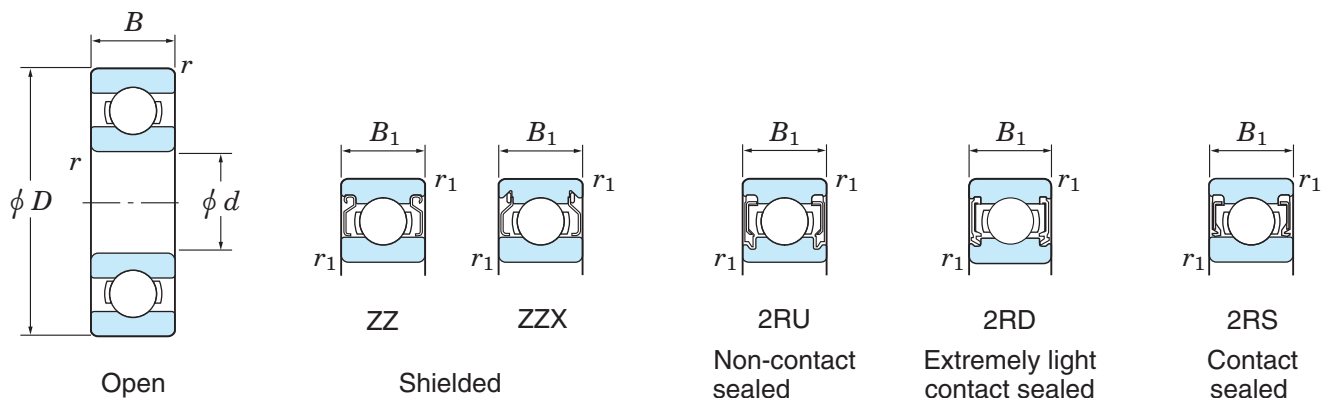
Boundary dimensions (mm)						Basic load ratings (kN)		Factor	Limiting speeds (min^{-1})			
d	D	B	B_1	$r_{\text{min.}}$	$r_{1\text{ min.}}$	C_r	C_{0r}	f_0	Grease lub.		Oil lub.	
									$\left[\begin{smallmatrix} \text{Open} \\ \text{ZZ, 2RU} \end{smallmatrix} \right]$	(2RD)	(2RS)	$\left[\begin{smallmatrix} \text{Open} \\ \text{Z} \end{smallmatrix} \right]$
4	10	3	4	0.15	0.1	0.65	0.23	13.3	56 000	—	—	67 000
	11	4	4	0.15	0.15	0.96	0.35	12.4	54 000	—	44 000	65 000
	12	4	4	0.2	0.2	0.96	0.35	12.4	53 000	—	—	63 000
	13	5	5	0.2	0.2	1.30	0.48	12.3	44 000	—	39 000	54 000
	16	5	5	0.3	0.3	1.35	0.52	12.4	40 000	—	—	49 000
5	8	2	2.5	0.08	0.05	0.22	0.09	15.7	59 000	—	—	70 000
	9	2.5	3	0.1	0.08	0.43	0.17	15.3	56 000	—	—	67 000
	10	3	4	0.1	0.1	0.43	0.17	14.8	55 000	—	—	65 000
	11	3	5	0.15	0.15	0.71	0.28	12.8	53 000	—	—	63 000
	13	4	4	0.2	0.2	1.10	0.43	12.3	50 000	45 000	42 000	60 000
	14	5	5	0.2	0.2	1.30	0.49	12.3	50 000	—	—	60 000
	16	5	5	0.3	0.3	1.75	0.67	12.4	40 000	36 000	33 000	49 000
	19	6	6	0.3	0.3	2.35	0.89	12.3	35 000	32 000	27 000	43 000
6	10	2.5	3	0.1	0.08	0.50	0.22	15.7	53 000	—	—	63 000
	12	3	4	0.15	0.1	0.71	0.29	14.5	49 000	—	37 000	59 000
	13	3.5	5	0.15	0.15	1.10	0.44	13.7	48 000	43 000	36 000	57 000
	15	5	5	0.2	0.2	1.35	0.52	12.4	45 000	41 000	32 000	54 000
	17	6	6	0.3	0.3	1.95	0.74	12.2	43 000	39 000	—	51 000
	19	6	6	0.3	0.3	2.35	0.89	12.3	35 000	32 000	27 000	43 000
	19	8	8	0.3	0.3	2.60	1.05	12.3	40 000	—	—	47 000
	22	7	7	0.3	0.3	3.30	1.35	12.4	31 000	—	23 000	37 000
7	11	2.5	3	0.1	0.08	0.43	0.23	16.1	49 000	—	—	59 000
	13	3	4	0.15	0.15	0.54	0.28	14.9	47 000	—	—	55 000
	14	3.5	5	0.15	0.15	1.15	0.51	14.2	45 000	—	—	54 000
	17	5	5	0.3	0.3	1.60	0.71	14.0	42 000	—	28 000	50 000
	19	6	6	0.3	0.3	2.35	0.89	12.3	40 000	36 000	27 000	47 000
	22	7	7	0.3	0.3	3.30	1.35	12.4	31 000	28 000	23 000	37 000
	22	8	8	0.3	0.3	3.30	1.35	12.4	34 000	—	—	41 000



	Bearing No.					Mounting dimensions (mm)			(Refer.) Mass (g)
	Open	Shielded	Non-contact sealed	Extremely light shielded	Contact sealed	d_a min.	D_a max.	r_a max.	
	ML4010	WML4010 ZZ	—	—	—	5.2	8.8	0.1	1.0
	694	694 ZZ	694 2RU	—	694 2RS	5.2	9.8	0.15	1.8
	604	604 ZZ	—	—	—	5.6	10.4	0.2	2.1
	624	624 ZZ	624 2RU	—	624 2RS	5.6	11.4	0.2	2.9
	634	634 ZZ	—	—	—	6	14	0.3	5.3
	ML5008	WML5008 ZZ	—	—	—	5.6	7.4	0.05	0.3
	ML5009	WML5009 ZZ	—	—	—	5.8	8.2	0.08	0.5
	ML5010	WML5010 ZZ	—	—	—	5.8	9	0.1	0.9
	685	W685 ZZ	—	—	—	6.2	9.8	0.15	1.0
	695	695 ZZ	695 2RU	695 2RD	695 2RS	6.6	11.4	0.2	2.2
	605	605 ZZ	—	—	—	6.6	12.4	0.2	3.5
	625	625 ZZ	625 2RU	—	625 2RS	7	14	0.3	5.0
	635	635 ZZ	635 2RU	—	635 2RS	7	17	0.3	8.5
	ML6010	WML6010 ZZ	—	—	—	6.8	9.2	0.08	0.6
	ML6012	WML6012 ZZ	—	—	WML6012 2RS	7.2	10.8	0.1	1.3
	686	W686 ZZ	—	—	W686 2RS	7.2	11.8	0.15	1.8
	696	696 ZZ	696 2RU	696 2RD	696 2RS	7.6	13.4	0.2	3.9
	606	606 ZZ	606 2RU	606 2RD	—	8	15	0.3	5.8
	626	626 ZZ	626 2RU	626 2RD	626 2RS	8	17	0.3	8.1
	ML6019	ML6019 ZZ	—	—	—	7	18	0.3	9.0
	636	636 ZZ	—	—	636 2RS	8	20	0.3	13
	ML7011	WML7011 ZZX	—	—	—	7.8	10.2	0.08	0.7
	ML7013	WML7013 ZZ	—	—	—	8.2	11.8	0.15	1.4
	687	W687 ZZ	—	—	—	8.2	12.8	0.15	2.0
	697	697 ZZ	—	—	697 2RS	9	15	0.3	5.3
	607	607 ZZ	607 2RU	607 2RD	607 2RS	9	17	0.3	7.6
	627	627 ZZ	627 2RU	627 2RD	627 2RS	9	20	0.3	13
	ML7022	ML7022 ZZ	—	—	—	9	20	0.3	14

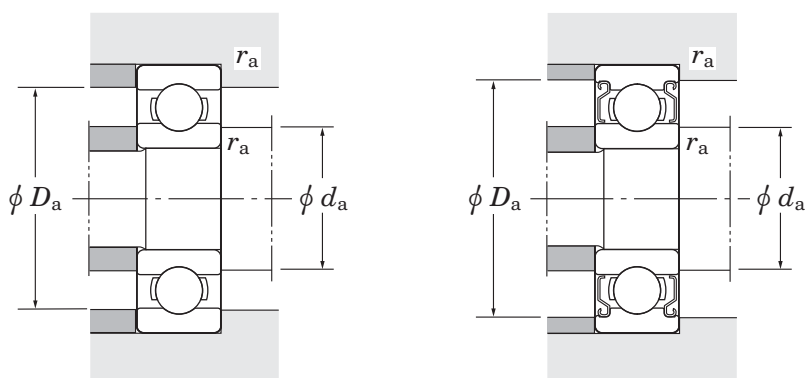
Extra-small ball bearings, miniature ball bearings

d (7) ~ 9 mm



Boundary dimensions (mm)						Basic load ratings (kN)		Factor	Limiting speeds (min^{-1})			
d	D	B	B_1	$r_{\min.}^{1)}$	$r_{1\min.}^{1)}$	C_r	C_{0r}	f_0	Grease lub.		Oil lub.	
									$\left[\begin{smallmatrix} \text{Open} \\ \text{ZZ, 2RU} \end{smallmatrix} \right]$	(2RD)	(2RS)	$\left[\begin{smallmatrix} \text{Open} \\ \text{Z} \end{smallmatrix} \right]$
7	26	9	9	0.3	0.3	4.55	1.95	12.3	26 000	—	—	32 000
8	12	2.5	3.5	0.1	0.08	0.54	0.27	16.4	47 000	—	—	55 000
	14	3.5	4	0.15	0.15	0.81	0.39	15.3	44 000	—	—	52 000
	16	4	5	0.2	0.2	1.25	0.59	14.0	42 000	38 000	28 000	50 000
	19	6	6	0.3	0.3	2.25	0.91	12.9	39 000	35 000	27 000	46 000
	22	7	7	0.3	0.3	3.30	1.35	12.4	34 000	31 000	23 000	41 000
	24	8	8	0.3	0.3	3.35	1.40	12.8	28 000	—	22 000	35 000
	28	9	9	0.3	0.3	4.55	1.95	12.3	26 000	23 000	—	32 000
9	17	4	5	0.2	0.2	1.35	0.66	14.9	39 000	35 000	—	46 000
	20	6	6	0.3	0.3	2.45	1.05	13.3	35 000	32 000	25 000	42 000
	24	7	7	0.3	0.3	3.35	1.40	12.8	33 000	30 000	22 000	40 000
	26	8	8	(0.6)	(0.6)	4.55	1.95	12.4	27 000	24 000	19 000	33 000
	30	10	10	0.6	0.6	4.65	2.10	12.3	24 000	—	—	29 000

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

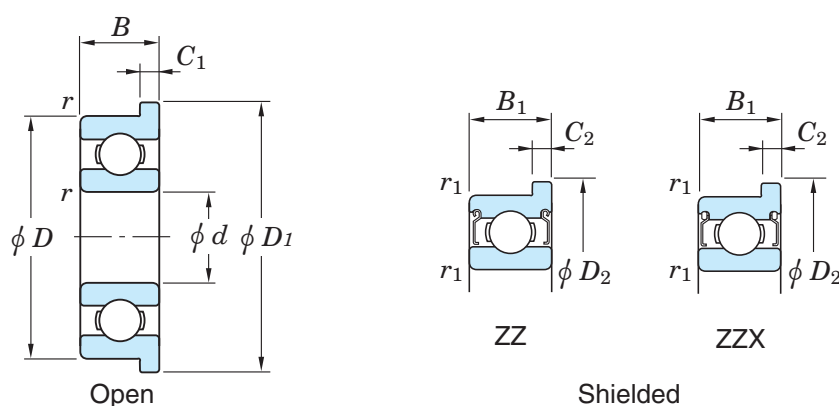


	Bearing No.					Mounting dimensions (mm)			(Refer.) Mass (g)
	Open	Shielded	Non-contact sealed	Extremely light shielded	Contact sealed	d_a min.	D_a max.	r_a max.	
	637	637 ZZ	—	—	—	9	24	0.3	24
	ML8012	WML8012 ZZ	—	—	—	8.8	11.2	0.08	0.8
	ML8014	WML8014 ZZ	—	—	—	9.2	12.8	0.15	1.8
	688	W688 ZZ	W688 2RU	W688 2RD	W688 2RS	9.6	14.4	0.2	3.2
	698	698 ZZ	—	698 2RD	698 2RS	10	17	0.3	7.2
	608	608 ZZ	608 2RU	608 2RD	608 2RS	10	20	0.3	12
	628	628 ZZ	628 2RU	—	628 2RS	10	22	0.3	18
	638	638 ZZ	—	638 2RD	—	10	26	0.3	29
	689	W689 ZZ	W689 2RU	W689 2RD	—	10.6	15.4	0.2	3.5
	699	699 ZZ	—	699 2RD	699 2RS	11	18	0.3	7.5
	609	609 ZZ	609 2RU	609 2RD	609 2RS	11	22	0.3	15
	629	629 ZZ	629 2RU	629 2RD	629 2RS	12.1	22	0.3	20
	639	639 ZZ	—	—	—	13	26	0.6	35

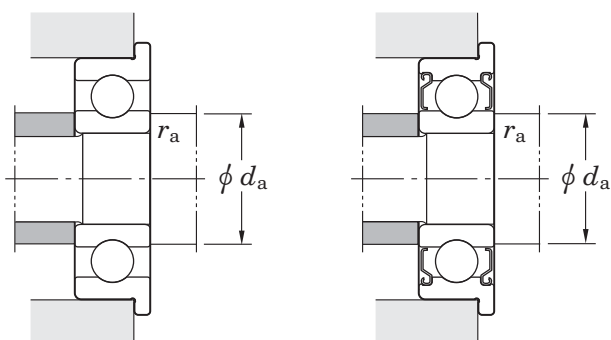
Extra-small ball bearings, miniature ball bearings

flanged type

d (4) ~ 8 mm



Boundary dimensions (mm)						Basic load ratings (kN)		Factor	Limiting speeds (min ⁻¹)		Bearing No.
d	D	B	B_1	$r_{\min.}$	$r_{1\min.}$	C_r	C_{0r}	f_0	Grease lub. [Open ZZ, ZZX]	Oil lub. [Open Z, ZX]	Open
4	13	5	5	0.2	0.2	1.30	0.48	12.2	50 000	60 000	F624
	16	5	5	0.3	0.3	1.35	0.52	13.0	47 000	55 000	F634
5	8	2	2.5	0.08	0.05	0.22	0.09	15.8	59 000	70 000	MLF5008
	9	2.5	3	0.1	0.08	0.43	0.17	14.6	57 000	67 000	MLF5009
	10	3	4	0.1	0.1	0.43	0.17	14.8	57 000	67 000	MLF5010
	11	3	5	0.15	0.15	0.71	0.28	14.0	53 000	63 000	F685
	13	4	4	0.2	0.2	1.10	0.43	13.4	49 000	59 000	F695
	14	5	5	0.2	0.2	1.35	0.51	12.3	48 000	57 000	F605
	16	5	5	0.3	0.3	1.75	0.67	12.4	45 000	54 000	F625
	19	6	6	0.3	0.3	2.35	0.89	12.3	40 000	47 000	F635
6	10	2.5	3	0.1	0.08	0.50	0.22	15.2	53 000	63 000	MLF6010
	12	3	4	0.15	0.1	0.71	0.29	14.5	49 000	59 000	MLF6012
	13	3.5	5	0.15	0.15	1.10	0.44	13.7	48 000	57 000	F686
	15	5	5	0.2	0.2	1.35	0.52	13.0	47 000	55 000	F696
	17	6	6	0.3	0.3	2.25	0.84	11.4	43 000	52 000	F606
	19	6	6	0.3	0.3	2.35	0.89	12.3	40 000	47 000	F626
	22	7	7	0.3	0.3	3.30	1.35	12.4	34 000	41 000	F636
7	11	2.5	3	0.1	0.08	0.46	0.20	15.6	49 000	59 000	MLF7011
	13	3	4	0.15	0.15	0.54	0.28	16.0	46 000	55 000	MLF7013
	14	3.5	5	0.15	0.15	1.15	0.51	14.2	45 000	54 000	F687
	17	5	5	0.3	0.3	1.60	0.71	14.0	42 000	50 000	F697
	19	6	6	0.3	0.3	2.35	0.89	12.1	40 000	47 000	F607
	22	7	7	0.3	0.3	3.30	1.35	12.4	34 000	41 000	F627
8	12	2.5	3.5	0.1	0.08	0.54	0.27	15.9	47 000	55 000	MLF8012
	14	3.5	4	0.15	0.15	0.87	0.42	15.3	44 000	52 000	MLF8014
	16	4	5	0.2	0.2	1.25	0.59	14.8	42 000	50 000	F688
	19	6	6	0.3	0.3	2.25	0.91	12.9	39 000	46 000	F698
	22	7	7	0.3	0.3	3.30	1.35	12.4	34 000	41 000	F608

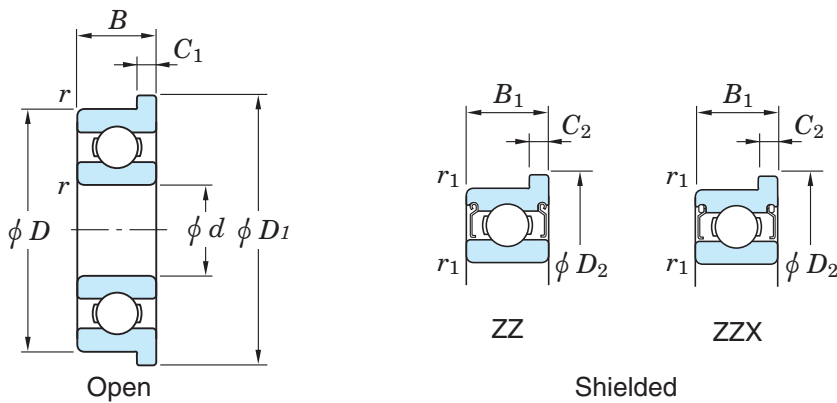


Shielded	Dimensions of flange (mm)				Mounting dimensions (mm)		(Refer.) Mass (g)
	D_1	D_2	C_1	C_2	d_a min.	r_a max.	
F624 ZZ	15	15	1	1	5.6	0.2	3.3
F634 ZZ	18	18	1	1	6	0.3	5.7
WMLF5008 ZZX	9.2	9.2	0.6	0.6	5.6	0.05	0.4
WMLF5009 ZZX	10.2	10.2	0.6	0.6	5.8	0.08	0.6
WMLF5010 ZZ	11.2	11.6	0.6	0.8	5.8	0.1	1.0
WF685 ZZ	12.5	12.5	0.8	1	6.2	0.15	1.1
F695 ZZ	15	15	1	1	6.6	0.2	2.5
F605 ZZ	16	16	1	1	6.6	0.2	3.9
F625 ZZ	18	18	1	1	7	0.3	5.4
F635 ZZ	22	22	1.5	1.5	7	0.3	9.7
WMLF6010 ZZX	11.2	11.2	0.6	0.6	6.8	0.08	0.7
WMLF6012 ZZ	13.2	13.6	0.6	0.8	7.2	0.1	1.4
WF686 ZZ	15	15	1	1.1	7.2	0.15	2.1
F696 ZZ	17	17	1.2	1.2	7.6	0.2	4.3
F606 ZZ	19	19	1.2	1.2	8	0.3	6.3
F626 ZZ	22	22	1.5	1.5	8	0.3	9.2
F636 ZZ	25	25	1.5	1.5	8	0.3	14
WMLF7011 ZZX	12.2	12.2	0.6	0.6	7.8	0.08	0.8
WMLF7013 ZZ	14.2	14.6	0.6	0.8	8.2	0.15	1.5
WF687 ZZ	16	16	1	1.1	8.2	0.15	2.4
F697 ZZ	19	19	1.2	1.2	9	0.3	5.8
F607 ZZ	22	22	1.5	1.5	9	0.3	8.7
F627 ZZ	25	25	1.5	1.5	9	0.3	14
WMLF8012 ZZX	13.2	13.6	0.6	0.8	8.8	0.08	0.9
WMLF8014 ZZ	15.6	15.6	0.8	0.8	9.2	0.15	2.0
WF688 ZZ	18	18	1	1.1	9.6	0.2	3.6
F698 ZZ	22	22	1.5	1.5	10	0.3	8.3
F608 ZZ	25	25	1.5	1.5	10	0.3	13

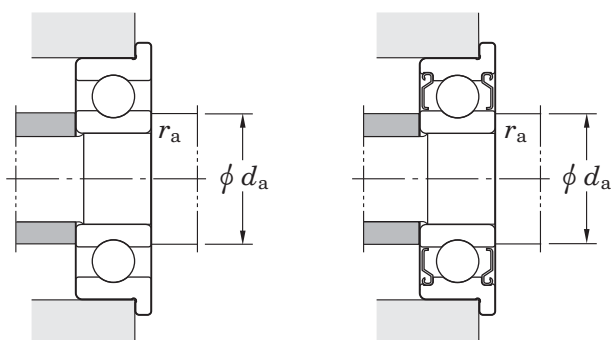
Extra-small ball bearings, miniature ball bearings

flanged type

d 9 mm



Boundary dimensions (mm)						Basic load ratings (kN)		Factor	Limiting speeds (min ⁻¹)		Bearing No.
<i>d</i>	<i>D</i>	<i>B</i>	<i>B</i> ₁	<i>r</i> min.	<i>r</i> ₁ min.	<i>C</i> _r	<i>C</i> _{0r}	<i>f</i> ₀	Grease lub. [Open ZZ, ZZX]	Oil lub. [Open Z, ZX]	Open
9	17	4	5	0.2	0.2	1.35	0.66	15.1	39 000	46 000	F689
	20	6	6	0.3	0.3	2.45	1.05	13.3	37 000	44 000	F699
	24	7	7	0.3	0.3	3.35	1.45	12.8	32 000	38 000	F609



Shielded	Dimensions of flange (mm)				Mounting dimensions (mm)		(Refer.) Mass (g)
	D_1	D_2	C_1	C_2	d_a min.	r_a max.	
WF689 ZZ	19	19	1	1.1	10.6	0.2	3.9
F699 ZZ	23	23	1.5	1.5	11	0.3	8.7
F609 ZZ	27	27	1.5	1.5	11	0.3	16