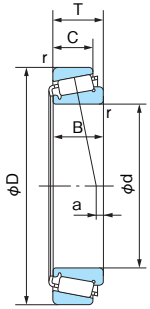
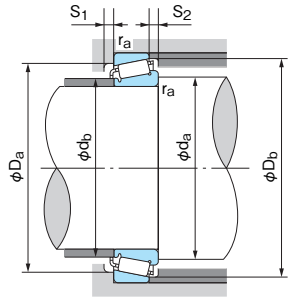
Tapered Roller Bearings

Metric Series

Bore Diameter: 15～35mm





■Dynamic equivalent radial load

Pr=XFr+YFa

$\frac{Fa}{Fr} \leqq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	0	0.4	Y_1

Values e and Y_1 from table.

■Static equivalent radial load

Larger value of following to be used:

Por=0.5Fr+Y_0Fa

Por=Fr

Values Y_0 from table.

1N=0.102kgf

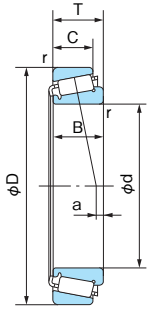
Boundary dimensions (mm)							Bearing No.	(Ref.) ISO355 Dimension series	Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (min⁻¹)		Abutment and fillet dimensions (mm)								Load center (mm) a (1)	Constant e	Axial load factor		Mass(kg) Reference	Bearing No.
d	D	T	B	C	Cone r (min)	Cup r (min)					Grease lubrication	Oil lubrication	da (min)	db (max)	Da (min)	Db (min)	S_1 (min)	S_2 (min)	Cone ra (max)	Cup ra (max)			Y_1	Y_0		
15	35	11.75	11	10	0.6	0.6	H-E30202	—	15800	14500	12000	16000	19.5	20	29	33	2	1.7	0.6	0.6	3.4	0.32	1.88	1.04	0.054	H-E30202
	42	14.25	13	11	1	1	H-E30302J	2FB	21900	19200	10000	14000	20.5	22	36.5	38	2	3	1	1	4.3	0.29	2.11	1.16	0.098	H-E30302J
17	40	13.25	12	11	1	1	H-E30203J	2DB	20800	20700	10000	14000	22.5	23	33	37	2	2	1	1	3.2	0.35	1.74	0.96	0.081	H-E30203J
	47	15.25	14	12	1	1	H-E30303J	2FB	27400	24500	9200	12000	22.5	25	40	42	2	3	1	1	4.3	0.29	2.11	1.16	0.133	H-E30303J
	47	20.25	19	16	1	1	H-32303	—	31900	29900	9400	13000	22.5	25	39	43	2	4	1	1	7.9	0.29	1.97	1.08	0.176	H-32303
20	42	15	15	12	0.6	0.6	H-E32004J	3CC	27300	31500	9300	13000	24.5	25	35	39	3	3	0.6	0.6	4.5	0.37	1.60	0.88	0.102	H-E32004J
	47	15.25	14	12	1	1	H-E30204J	2DB	27000	27200	8700	12000	25.5	27	39	44	2	3	1	1	3.5	0.35	1.74	0.95	0.127	H-E30204J
	47	19.25	18	15	1	1	H-E32204	—	32500	34800	8700	12000	25.5	27	39	43	2	4	1	1	6.2	0.35	1.73	0.95	0.156	H-E32204
	52	16.25	16	13	1.5	1.5	H-E30304J	—	36400	35200	8300	11000	28.5	28	44	47	2	3	1.5	1.5	3.0	0.30	2.00	1.10	0.179	H-E30304J
	52	22.25	21	18	1.5	1.5	H-E32304J	2FD	45100	46700	8400	11000	28.5	27	43	47	3	4	1.5	1.5	7.8	0.30	2.00	1.10	0.239	H-E32304J
25	47	15	15	11.5	0.6	0.6	H-E32005J	4CC	30200	37700	8300	11000	29.5	30	40	44	3	3.5	0.6	0.6	3.2	0.43	1.39	0.77	0.118	H-E32005J
	47	17	17	14	0.6	0.6	H-E33005J	2CE	33500	42300	8300	11000	29.5	30	41	44	3	3	0.6	0.6	6.1	0.29	2.07	1.14	0.131	H-E33005J
	52	16.25	15	13	1	1	H-E30205J	3CC	31500	33700	7500	10000	30.5	31	44	48	2	3	1	1	3.3	0.37	1.60	0.88	0.156	H-E30205J
	52	19.25	18	16	1	1	H-E32205J	2CD	39800	44800	7900	11000	30.5	31	43	48	2	4	1	1	5.7	0.36	1.67	0.92	0.188	H-E32205J
	52	22	22	18	1	1	H-E33205J	2DE	48900	58500	7900	10000	30.5	30	43	49	4	4	1	1	7.9	0.35	1.71	0.94	0.225	H-E33205J
	62	18.25	17	15	1.5	1.5	H-E30305J	2FB	48200	46900	6800	9000	33.5	34	54	57	2	3	1.5	1.5	5.4	0.30	2.00	1.10	0.273	H-E30305J
	62	18.25	17	13	1.5	1.5	H-E30305DJ	7FB	39800	42500	5700	8000	33.5	34	47	58.5	3	5	1.5	1.5	–2.2	0.83	0.73	0.40	0.269	H-E30305DJ
	62	25.25	24	20	1.5	1.5	H-E32305J	2FD	61200	64100	6900	9100	33.5	33	52	57	3	5	1.5	1.5	8.6	0.30	2.00	1.10	0.386	H-E32305J
30	55	17	17	13	1	1	H-E32006J	4CC	38200	48000	7000	9400	35.5	35	47	52	3	4	1	1	3.4	0.43	1.39	0.77	0.177	H-E32006J
	55	20	20	16	1	1	H-E33006J	2CE	43200	55200	7000	9400	35.5	36	48	52	3	4	1	1	7.0	0.29	2.06	1.13	0.203	H-E33006J
	62	17.25	16	14	1	1	H-E30206J	3DB	41500	44800	6500	8700	35.5	37	53	57	2	3	1	1	3.1	0.37	1.60	0.88	0.236	H-E30206J
	62	21.25	20	17	1	1	H-E32206J	3DC	50700	57900	6500	8700	35.5	37	52	58	2	4	1	1	5.3	0.37	1.60	0.88	0.292	H-E32206J
	62	25	25	19.5	1	1	H-E33206J	2DE	66400	79400	6500	8700	35.5	36	53	58	2	5.5	1	1	8.7	0.34	1.76	0.97	0.359	H-E33206J
	72	20.75	19	16	1.5	1.5	H-E30306J	2FB	59600	60100	5800	7700	38.5	40	62	66	3	4.5	1.5	1.5	5.1	0.31	1.90	1.05	0.411	H-E30306J
	72	20.75	19	14	1.5	1.5	H-E30306DJ	7FB	50900	54900	4900	6800	38.5	40	55	68	3	6.5	1.5	1.5	–2.9	0.83	0.73	0.04	0.400	H-E30306DJ
	72	28.75	27	23	1.5	1.5	H-E32306J	2FD	82200	91600	5900	7900	38.5	39	59	66	3	5.5	1.5	1.5	9.8	0.31	1.90	1.05	0.588	H-E32306J
35	55	14	14	11.5	0.6	0.6	E32907J	2BD	26100	36500	6600	8800	39.5	40	49	52	2.5	2.5	0.6	0.6	3.1	0.29	2.06	1.13	0.120	E32907J
	62	18	18	14	1	1	H-E32007J	4CC	45500	59400	6200	8200	40.5	40	54	59	4	4	1	1	2.9	0.45	1.32	0.73	0.231	H-E32007J
	62	21	21	17	1	1	H-E33007J	2CE	51300	68000	6200	8200	40.5	41	55	59	3	4	1	1	6.8	0.31	1.97	1.08	0.263	H-E33007J
	72	18.25	17	15	1.5	1.5	H-E30207J	3DB	55100	60900	5600	7400	43.5	44	62	67	3	3	1.5	1.5	2.9	0.37	1.60	0.88	0.344	H-E30207J
	72	24.25	23	19	1.5	1.5	H-E32207J	3DC	69600	82400	5600	7500	43.5	43	61	67	3	5	1.5	1.5	6.0	0.37	1.60	0.88	0.453	H-E32207J
	72	28	28	22	1.5	1.5	H-E33207J	2DE	86700	107000	5700	7500	43.5	42	61	68	5	6	1.5	1.5	9.6	0.35	1.70	0.93	0.551	H-E33207J
	80	22.75	21	18	2	1.5	H-E30307J	2FB	76200	78900	5200	6900	45	45	70	74	3	4.5	2	1.5	5.8	0.31	1.90	1.05	0.527	H-E30307J
	80	22.75	21	15	2	1.5	H-E30307DJ	7FB	63100	69100	4300	6000	45	44	66	76.5	3	7.5	2	1.5	–4.1	0.83	0.73	0.40	0.536	H-E30307DJ
	80	32.75	31	25	2	1.5	H-E32307J	2FE	101000	114000	5300	7000	45	44	66	74	3	7.5	2	1.5	12.2	0.31	1.90	1.05	0.776	H-E32307J

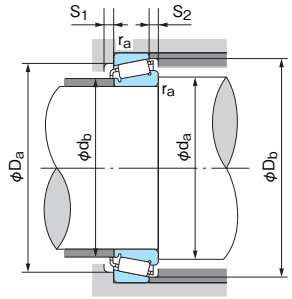
Note: (1) Minus value of load center "a" indicates that the center is located outside of cone backface.

Tapered Roller Bearings

Metric Series

Bore Diameter: 40～50mm





■Dynamic equivalent radial load

Pr=XFr+YFa

$\frac{Fa}{Fr} \leqq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	0	0.4	Y_1

Values e and Y_1 from table.

■Static equivalent radial load

Larger value of following to be used:

Por=0.5Fr+Y_0Fa

Por=Fr

Values Y_0 from table.

1N=0.102kgf

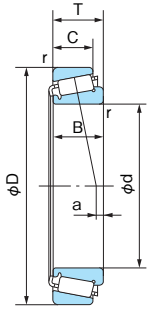
Boundary dimensions (mm)							Bearing No.	(Ref.) ISO355 Dimension series	Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (min-1)		Abutment and fillet dimensions (mm)								Load center (mm) a (1)	Constant e	Axial load factor		Mass(kg) Reference	Bearing No.
d	D	T	B	C	Cone r (min)	Cup r (min)					Grease lubrication	Oil lubrication	da (min)	db (max)	Da (min)	Db (min)	S_1 (min)	S_2 (min)	Cone ra (max)	Cup ra (max)			Y_1	Y_0		
40	62	15	15	12	0.6	0.6	**H-E32908J**	2BC	33500	48500	5900	7800	44.5	45	55	59	3	3	0.6	0.6	3.1	0.29	2.07	1.14	0.164	**H-E32908J**
	68	19	19	14.5	1	1	**H-E32008J**	3CD	53500	71400	5600	7400	45.5	46	60	65	4	4.5	1	1	3.9	0.38	1.58	0.87	0.282	**H-E32008J**
	68	22	22	18	1	1	**H-E33008J**	2BE	60400	84600	5500	7400	45.5	46	60	65	3	4	1	1	7.3	0.28	2.12	1.17	0.326	**H-E33008J**
	75	26	26	20.5	1.5	1.5	**H-E33108J**	2CE	82200	108000	5200	6900	48.5	47	65	71	4	5.5	1.5	1.5	7.7	0.36	1.69	0.93	0.508	**H-E33108J**
	80	19.75	18	16	1.5	1.5	**H-E30208J**	3DB	62900	69200	5000	6700	48.5	49	69	75	3	3.5	1.5	1.5	2.7	0.37	1.60	0.88	0.434	**H-E30208J**
	80	24.75	23	19	1.5	1.5	**H-E32208J**	3DC	77700	90800	5000	6600	48.5	48	68	75	3	5.5	1.5	1.5	5.3	0.37	1.60	0.88	0.554	**H-E32208J**
	80	32	32	25	1.5	1.5	**H-E33208J**	2DE	108000	139000	5000	6700	48.5	47	67	76	5	7	1.5	1.5	11.3	0.36	1.68	0.92	0.758	**H-E33208J**
	90	25.25	23	20	2	1.5	**H-E30308J**	2FB	90600	101000	4500	6100	50	52	77	82	3	5	2	1.5	5.4	0.35	1.74	0.96	0.757	**H-E30308J**
	90	25.25	23	17	2	1.5	**H-E30308DJ**	7FB	80500	90200	3800	5300	50	51	71	86	3	8	2	1.5	–4.6	0.83	0.73	0.40	0.757	**H-E30308DJ**
	90	35.25	33	27	2	1.5	**H-E32308J**	2FD	116000	139000	4600	6200	50	50	73	82	3	8	2	1.5	10.9	0.35	1.74	0.96	1.06	**H-E32308J**
45	68	15	15	12	0.6	0.6	**H-E32909J**	2BC	34700	52400	5300	7100	49.5	50	61	64	3	3	0.6	0.6	2.5	0.32	1.88	1.04	0.190	**H-E32909J**
	75	20	20	15.5	1	1	**H-E32009J**	3CC	62800	86500	5000	6600	50.5	51	67	72	4	4.5	1	1	3.5	0.39	1.53	0.84	0.354	**H-E32009J**
	75	24	24	19	1	1	**H-E33009J**	2CE	69600	101000	5000	6700	50.5	51	67	71	4	5	1	1	7.6	0.29	2.04	1.12	0.416	**H-E33009J**
	80	26	26	20.5	1.5	1.5	**E33109J**	3CE	87500	120000	4800	6400	53.5	52	69	76.5	4	5.5	1.5	1.5	6.6	0.38	1.57	0.86	0.563	**E33109J**
	85	20.75	19	16	1.5	1.5	**H-E30209J**	3DB	67200	77400	4600	6100	53.5	54	74	80	3	4.5	1.5	1.5	1.8	0.40	1.48	0.81	0.502	**H-E30209J**
	85	24.75	23	19	1.5	1.5	**H-E32209J**	3DC	78300	94100	4600	6100	53.5	53	73	81	3	5.5	1.5	1.5	3.8	0.40	1.48	0.81	0.587	**H-E32209J**
	85	32	32	25	1.5	1.5	**E33209J**	3DE	112000	149000	4600	6200	53.5	52	76.5	81	5	7	1.5	1.5	10.2	0.39	1.56	0.86	0.803	**E33209J**
	100	27.25	25	22	2	1.5	**E30309J**	2FB	113000	128000	4100	5400	55	59	86	93	3	5	2	1.5	5.9	0.35	1.74	0.96	1.01	**E30309J**
	100	27.25	25	18	2	1.5	**E30309DJ**	7FB	95100	107000	3400	4700	55	56	79	96	3	9	2	1.5	–5.7	0.83	0.73	0.40	0.973	**E30309DJ**
	100	38.25	36	30	2	1.5	**E32309J**	2FD	146000	180000	4100	5500	55	56	82	93	3	8	2	1.5	11.4	0.35	1.74	0.96	1.43	**E32309J**
50	72	15	15	12	0.6	0.6	**E32910J**	2BC	35900	56300	4900	6600	54.5	55	65	69	3	3	0.6	0.6	1.3	0.34	1.76	0.97	0.195	**E32910J**
	80	20	20	15.5	1	1	**H-E32010J**	3CC	65700	94500	4600	6100	55.5	56	72	77	4	4.5	1	1	2.3	0.42	1.42	0.78	0.389	**H-E32010J**
	80	24	24	19	1	1	**E33010J**	2CE	73000	110000	4600	6100	55.5	56	72	76	4	5	1	1	6.6	0.32	1.90	1.04	0.451	**E33010J**
	85	26	26	20	1.5	1.5	**E33110J**	3CE	89400	127000	4400	5900	58.5	56	74	81.5	4	6	1.5	1.5	5.4	0.41	1.46	0.80	0.594	**E33110J**
	90	21.75	20	17	1.5	1.5	**H-E30210J**	3DB	76500	91700	4300	5700	58.5	58	79	85	3	4.5	1.5	1.5	1.65	0.42	1.43	0.79	0.566	**H-E30210J**
	90	24.75	23	19	1.5	1.5	**H-E32210J**	3DC	85000	105000	4300	5700	58.5	58	78	85	3	5.5	1.5	1.5	4.1	0.42	1.43	0.79	0.643	**H-E32210J**
	90	32	32	24.5	1.5	1.5	**H-E33210J**	3DE	119000	167000	4300	5700	58.5	57	77	86.5	5	7.5	1.5	1.5	8.9	0.41	1.45	0.80	0.887	**H-E33210J**
	110	29.25	27	23	2.5	2	**E30310J**	2FB	137000	152000	3700	4900	62	65	95	102	3	6	2	2	6.4	0.35	1.74	0.96	1.32	**E30310J**
	110	29.25	27	19	2.5	2	**E30310DJ**	7FB	115000	133000	3100	4300	62	62	87	105	3	10	2	2	–5.8	0.83	0.73	0.40	1.25	**E30310DJ**
	110	42.25	40	33	2.5	2	**E32310J**	2FD	176000	220000	3700	5000	62	62	90	102	3	9	2	2	12.9	0.35	1.74	0.96	1.89	**E32310J**

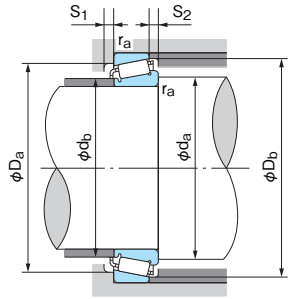
Note: (1) Minus value of load center "a" indicates that the center is located outside of cone backface.

Tapered Roller Bearings

Metric Series

Bore Diameter: 55～65mm





■Dynamic equivalent radial load

Pr=XFr+YFa

$\frac{Fa}{Fr} \leqq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	0	0.4	Y_1

Values e and Y_1 from table.

■Static equivalent radial load

Larger value of following to be used:

$P_{or}=0.5F_r+Y_0F_a$

$P_{or}=F_r$

Values Y_0 from table.

1N=0.102kgf

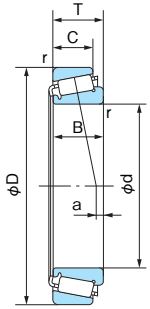
Boundary dimensions (mm)							Bearing No.	(Ref.) ISO355 Dimension series	Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (min⁻¹)		Abutment and fillet dimensions (mm)								Load center (mm) a (1)	Constant e	Axial load factor		Mass(kg) Reference	Bearing No.
d	D	T	B	C	Cone r (min)	Cup r (min)					Grease lubrication	Oil lubrication	da (min)	db (max)	Da (min)	Db (min)	S_1 (min)	S_2 (min)	Cone ra (max)	Cup ra (max)			Y_1	Y_0		
55	80	17	17	14	1	1	**E32911J**	2BC	44600	73300	4400	5900	61	61	72	76	3	3	1	1	2.5	0.31	1.94	1.07	0.285	**E32911J**
	90	23	23	17.5	1.5	1.5	**H-E32011J**	3CC	84600	121000	4100	5500	63.5	63	81	86	4	5.5	1.5	1.5	3.2	0.41	1.48	0.81	0.569	**H-E32011J**
	90	27	27	21	1.5	1.5	**E33011J**	2CE	96500	149000	4100	5400	63.5	63	81	86	5	6	1.5	1.5	7.3	0.31	1.92	1.06	0.672	**E33011J**
	95	30	30	23	1.5	1.5	**E33111J**	3CE	116000	161000	4000	5300	63.5	62	83	91	5	7	1.5	1.5	7.5	0.37	1.60	0.88	0.868	**E33111J**
	100	22.75	21	18	2	1.5	**E30211J**	3DB	94600	113000	3900	5200	65	64	88	94	4	4.5	2	1.5	2.0	0.40	1.48	0.81	0.732	**E30211J**
	100	26.75	25	21	2	1.5	**E32211J**	3DC	107000	133000	3900	5200	65	63	87	95	4	5.5	2	1.5	3.7	0.40	1.48	0.81	0.863	**E32211J**
	100	35	35	27	2	1.5	**E33211J**	3DE	142000	189000	3900	5200	65	62	85	96	6	8	2	1.5	9.7	0.40	1.50	0.83	1.18	**E33211J**
	120	31.5	29	25	2.5	2	**E30311J**	2FB	149000	170000	3300	4500	67	71	104	111	4	6.5	2	2	6.0	0.35	1.74	0.96	1.65	**E30311J**
	120	31.5	29	21	2.5	2	**E30311DJ**	7FB	129000	148000	2900	4000	67	68	94	113	4	10.5	2	2	–6.9	0.83	0.73	0.40	1.59	**E30311DJ**
	120	45.5	43	35	2.5	2	**E32311J**	2FD	200000	250000	3400	4500	67	68	99	111	4	10.5	2	2	13.1	0.35	1.74	0.96	2.38	**E32311J**
60	85	17	17	14	1	1	**E32912J**	2BC	46200	78200	4100	5500	65.5	66	77	81	3	3	1	1	1.4	0.33	1.81	1.00	0.306	**E32912J**
	95	23	23	17.5	1.5	1.5	**E32012J**	4CC	86100	127000	3900	5200	68.5	67	85	91	4	5.5	1.5	1.5	2.0	0.43	1.39	0.77	0.621	**E32012J**
	95	27	27	21	1.5	1.5	**E33012J**	2CE	101000	162000	3900	5200	68.5	67	85	90	5	6	1.5	1.5	6.9	0.33	1.83	1.01	0.719	**E33012J**
	100	30	30	23	1.5	1.5	**E33112J**	3CE	118000	170000	3600	4900	68.5	67	88	96	5	7	1.5	1.5	6.3	0.40	1.51	0.83	0.923	**E33112J**
	110	23.75	22	19	2	1.5	**E30212J**	3EB	106000	127000	3500	4700	70	70	96	103	4	4.5	2	1.5	1.8	0.40	1.48	0.81	0.945	**E30212J**
	110	29.75	28	24	2	1.5	**E32212J**	3EC	132000	167000	3500	4700	70	69	95	104	4	5.5	2	1.5	4.6	0.40	1.48	0.81	1.19	**E32212J**
	110	38	38	29	2	1.5	**E33212J**	3EE	174000	239000	3600	4700	70	69	93	105	6	9	2	1.5	10.8	0.40	1.48	0.82	1.57	**E33212J**
	130	33.5	31	26	3	2.5	**E30312J**	2FB	173000	201000	3100	4100	74	77	112	120	4	7.5	2.5	2	6.6	0.35	1.74	0.96	2.08	**E30312J**
	130	33.5	31	22	3	2.5	**E30312DJ**	7FB	153000	179000	2600	3700	74	73	103	124	4	11.5	2.5	2	–7.3	0.83	0.73	0.40	2.01	**E30312DJ**
	130	48.5	46	37	3	2.5	**32312J**	2FD	221000	275000	3100	4200	74	74	107	120	4	11.5	2.5	2	16.2	0.35	1.74	0.96	2.92	**32312J**
65	90	17	17	14	1	1	**E32913J**	2BC	47400	83100	3900	5200	70.5	70	81	86	3	3	1	1	0.2	0.35	1.70	0.93	0.327	**E32913J**
	100	23	23	17.5	1.5	1.5	**E32013J**	4CC	90000	137000	3600	4800	73.5	72	90	97	4	5.5	1.5	1.5	0.5	0.46	1.31	0.72	0.664	**E32013J**
	100	27	27	21	1.5	1.5	**E33013J**	2CE	103000	169000	3600	4800	73.5	72	89	96	5	6	1.5	1.5	5.9	0.35	1.72	0.95	0.762	**E33013J**
	110	34	34	26.5	1.5	1.5	**E33113J**	3DE	152000	223000	3400	4600	73.5	73	96	106	6	7.5	1.5	1.5	8.1	0.39	1.55	0.85	1.33	**E33113J**
	120	24.75	23	20	2	1.5	**E30213J**	3EB	128000	156000	3200	4300	75	77	106	113	4	4.5	2	1.5	0.6	0.40	1.48	0.81	1.18	**E30213J**
	120	32.75	31	27	2	1.5	**E32213J**	3EC	157000	203000	3200	4300	75	76	104	115	4	5.5	2	1.5	6.1	0.40	1.48	0.82	1.58	**E32213J**
	120	41	41	32	2	1.5	**E33213J**	3EE	200000	277000	3200	4300	75	74	102	115	7	9	2	1.5	11	0.39	1.54	0.85	2.02	**E33213J**
	140	36	33	28	3	2.5	**E30313J**	2GB	204000	239000	2800	3800	79	83	122	130	4	8	2.5	2	6.7	0.35	1.74	0.96	2.56	**E30313J**
	140	36	33	23	3	2.5	**E30313DJ**	7GB	176000	209000	2400	3400	79	79	111	133	4	13	2.5	2	–8.3	0.83	0.73	0.40	2.44	**E30313DJ**
	140	51	48	39	3	2.5	**E32313J**	2GD	276000	357000	2900	3900	79	80	117	130	4	12	2.5	2	16.3	0.35	1.74	0.96	3.64	**E32313J**

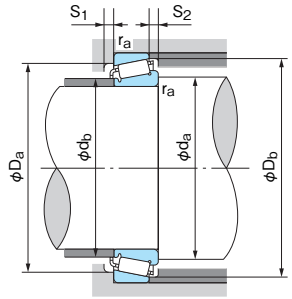
Note: (1) Minus value of load center "a" indicates that the center is located outside of cone backface.

■ Tapered Roller Bearings

Metric Series

Bore Diameter: 70～80mm





■Dynamic equivalent radial load

Pr=XFr+YFa

$\frac{Fa}{Fr} \leqq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	0	0.4	Y_1

Values e and Y_1 from table.

■Static equivalent radial load

Larger value of following to be used:

Por=0.5Fr+Y_0Fa

Por=Fr

Values Y_0 from table.

1N=0.102kgf

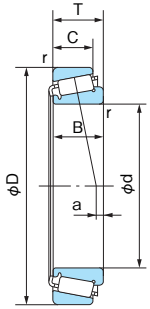
Boundary dimensions (mm)							Bearing No.	(Ref.) ISO355 Dimension series	Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (min⁻¹)		Abutment and fillet dimensions (mm)								Load center (mm) a (1)	Constant e	Axial load factor		Mass(kg) Reference	Bearing No.
d	D	T	B	C	Cone r (min)	Cup r (min)					Grease lubrication	Oil lubrication	da (min)	db (max)	Da (min)	Db (min)	S_1 (min)	S_2 (min)	Cone ra (max)	Cup ra (max)			Y_1	Y_0		
70	100	20	20	16	1	1	**E32914J**	2BC	71000	115000	3500	4700	75.5	77	91	96	4	4	1	1	2.2	0.32	1.90	1.05	0.496	**E32914J**
	110	25	25	19	1.5	1.5	**E32014J**	4CC	108000	163000	3300	4400	78.5	78	98	105	5	6	1.5	1.5	1.4	0.43	1.38	0.76	0.884	**E32014J**
	110	31	31	25.5	1.5	1.5	**E33014J**	2CE	134000	208000	3300	4400	78.5	78	99	105	5	5.5	1.5	1.5	8.1	0.28	2.11	1.16	1.09	**E33014J**
	125	26.25	24	21	2	1.5	**E30214J**	3EB	138000	173000	3100	4100	80	81	110	118	4	5	2	1.5	0.3	0.42	1.43	0.79	1.32	**E30214J**
	125	33.25	31	27	2	1.5	**E32214J**	3EC	169000	225000	3100	4100	80	80	108	119	4	6	2	1.5	4.0	0.42	1.43	0.79	1.71	**E32214J**
	125	41	41	32	2	1.5	**E33214J**	3EE	206000	294000	3100	4100	80	79	107	120	7	9	2	1.5	9.8	0.41	1.47	0.81	2.16	**E33214J**
	150	38	35	30	3	2.5	**E30314J**	2GB	230000	273000	2600	3500	84	89	130	140	4	8	2.5	2	7.5	0.35	1.74	0.96	3.08	**E30314J**
	150	38	35	25	3	2.5	**E30314DJ**	7GB	197000	235000	2300	3200	84	84	118	142	4	13	2.5	2	–9.1	0.83	0.73	0.40	2.97	**E30314DJ**
	150	54	51	42	3	2.5	**E32314J**	2GD	317000	414000	2700	3600	84	86	125	140	4	12	2.5	2	16.6	0.35	1.74	0.96	4.50	**E32314J**
75	105	20	20	16	1	1	**E32915J**	2BC	73600	123000	3300	4400	80.5	81	97	101	4	4	1	1	1.1	0.33	1.80	0.99	0.526	**E32915J**
	115	25	25	19	1.5	1.5	**E32015J**	4CC	110000	169000	3100	4200	83.5	83	103	110	5	6	1.5	1.5	–0.1	0.46	1.31	0.72	0.93	**E32015J**
	115	31	31	25.5	1.5	1.5	**E33015J**	2CE	141000	225000	3000	4100	83.5	83	104	110	6	5.5	1.5	1.5	8.1	0.30	2.01	1.11	1.16	**E33015J**
	125	37	37	29	2	1.5	**E33115J**	3DE	186000	280000	3000	4000	85	84	109	120	6	8	2	1.5	7.5	0.40	1.51	0.83	1.84	**E33115J**
	130	27.25	25	22	2	1.5	**E30215J**	4DB	142000	181000	2900	3900	85	86	115	124	4	5	2	1.5	–0.3	0.44	1.38	0.76	1.42	**E30215J**
	130	33.25	31	27	2	1.5	**E32215J**	4DC	174000	234000	2900	3900	85	85	114	123	4	6	2	1.5	3.0	0.44	1.38	0.76	1.77	**E32215J**
	130	41	41	31	2	1.5	**E33215J**	3EE	212000	310000	2900	3900	85	83	111	125	7	10	2	1.5	8.5	0.43	1.40	0.77	2.26	**E33215J**
	160	40	37	31	3	2.5	**E30315**	2GB	250000	297000	2500	3300	89	95	139	149	4	9	2.5	2	8.1	0.35	1.73	0.95	3.52	**E30315**
	160	40	37	26	3	2.5	**E30315D**	—	222000	266000	2100	2900	89	91	127	151	6	14	2.5	2	–8.8	0.81	0.74	0.41	3.47	**E30315D**
	160	58	55	45	3	2.5	**E32315J**	2GD	363000	481000	2500	3300	89	91	133	149	4	13	2.5	2	18	0.35	1.74	0.96	5.41	**E32315J**
80	110	20	20	16	1	1	**E32916J**	2BC	76100	131000	3100	4200	85.5	86	101	106	4	4	1	1	–0.1	0.35	1.71	0.94	0.556	**E32916J**
	125	29	29	22	1.5	1.5	**E32016J**	3CC	147000	225000	2900	3900	88.5	89	112	120	6	7	1.5	1.5	2.3	0.42	1.42	0.78	1.32	**E32016J**
	125	36	36	29.5	1.5	1.5	**E33016J**	2CE	173000	288000	2900	3900	88.5	90	112	119	6	6.5	1.5	1.5	10.9	0.28	2.16	1.19	1.63	**E33016J**
	130	37	37	29	2	1.5	**E33116J**	3DE	191000	294000	2800	3800	90	89	114	126	6	8	2	1.5	6.5	0.42	1.44	0.79	1.93	**E33116J**
	140	28.25	26	22	2.5	2	**E30216J**	3EB	161000	202000	2700	3600	92	91	124	132	4	6	2	2	–0.3	0.42	1.43	0.79	1.72	**E30216J**
	140	35.25	33	28	2.5	2	**E32216J**	3EC	203000	271000	2700	3600	92	90	122	134	4	7	2	2	3.8	0.42	1.43	0.79	2.17	**E32216J**
	140	46	46	35	2.5	2	**E33216**	3EE	250000	371000	2700	3600	92	89	119	135	7	11	2	2	10.3	0.43	1.41	0.78	2.99	**E33216**
	170	42.5	39	33	3	2.5	**E30316J**	2GB	294000	355000	2300	3100	94	102	148	159	4	9.5	2.5	2	7.7	0.35	1.73	0.96	4.46	**E30316J**
	170	42.5	39	27	3	2.5	**E30316DJ**	7GB	236000	282000	2000	2800	94	97	134	159	6	15.5	2.5	2	–11.0	0.83	0.73	0.40	4.12	**E30316DJ**
	170	61.5	58	48	3	2.5	**E32316**	2GD	378000	497000	2300	3100	94	98	142	159	4	13.5	2.5	2	19.5	0.35	1.73	0.95	6.32	**E32316**

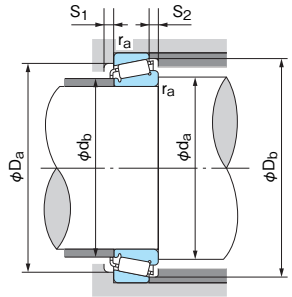
Note: (1) Minus value of load center "a" indicates that the center is located outside of cone backface.

Tapered Roller Bearings

Metric Series

Bore Diameter: 85～95mm





■Dynamic equivalent radial load

Pr=XFr+YFa

$\frac{Fa}{Fr} \leqq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	0	0.4	Y_1

Values e and Y_1 from table.

■Static equivalent radial load

Larger value of following to be used:

Por=0.5Fr+Y_0Fa

Por=Fr

Values Y_0 from table.

1N=0.102kgf

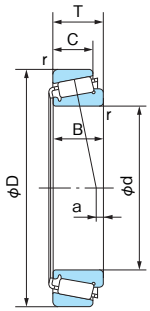
Boundary dimensions (mm)							Bearing No.	(Ref.) ISO355 Dimension series	Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (min⁻¹)		Abutment and fillet dimensions (mm)								Load center (mm) a (1)	Constant e	Axial load factor		Mass(kg) Reference	Bearing No.
d	D	T	B	C	Cone r (min)	Cup r (min)					Grease lubrication	Oil lubrication	da (min)	db (max)	Da (min)	Db (min)	S1 (min)	S2 (min)	Cone ra (max)	Cup ra (max)			Y1	Y0		
85	120	23	23	18	1.5	1.5	**E32917J**	2BC	97100	165000	2900	3900	93.5	93	109	115	5	5	1.5	1.5	1.8	0.33	1.83	1.01	0.794	**E32917J**
	130	29	29	22	1.5	1.5	**E32017J**	4CC	150000	234000	2800	3700	93.5	94	117	125	6	7	1.5	1.5	1.0	0.44	1.36	0.75	1.38	**E32017J**
	130	36	36	29.5	1.5	1.5	**E33017J**	2CE	177000	300000	2800	3700	93.5	94	118	125	6	6.5	1.5	1.5	9.7	0.29	2.06	1.13	1.72	**E33017J**
	140	41	41	32	2.5	2.5	**E33117J**	3DE	224000	346000	2600	3500	97	95	122	135	7	9	2	2	7.8	0.41	1.48	0.81	2.43	**E33117J**
	150	30.5	28	24	2.5	2	**E30217J**	3EB	182000	231000	2500	3400	97	97	132	141	5	6.5	2	2	0.1	0.42	1.43	0.79	2.17	**E30217J**
	150	38.5	36	30	2.5	2	**E32217J**	3EC	232000	315000	2500	3300	97	96	130	142	5	8.5	2	2	4.3	0.42	1.43	0.79	2.80	**E32217J**
	150	49	49	37	2.5	2	**E33217J**	3EE	294000	439000	2500	3400	97	95	128	144	7	12	2	2	11.9	0.42	1.43	0.79	3.63	**E33217J**
	180	44.5	41	34	4	3	**E30317**	—	305000	367000	2200	2900	103	107	156	167	5	10.5	3	2.5	8.7	0.35	1.73	0.95	4.97	**E30317**
	180	44.5	41	28	4	3	**E30317DJ**	—	263000	317000	1900	2600	103	103	143	169	6	16.5	3	2.5	–11.8	0.83	0.73	0.41	4.81	**E30317DJ**
	180	63.5	60	49	4	3	**E32317J**	2GD	439000	587000	2200	3000	103	103	150	167	5	14.5	3	2.5	19.7	0.35	1.74	0.96	7.42	**E32317J**
90	125	23	23	18	1.5	1.5	**E32918J**	2BC	101000	175000	2800	3700	98.5	97	114	120	5	5	1.5	1.5	0.7	0.34	1.75	0.96	0.834	**E32918J**
	140	32	32	24	2	1.5	**E32018J**	3CC	178000	276000	2600	3500	100	100	125	134	6	8	2	1.5	2.2	0.42	1.42	0.78	1.80	**E32018J**
	140	39	39	32.5	2	2	**E33018J**	2CE	221000	367000	2600	3400	100	100	127	135	7	6.5	2	1.5	11.9	0.27	2.23	1.23	2.22	**E33018J**
	160	32.5	30	26	2.5	2	**E30218J**	3FB	204000	261000	2400	3200	102	103	140	150	5	6.5	2	2	–0.1	0.42	1.43	0.79	2.65	**E30218J**
	160	42.5	40	34	2.5	2	**E32218J**	3FC	263000	362000	2400	3200	102	102	138	152	5	8.5	2	2	5.5	0.42	1.43	0.79	3.47	**E32218J**
	190	46.5	43	36	4	3	**E30318**	—	336000	407000	2100	2700	108	113	165	177	5	10.5	3	2.5	9.3	0.35	1.73	0.95	5.78	**E30318**
	190	46.5	43	30	4	3	**E30318D**	—	282000	336000	1700	2400	108	109	151	179	6	16.5	3	2.5	–12.6	0.81	0.74	0.41	5.60	**E30318D**
	190	67.5	64	53	4	3	**E32318J**	—	461000	614000	2100	2800	108	108	157	177	5	14.5	3	2.5	20.9	0.35	1.74	0.96	8.61	**E32318J**
95	130	23	23	18	1.5	1.5	**E32919J**	2BC	104000	186000	2600	3500	103.5	102	119	125	5	5	1.5	1.5	–0.5	0.36	1.68	0.92	0.876	**E32919J**
	145	32	32	24	2	1.5	**E32019J**	4CC	182000	287000	2500	3300	105	105	130	140	6	8	2	1.5	0.8	0.44	1.36	0.75	1.88	**E32019J**
	145	39	39	32.5	2	1.5	**E33019J**	2CE	226000	382000	2500	3300	105	104	131	139	7	6.5	2	1.5	11.2	0.28	2.16	1.19	2.31	**E33019J**
	170	34.5	32	27	3	2.5	**E30219J**	3FB	231000	299000	2200	3000	109	110	149	159	5	7.5	2.5	2	–0.4	0.42	1.43	0.79	3.20	**E30219J**
	170	45.5	43	37	3	2.5	**E32219J**	3FC	311000	439000	2200	3000	109	108	145	161	5	8.5	2.5	2	6.6	0.42	1.43	0.79	4.34	**E32219J**
	170	58	58	44	3	2.5	**E33219J**	3FE	374000	582000	2200	2900	109	107	144	163	9	14	2.5	2	15.2	0.41	1.47	0.81	5.66	**E33219J**
	200	49.5	45	38	4	3	**30319**	—	317000	368000	2000	2600	113	118	172	186	5	11.5	3	2.5	9.7	0.35	1.73	0.95	6.32	**30319**
	200	49.5	45	32	4	3	**E30319DJ**	—	319000	391000	1700	2300	113	113	157	187	6	17.5	3	2.5	–13.2	0.81	0.73	0.40	6.68	**E30319DJ**
	200	71.5	67	55	4	3	**E32319J**	—	517000	695000	2000	2600	113	115	166	186	5	16.5	3	2.5	21.7	0.35	1.74	0.96	10.1	**E32319J**

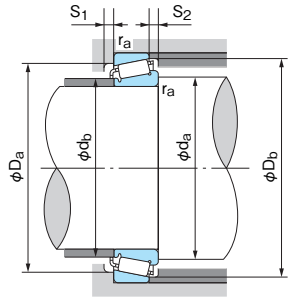
Note: (1) Minus value of load center "a" indicates that the center is located outside of cone backface.

Tapered Roller Bearings

Metric Series

Bore Diameter: 100～110mm





■Dynamic equivalent radial load

Pr=XFr+YFa

$\frac{Fa}{Fr} \leqq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	0	0.4	Y_1

Values e and Y_1 from table.

■Static equivalent radial load

Larger value of following to be used:

Por=0.5Fr+Y_0Fa

Por=Fr

Values Y_0 from table.

1N=0.102kgf

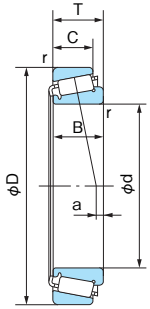
Boundary dimensions (mm)							Bearing No.	(Ref.) ISO355 Dimension series	Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (min-1)		Abutment and fillet dimensions (mm)								Load center (mm) a (1)	Constant e	Axial load factor		Mass(kg) Reference	Bearing No.
d	D	T	B	C	Cone r (min)	Cup r (min)					Grease lubrication	Oil lubrication	da (min)	db (max)	Da (min)	Db (min)	S1 (min)	S2 (min)	Cone ra (max)	Cup ra (max)			Y1	Y0		
100	140	25	25	20	1.5	1.5	**E32920J**	2CC	126000	217000	2400	3300	108.5	108	128	135	5	5	1.5	1.5	1.0	0.33	1.82	1.00	1.19	**E32920J**
	150	32	32	24	2	1.5	**E32020J**	4CC	185000	298000	2400	3200	110	109	134	144	6	8	2	1.5	–0.6	0.46	1.31	0.72	1.95	**E32020J**
	150	39	39	32.5	2	1.5	**E33020J**	2CE	231000	397000	2400	3200	110	108	135	143	7	6.5	2	1.5	10.4	0.29	2.09	1.15	2.40	**E33020J**
	165	52	52	40	2.5	2.5	**E33120J**	3EE	325000	523000	2200	3000	112	111	142	159	8	12	2	2	11.9	0.41	1.48	0.81	4.29	**E33120J**
	180	37	34	29	3	2.5	**E30220J**	3FB	258000	338000	2100	2800	114	116	157	168	5	8	2.5	2	0.2	0.42	1.43	0.79	3.83	**E30220J**
	180	49	46	39	3	2.5	**E32220J**	3FC	347000	495000	2100	2800	114	114	154	171	5	10	2.5	2	6.9	0.42	1.43	0.79	5.21	**E32220J**
	180	63	63	48	3	2.5	**E33220**	3FE	431000	680000	2100	2800	114	112	151	172	10	15	2.5	2	17.3	0.40	1.48	0.82	6.92	**E33220**
	215	51.5	47	39	4	3	**30320**	—	344000	400000	1800	2400	118	127	184	200	6	12.5	3	2.5	10.1	0.35	1.73	0.95	7.76	**30320**
	215	51.5	47	34	4	3	**30320D**	—	318000	374000	1500	2100	118	121	183	204	5	17	3	2.5	–14.4	0.81	0.74	0.41	8.02	**30320D**
	215	77.5	73	60	4	3	**32320**	—	491000	637000	1800	2400	118	123	177	200	8	17.5	3	2.5	24.9	0.35	1.73	0.95	12.2	**32320**
	215	56.5	51	35	4	3	**E31320J**	—	373000	459000	1500	2200	118	120	183	202	6	17.5	3	2.5	–11.2	0.83	0.73	0.40	8.72	**E31320J**
105	145	25	25	20	1.5	1.5	**E32921J**	2CC	128000	224000	2400	3100	113.5	113	133	140	5	5	1.5	1.5	–0.1	0.34	1.75	0.96	1.23	**E32921J**
	160	35	35	26	2.5	2	**E32021J**	4DC	215000	344000	2200	3000	117	116	143	154	6	9	2	2	0.5	0.44	1.35	0.74	2.45	**E32021J**
	160	43	43	34	2.5	2	**E33021J**	2DE	267000	461000	2200	3000	117	116	145	153	7	9	2	2	12.1	0.28	2.12	1.17	3.08	**E33021J**
	190	39	36	30	3	2.5	**E30221J**	—	288000	380000	2000	2600	119	122	165	178	6	9	2.5	2	0.0	0.42	1.43	0.79	4.49	**E30221J**
	190	53	50	43	3	2.5	**E32221J**	3FC	392000	567000	2000	2700	119	120	161	180	6	10	2.5	2	8.2	0.42	1.43	0.79	6.37	**E32221J**
	225	53.5	49	41	4	3	**30321**	—	371000	432000	1700	2300	123	132	193	209	7	12.5	3	2.5	10.4	0.35	1.73	0.95	8.74	**30321**
	225	53.5	49	36	4	3	**30321D**	—	339000	396000	1400	2000	123	127	193	209	6	11	3	2.5	–15.6	0.81	0.74	0.41	8.76	**30321D**
	225	81.5	77	63	4	3	**E32321J**	2GD	635000	886000	1800	2300	123	128	185	209	8	18.5	3	2.5	25.4	0.35	1.74	0.96	14.9	**E32321J**
110	150	25	25	20	1.5	1.5	**E32922J**	2CC	129000	231000	2300	3000	118.5	118	138	145	5	5	1.5	1.5	–1.3	0.36	1.69	0.93	1.28	**E32922J**
	170	38	38	29	2.5	2	**E32022J**	4DC	248000	395000	2100	2800	122	122	152	163	7	9	2	2	1.9	0.43	1.39	0.77	3.12	**E32022J**
	170	47	47	37	2.5	2	**E33022J**	2DE	287000	502000	2100	2800	122	123	152	161	7	10	2	2	13.6	0.29	2.09	1.15	3.81	**E33022J**
	180	56	56	43	2.5	2	**E33122J**	3EE	369000	634000	2000	2700	122	121	155	174	9	13	2	2	11.5	0.42	1.43	0.79	5.33	**E33122J**
	200	41	38	32	3	2.5	**E30222J**	3FB	324000	434000	1900	2500	124	129	174	188	6	9	2.5	2	0.2	0.42	1.43	0.79	5.33	**E30222J**
	200	56	53	46	3	2.5	**E32222J**	3FC	438000	640000	1900	2500	124	126	170	190	6	10	2.5	2	9.3	0.42	1.43	0.79	7.45	**E32222J**
	240	54.5	50	42	4	3	**E30322J**	—	481000	590000	1600	2100	128	141	206	222	8	12.5	3	2.5	8.2	0.35	1.74	0.96	11.4	**E30322J**
	240	54.5	50	36	4	3	**30322D**	—	365000	429000	1400	1900	128	135	205	222	6	18	3	2.5	–17.0	0.81	0.74	0.41	10.2	**30322D**
	240	84.5	80	65	4	3	**32322**	—	607000	796000	1600	2200	128	137	198	222	9	19.5	3	2.5	27.2	0.35	1.73	0.95	16.6	**32322**

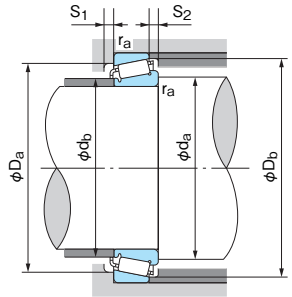
Note: (1) Minus value of load center "a" indicates that the center is located outside of cone backface.

Tapered Roller Bearings

Metric Series

Bore Diameter: 120～140mm





■Dynamic equivalent radial load

Pr=XFr+YFa

$\frac{Fa}{Fr} \leqq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	0	0.4	Y_1

Values e and Y_1 from table.

■Static equivalent radial load

Larger value of following to be used:

Por=0.5Fr+Y_0Fa

Por=Fr

Values Y_0 from table.

1N=0.102kgf

Boundary dimensions (mm)							Bearing No.	(Ref.) ISO355 Dimension series	Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (min⁻¹)		Abutment and fillet dimensions (mm)								Load center (mm) a (1)	Constant e	Axial load factor		Mass(kg) Reference	Bearing No.
d	D	T	B	C	Cone r (min)	Cup r (min)					Grease lubrication	Oil lubrication	da (min)	db (max)	Da (min)	Db (min)	S1 (min)	S2 (min)	Cone ra (max)	Cup ra (max)			Y1	Y0		
120	165	29	29	23	1.5	1.5	**E32924J**	2CC	172000	298000	2100	2700	128.5	128	152	160	6	6	1.5	1.5	–0.4	0.35	1.72	0.95	1.77	**E32924J**
	180	38	38	29	2.5	2	**E32024J**	4DC	258000	427000	2000	2600	132	131	161	173	7	9	2	2	–0.8	0.46	1.31	0.72	3.34	**E32024J**
	180	48	48	38	2.5	2	**E33024J**	2DE	299000	540000	2000	2600	132	132	160	171	6	10	2	2	11.8	0.31	1.97	1.08	4.16	**E33024J**
	200	62	62	48	2.5	2	**E33124J**	3FE	462000	785000	1800	2400	132	133	172	192	9	14	2	2	14.2	0.40	1.51	0.83	7.73	**E33124J**
	215	43.5	40	34	3	2.5	**E30224J**	4FE	347000	473000	1700	2300	134	140	187	203	6	9.5	2.5	2	–0.7	0.44	1.38	0.76	6.36	**E30224J**
	215	61.5	58	50	3	2.5	**E32224J**	4FD	470000	691000	1700	2300	134	136	181	204	7	11.5	2.5	2	9.9	0.44	1.38	0.76	9.04	**E32224J**
	260	59.5	55	46	4	3	**30324**	—	505000	611000	1500	2000	138	152	221	239	10	13.5	3	2.5	10.6	0.35	1.73	0.96	13.7	**30324**
	260	59.5	55	37	4	3	**30324D**	—	430000	512000	1200	1700	138	145	219	239	6	21	3	2.5	–18.3	0.81	0.74	0.41	13.0	**30324D**
	260	90.5	86	69	4	3	**E32324J**	2GD	800000	1110000	1500	2000	138	148	213	239	9	21.5	3	2.5	27.8	0.35	1.74	0.96	22.2	**E32324J**
	260	68	62	42	4	3	**E31324J**	7GB	526000	665000	1300	1800	138	145	221	244	6	21	3	2.5	–13.9	0.83	0.73	0.40	15.4	**E31324J**
130	180	32	32	25	2	1.5	**E32926J**	2CC	200000	368000	1900	2500	140	141	165	174	6	7	2	1.5	0.6	0.34	1.77	0.97	2.42	**E32926J**
	200	45	45	34	2.5	2	**E32026J**	4EC	340000	563000	1800	2300	142	144	178	192	8	11	2	2	2.1	0.43	1.38	0.76	5.04	**E32026J**
	200	55	55	43	2.5	2	**E33026J**	2EE	390000	705000	1700	2300	142	143	178	192	8	12	2	2	12.5	0.34	1.76	0.97	6.19	**E33026J**
	230	43.75	40	34	4	3	**E30226J**	4FB	377000	511000	1600	2100	148	152	203	218	7	9.5	3	2.5	–2.7	0.44	1.38	0.76	7.24	**E30226J**
	230	67.75	64	54	4	3	**E32226J**	4FD	554000	830000	1600	2200	148	146	193	219	7	13.5	3	2.5	11.7	0.44	1.38	0.76	11.5	**E32226J**
	280	63.75	58	41	5	4	**E30326D**	—	536000	665000	1200	1600	152	155	240	261	7	22	4	3	–20.2	0.81	0.74	0.41	16.4	**E30326D**
	280	63.75	58	49	5	4	**30326**	—	563000	684000	1400	1800	152	164	239	255	8	14.5	4	3	10.9	0.35	1.73	0.95	16.9	**30326**
	280	98.75	93	78	5	4	**32326**	—	852000	1160000	1400	1800	152	163	226	259	10	15	4	3	29.6	0.35	1.73	0.95	26.5	**32326**
	280	72	66	44	5	4	**E31326J**	7GB	589000	748000	1200	1600	152	155	236	261	7	23	4	3	–15.3	0.83	0.73	0.40	18.9	**E31326J**
140	190	32	32	25	2	1.5	**E32928J**	2CC	206000	390000	1800	2300	150	150	174	184	6	7	2	1.5	–1.6	0.36	1.67	0.92	2.57	**E32928J**
	210	45	45	34	2.5	2	**E32028J**	4DC	346000	585000	1700	2200	152	153	187	202	8	11	2	2	–0.6	0.46	1.31	0.72	5.28	**E32028J**
	210	56	56	44	2.5	2	**E33028J**	2DE	406000	758000	1600	2200	152	152	186	202	7	12	2	2	10.4	0.36	1.67	0.92	6.61	**E33028J**
	250	45.75	42	36	4	3	**E30228**	—	405000	538000	1500	1900	158	163	219	237	9	9.5	3	2.5	–3.4	0.43	1.39	0.77	8.9	**E30228**
	250	71.75	68	58	4	3	**E32228J**	4FD	636000	961000	1500	2000	158	158	210	238	9	13.5	3	2.5	11.7	0.44	1.39	0.76	14.7	**E32228J**
	300	67.75	62	44	5	4	**30328D**	—	525000	627000	1100	1500	162	169	254	280	7	23	4	3	–22.4	0.81	0.74	0.41	20.0	**30328D**
	300	67.75	62	53	5	4	**30328**	—	626000	761000	1300	1700	162	179	254	273	10	14.5	4	3	12.2	0.35	1.73	0.95	20.4	**30328**
	300	107.75	102	85	5	4	**32328**	—	958000	1320000	1300	1700	162	175	246	280	10	17	4	3	34.1	0.35	1.73	0.95	33.5	**32328**
	300	77	70	47	5	4	**E31328J**	7GB	674000	865000	1100	1500	162	167	254	280	8	26	4	3	–16.8	0.83	0.73	0.40	23.3	**E31328J**

Note: (1) Minus value of load center "a" indicates that the center is located outside of cone backface.