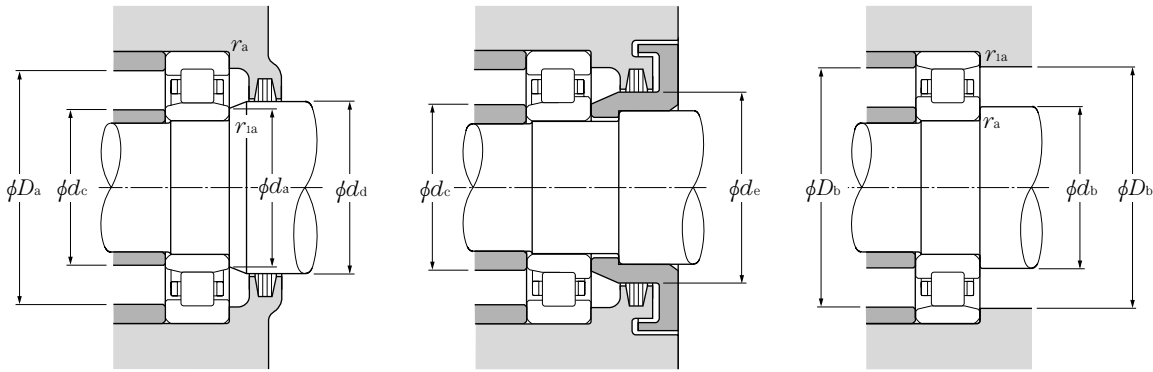


**d** 20 ~ 40mm

d	Boundary dimensions				Basic load ratings				Limiting speeds <sup>1)</sup>		Bearing numbers <sup>2)</sup>			
	D	B	mm		kN		kgf		min <sup>-1</sup>		type	type	type	type
			$r_{s \min}^{(3)}$	$r_{1s \min}^{(3)}$	$C_r$	$C_{or}$	$C_r$	$C_{or}$	grease	oil	NU	NJ	NUP	N
20	47	14	1	0.6	25.7	22.6	2 620	2 310	15 000	18 000	NU204E	NJ	NUP	—
	47	18	1	0.6	30.5	28.3	3 100	2 890	14 000	16 000	NU2204E	NJ	NUP	—
	52	15	1.1	0.6	31.5	26.9	3 200	2 740	13 000	15 000	NU304E	NJ	NUP	—
	52	21	1.1	0.6	42.0	39.0	4 300	3 950	12 000	14 000	NU2304E	NJ	NUP	—
25	47	12	0.6	0.3	15.1	14.1	1 540	1 430	16 000	19 000	NU1005	NJ	NUP	N
	52	15	1	0.6	29.3	27.7	2 990	2 830	13 000	15 000	NU205E	NJ	NUP	—
	52	18	1	0.6	35.0	34.5	3 550	3 550	11 000	13 000	NU2205E	NJ	NUP	—
	62	17	1.1	1.1	41.5	37.5	4 250	3 800	11 000	13 000	NU305E	NJ	NUP	—
	62	24	1.1	1.1	57.0	56.0	5 800	5 700	9 700	11 000	NU2305E	NJ	NUP	—
	80	21	1.5	1.5	46.5	40.0	4 750	4 050	8 500	10 000	NU405	NJ	NUP	N
30	55	13	1	0.6	19.7	19.6	2 000	2 000	14 000	16 000	NU1006	NJ	NUP	N
	62	16	1	0.6	39.0	37.5	4 000	3 800	11 000	13 000	NU206E	NJ	NUP	—
	62	20	1	0.6	49.0	50.0	5 000	5 100	9 700	11 000	NU2206E	NJ	NUP	—
	72	19	1.1	1.1	53.0	50.0	5 400	5 100	9 300	11 000	NU306E	NJ	NUP	—
	72	27	1.1	1.1	74.5	77.5	7 600	7 900	8 300	9 700	NU2306E	NJ	NUP	—
	90	23	1.5	1.5	62.5	55.0	6 400	5 600	7 300	8 500	NU406	NJ	NUP	N
35	62	14	1	0.6	22.6	23.2	2 310	2 360	12 000	15 000	NU1007	NJ	NUP	N
	72	17	1.1	0.6	50.5	50.0	5 150	5 100	9 500	11 000	NU207E	NJ	NUP	—
	72	23	1.1	0.6	61.5	65.5	6 300	6 650	8 500	10 000	NU2207E	NJ	NUP	—
	80	21	1.5	1.1	71.0	71.0	7 200	7 200	8 100	9 600	NU307E	NJ	NUP	—
	80	31	1.5	1.1	99.0	109	10 100	11 100	7 200	8 500	NU2307E	NJ	NUP	—
	100	25	1.5	1.5	75.5	69.0	7 700	7 050	6 400	7 500	NU407	NJ	NUP	N
40	68	15	1	0.6	27.3	29.0	2 780	2 950	11 000	13 000	NU1008	NJ	NUP	N
	80	18	1.1	1.1	43.5	43.0	4 450	4 350	9 400	11 000	NU208	NJ	NUP	N
	80	18	1.1	1.1	55.5	55.5	5 700	5 650	8 500	10 000	NU208E	NJ	NUP	—
	80	23	1.1	1.1	58.0	62.0	5 950	6 300	8 500	10 000	NU2208	NJ	NUP	N
	80	23	1.1	1.1	72.5	77.5	7 400	7 900	7 600	8 900	NU2208E	NJ	NUP	—
	90	23	1.5	1.5	58.5	57.0	6 000	5 800	8 000	9 400	NU308	NJ	NUP	N
	90	23	1.5	1.5	83.0	81.5	8 500	8 300	7 200	8 500	NU308E	NJ	NUP	—
	90	33	1.5	1.5	82.5	88.0	8 400	8 950	7 000	8 200	NU2308	NJ	NUP	N
	90	33	1.5	1.5	114	122	11 600	12 500	6 400	7 500	NU2308E	NJ	NUP	—
	110	27	2	2	95.5	89.0	9 750	9 100	5 700	6 700	NU408	NJ	NUP	N

1) This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.  
 2) Production switched to E type only for bearing number for which there is no standard form.  
 3) Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .



**Dynamic equivalent radial load**

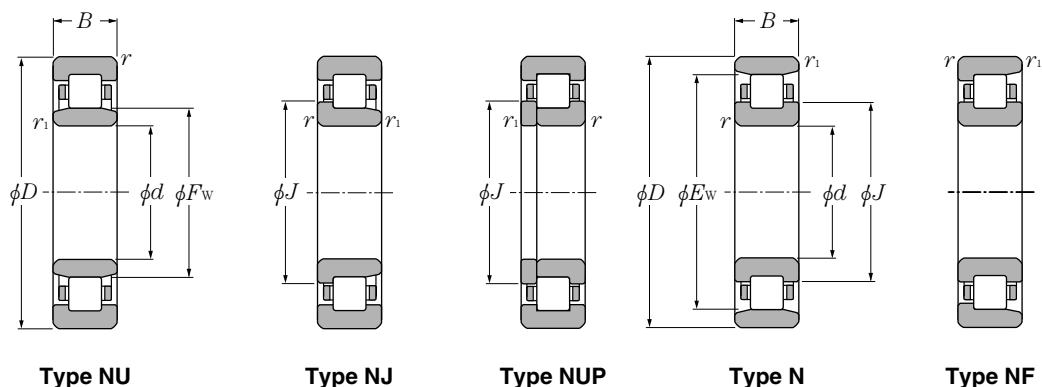
$$P_r = F_r$$

**Static equivalent radial load**

$$P_{or} = F_r$$

type	Dimensions			Abutment and fillet dimensions										Mass	
	$F_w$	$E_w$	$J$	$d_a$ min	$d_b$ min	$d_c$ max	$d_a$ min	$d_e$ min	$D_a$ max	$D_b$ max	$D_b$ min <sup>4)</sup>	$r_{as}$ max	$r_{ias}$ max	type NU	type N (approx.)
—	26.5	—	29.5	24	—	26	29	32	42	—	—	1	0.6	0.122	—
—	26.5	—	29.5	24	—	26	29	32	42	—	—	1	0.6	0.158	—
—	27.5	—	31.1	24	—	27	30	33	45.5	—	—	1	0.6	0.176	—
—	27.5	—	31.1	24	—	27	30	33	45.5	—	—	1	0.6	0.242	—
—	30.5	41.5	32.7	27	29	30	32	33	43	45	42.5	0.6	0.3	0.092	0.091
—	31.5	—	34.5	29	—	31	34	37	47	—	—	1	0.6	0.151	—
—	31.5	—	34.5	29	—	31	34	37	47	—	—	1	0.6	0.186	—
—	34	—	38	31.5	—	33	37	40	55.5	—	—	1	1	0.275	—
—	34	—	38	31.5	—	33	37	40	55.5	—	—	1	1	0.386	—
<b>NF</b>	38.8	62.8	43.6	33	33	38	41	46	72	72	64	1.5	1.5	0.55	0.536
—	36.5	48.5	38.9	34	35	35	38	39.5	50	51	49.5	1	0.6	0.13	0.128
—	37.5	—	41.1	34	—	37	40	44	57	—	—	1	0.6	0.226	—
—	37.5	—	41.1	34	—	37	40	44	57	—	—	1	0.6	0.297	—
—	40.5	—	44.9	36.5	—	40	44	48	65.5	—	—	1	1	0.398	—
—	40.5	—	44.9	36.5	—	40	44	48	65.5	—	—	1	1	0.58	—
<b>NF</b>	45	73	50.5	38	38	44	47	52	82	82	74	1.5	1.5	0.751	0.732
—	42	55	44.6	39	40	41	44	45	57	58	56	1	0.6	0.179	0.176
—	44	—	48	39	—	43	46	50	65.5	—	—	1	0.6	0.327	—
—	44	—	48	39	—	43	46	50	65.5	—	—	1	0.6	0.455	—
—	46.2	—	51	41.5	—	45	48	53	72	—	—	1.5	1	0.545	—
—	46.2	—	51	41.5	—	45	48	53	72	—	—	1.5	1	0.78	—
<b>NF</b>	53	83	59	43	43	52	55	61	92	92	84	1.5	1.5	0.99	0.965
—	47	61	49.8	44	45	46	49	50.5	63	64	62	1	0.6	0.22	0.217
<b>NF</b>	50	70	54.2	46.5	46.5	49	52	56	73.5	73.5	72	1	1	0.378	0.37
—	49.5	—	53.9	46.5	—	49	52	56	73.5	—	—	1	1	0.426	—
—	50	70	54.2	46.5	46.5	49	52	56	73.5	73.5	72	1	1	0.49	0.48
—	49.5	—	53.9	46.5	—	49	52	56	73.5	—	—	1	1	0.552	—
<b>NF</b>	53.5	77.5	58.4	48	48	51	55	60	82	82	80	1.5	1.5	0.658	0.643
—	52	—	57.6	48	—	51	55	60	82	—	—	1.5	1.5	0.754	—
—	53.5	77.5	58.4	48	48	51	55	60	82	82	80	1.5	1.5	0.951	0.932
—	52	—	57.6	48	—	51	55	60	82	—	—	1.5	1.5	1.06	—
<b>NF</b>	58	92	64.8	49	49	57	60	67	101	101	93	2	2	1.3	1.27

4) Does not apply to side of the outer ring rib of type **NF** bearings.



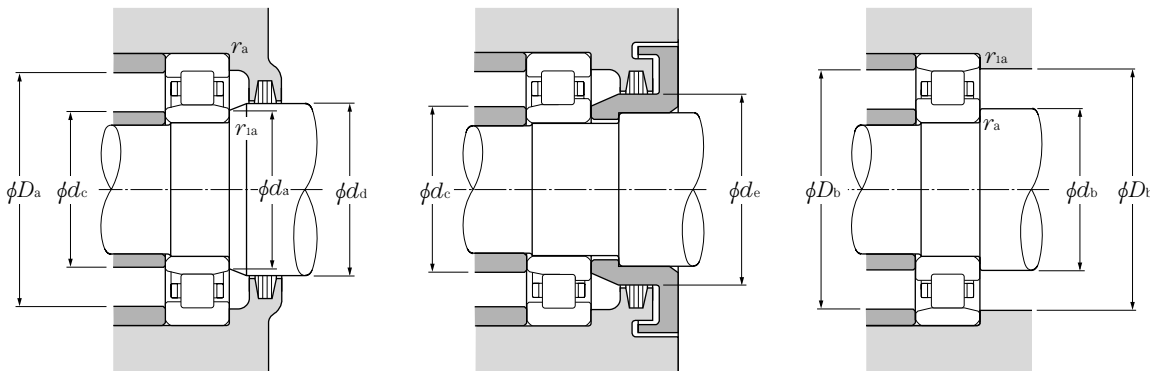
## d 45 ~ 60mm

d	Boundary dimensions				Basic load ratings				Limiting speeds <sup>1)</sup>		Bearing numbers <sup>2)</sup>			
	D	B	$r_{s \min}^{(3)}$		dynamic		static		min <sup>-1</sup>		type	type	type	type
	mm	mm	mm	mm	kN	kN	kgf	kgf	grease	oil	NU	NJ	NUP	N
45	75	16	1	0.6	31.0	34.0	3 200	3 450	9 900	12 000	NU1009	NJ	NUP	N
	85	19	1.1	1.1	46.0	47.0	4 700	4 800	8 400	9 900	NU209	NJ	NUP	N
	85	19	1.1	1.1	63.0	66.5	6 450	6 800	7 600	9 000	NU209E	NJ	NUP	—
	85	23	1.1	1.1	61.5	68.0	6 250	6 900	7 600	9 000	NU2209	NJ	NUP	N
	85	23	1.1	1.1	76.0	84.5	7 750	8 600	6 800	8 000	NU2209E	NJ	NUP	—
	100	25	1.5	1.5	74.0	71.0	7 550	7 250	7 200	8 400	NU309	NJ	NUP	N
	100	25	1.5	1.5	97.5	98.5	9 950	10 000	6 500	7 600	NU309E	NJ	NUP	—
	100	36	1.5	1.5	99.0	104	10 100	10 600	6 300	7 400	NU2309	NJ	NUP	N
	100	36	1.5	1.5	137	153	14 000	15 600	5 700	6 800	NU2309E	NJ	NUP	—
120	29	2	2	107	102	10 900	10 400	5 100	6 000	NU409	NJ	NUP	N	
50	80	16	1	0.6	32.0	36.0	3 300	3 700	8 900	11 000	NU1010	NJ	NUP	N
	90	20	1.1	1.1	48.0	51.0	4 900	5 200	7 600	9 000	NU210	NJ	NUP	N
	90	20	1.1	1.1	66.0	72.0	6 750	7 350	6 900	8 100	NU210E	NJ	NUP	—
	90	23	1.1	1.1	64.0	73.5	6 550	7 500	6 900	8 100	NU2210	NJ	NUP	N
	90	23	1.1	1.1	79.5	91.5	8 100	9 350	6 200	7 300	NU2210E	NJ	NUP	—
	110	27	2	2	87.0	86.0	8 850	8 800	6 500	7 700	NU310	NJ	NUP	N
	110	27	2	2	110	113	11 200	11 500	5 900	6 900	NU310E	NJ	NUP	—
	110	40	2	2	121	131	12 300	13 400	5 700	6 700	NU2310	NJ	NUP	N
	110	40	2	2	163	187	16 600	19 000	5 200	6 100	NU2310E	NJ	NUP	—
130	31	2.1	2.1	129	124	13 200	12 600	4 700	5 500	NU410	NJ	NUP	N	
55	90	18	1.1	1	37.5	44.0	3 850	4 450	8 200	9 700	NU1011	NJ	NUP	N
	100	21	1.5	1.1	58.0	62.5	5 900	6 350	6 900	8 200	NU211	NJ	NUP	N
	100	21	1.5	1.1	82.5	93.0	8 400	9 500	6 300	7 400	NU211E	NJ	NUP	—
	100	25	1.5	1.1	75.5	87.0	7 700	8 900	6 300	7 400	NU2211	NJ	NUP	N
	100	25	1.5	1.1	97.0	114	9 900	11 700	5 600	6 600	NU2211E	NJ	NUP	—
	120	29	2	2	111	111	11 300	11 400	5 900	7 000	NU311	NJ	NUP	N
	120	29	2	2	137	143	14 000	14 600	5 300	6 300	NU311E	NJ	NUP	—
	120	43	2	2	148	162	15 100	16 500	5 200	6 100	NU2311	NJ	NUP	N
	120	43	2	2	201	233	20 500	23 800	4 700	5 600	NU2311E	NJ	NUP	—
140	33	2.1	2.1	139	138	14 200	14 100	4 300	5 000	NU411	NJ	NUP	N	
60	95	18	1.1	1	40.0	48.5	4 100	4 950	7 500	8 800	NU1012	NJ	NUP	N
	110	22	1.5	1.5	68.5	75.0	7 000	7 650	6 400	7 600	NU212	NJ	NUP	N
	110	22	1.5	1.5	97.5	107	9 950	10 900	5 800	6 800	NU212E	NJ	NUP	—
	110	28	1.5	1.5	96.0	116	9 800	11 800	5 800	6 800	NU2212	NJ	NUP	N

1) This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.

2) Production switched to E type only for bearing number for which there is no standard form.

3) Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .



**Dynamic equivalent radial load**

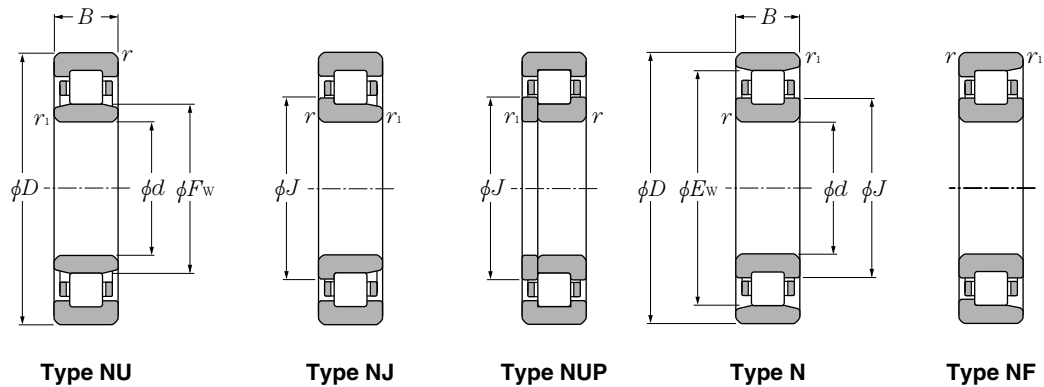
$$P_r = F_r$$

**Static equivalent radial load**

$$P_{or} = F_r$$

type	Dimensions			Abutment and fillet dimensions										Mass	
	$F_w$	$E_w$	$J$	$d_a$ min	$d_b$ min	$d_c$ max	$d_a$ min	$d_e$ min	$D_a$ max	$D_b$ max	$D_b$ min <sup>4)</sup>	$r_{as}$ max	$r_{1as}$ max	type NU (approx.)	type N
—	52.5	67.5	55.5	49	50	52	54	56	70	71	68.5	1	0.6	0.28	0.276
<b>NF</b>	55	75	59	51.5	51.5	54	57	61	78.5	78.5	77	1	1	0.432	0.423
—	54.5	—	58.9	51.5	—	54	57	61	78.5	—	—	1	1	0.495	—
—	55	75	59	51.5	51.5	54	57	61	78.5	78.5	77	1	1	0.53	0.52
—	54.5	—	58.9	51.5	—	54	57	61	78.5	—	—	1	1	0.6	—
<b>NF</b>	58.5	86.5	64	53	53	57	60	66	92	92	89	1.5	1.5	0.877	0.857
—	58.5	—	64.5	53	—	57	60	66	92	—	—	1.5	1.5	0.996	—
—	58.5	86.5	64	53	53	57	60	66	92	92	89	1.5	1.5	1.27	1.24
—	58.5	—	64.5	53	—	57	60	66	92	—	—	1.5	1.5	1.41	—
<b>NF</b>	64.5	100.5	71.8	54	54	63	66	74	111	111	102	2	2	1.62	1.58
—	57.5	72.5	60.5	54	55	57	59	61	75	76	73.5	1	0.6	0.295	0.291
<b>NF</b>	60.4	80.4	64.6	56.5	56.5	58	62	67	83.5	83.5	83	1	1	0.47	0.46
—	59.5	—	63.9	56.5	—	58	62	67	83.5	—	—	1	1	0.54	—
—	60.4	80.4	64.6	56.5	56.5	58	62	67	83.5	83.5	83	1	1	0.571	0.56
—	59.5	—	63.9	56.5	—	58	62	67	83.5	—	—	1	1	0.652	—
<b>NF</b>	65	95	71	59	59	63	67	73	101	101	98	2	2	1.14	1.11
—	65	—	71.4	59	—	63	67	73	101	—	—	2	2	1.3	—
—	65	95	71	59	59	63	67	73	101	101	98	2	2	1.7	1.67
—	65	—	71.4	59	—	63	67	73	101	—	—	2	2	1.9	—
<b>NF</b>	70.8	110.8	78.8	61	61	69	73	81	119	119	112	2	2	2.02	1.97
—	64.5	80.5	67.7	60	61.5	63	66	68.5	83.5	85	81.5	1	1	0.442	0.435
<b>NF</b>	66.5	88.5	70.8	61.5	63	65	68	73	92	93.5	91	1.5	1	0.638	0.626
—	66	—	70.8	61.5	—	65	68	73	92	—	—	1.5	1	0.718	—
—	66.5	88.5	70.8	61.5	63	65	68	73	92	93.5	91	1.5	1	0.773	0.758
—	66	—	70.8	61.5	—	65	68	73	92	—	—	1.5	1	0.968	—
<b>NF</b>	70.5	104.5	77.2	64	64	69	72	80	111	111	107	2	2	1.45	1.42
—	70.5	—	77.7	64	—	69	72	80	111	—	—	2	2	1.65	—
—	70.5	104.5	77.2	64	64	69	72	80	111	111	107	2	2	2.17	2.13
—	70.5	—	77.7	64	—	69	72	80	111	—	—	2	2	2.37	—
<b>NF</b>	77.2	117.2	85.2	66	66	76	79	87	129	129	119	2	2	2.48	2.42
—	69.5	85.5	72.7	65	66.5	68	71	73.5	88.5	90	86.5	1	1	0.474	0.467
<b>NF</b>	73.5	97.5	78.4	68	68	71	75	80	102	102	100	1.5	1.5	0.818	0.802
—	72	—	77.6	68	—	71	75	80	102	—	—	1.5	1.5	0.923	—
—	73.5	97.5	78.4	68	68	71	75	80	102	102	100	1.5	1.5	1.06	1.04

4) Does not apply to side of the outer ring rib of type **NF** bearings.



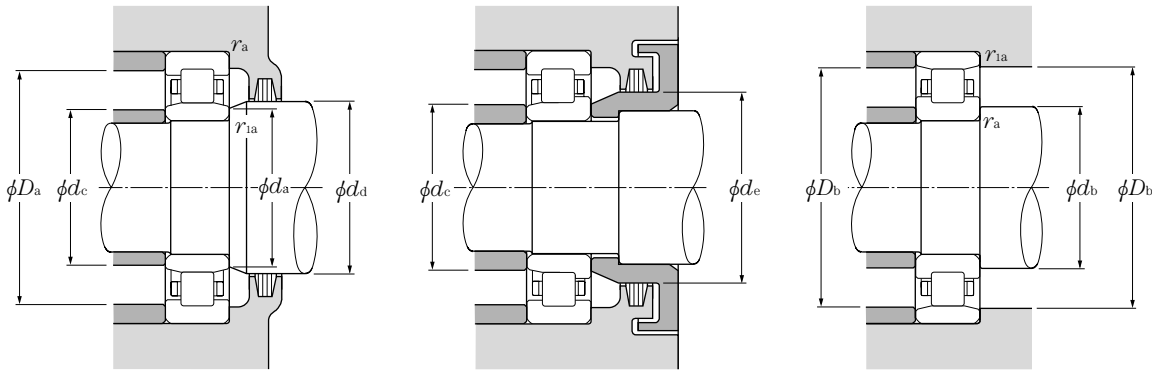
## d 60 ~ 75mm

d	Boundary dimensions				Basic load ratings				Limiting speeds <sup>1)</sup>		Bearing numbers <sup>2)</sup>			
	D	B	mm		kN		kgf		grease	oil	type NU	type NJ	type NUP	type N
			$r_{s \min}^{(3)}$	$r_{1s \min}^{(3)}$	$C_r$	$C_{or}$	$C_r$	$C_{or}$						
60	110	28	1.5	1.5	131	157	13 400	16 000	5 200	6 100	NU2212E	NJ	NUP	—
	130	31	2.1	2.1	124	126	12 600	12 900	5 500	6 500	NU312	NJ	NUP	N
	130	31	2.1	2.1	150	157	15 200	16 000	4 900	5 800	NU312E	NJ	NUP	—
	130	46	2.1	2.1	169	188	17 200	19 200	4 800	5 700	NU2312	NJ	NUP	N
	130	46	2.1	2.1	222	262	22 700	26 700	4 400	5 200	NU2312E	NJ	NUP	—
	150	35	2.1	2.1	167	168	17 100	17 200	3 900	4 600	NU412	NJ	NUP	N
65	100	18	1.1	1	41.0	51.0	4 200	5 200	7 000	8 200	NU1013	NJ	NUP	N
	120	23	1.5	1.5	84.0	94.5	8 550	9 650	5 900	7 000	NU213	NJ	NUP	N
	120	23	1.5	1.5	108	119	11 000	12 100	5 400	6 300	NU213E	NJ	NUP	—
	120	31	1.5	1.5	120	149	12 200	15 200	5 400	6 300	NU2213	NJ	NUP	N
	120	31	1.5	1.5	149	181	15 200	18 400	4 800	5 600	NU2213E	NJ	NUP	—
	140	33	2.1	2.1	135	139	13 800	14 200	5 100	6 000	NU313	NJ	NUP	N
	140	33	2.1	2.1	181	191	18 400	19 500	4 600	5 400	NU313E	NJ	NUP	—
	140	48	2.1	2.1	188	212	19 100	21 700	4 400	5 200	NU2313	NJ	NUP	N
	140	48	2.1	2.1	248	287	25 200	29 300	4 100	4 800	NU2313E	NJ	NUP	—
160	37	2.1	2.1	182	186	18 600	19 000	3 600	4 300	NU413	NJ	NUP	N	
70	110	20	1.1	1	58.5	70.5	5 950	7 200	6 500	7 600	NU1014	NJ	NUP	N
	125	24	1.5	1.5	83.5	95.0	8 500	9 700	5 500	6 500	NU214	NJ	NUP	N
	125	24	1.5	1.5	119	137	12 100	14 000	5 000	5 900	NU214E	NJ	NUP	—
	125	31	1.5	1.5	119	151	12 200	15 400	5 000	5 900	NU2214	NJ	NUP	N
	125	31	1.5	1.5	156	194	15 900	19 800	4 500	5 200	NU2214E	NJ	NUP	—
	150	35	2.1	2.1	158	168	16 100	17 200	4 700	5 500	NU314	NJ	NUP	N
	150	35	2.1	2.1	205	222	20 900	22 600	4 200	5 000	NU314E	NJ	NUP	—
	150	51	2.1	2.1	223	262	22 700	26 700	4 100	4 800	NU2314	NJ	NUP	N
	150	51	2.1	2.1	274	325	27 900	33 000	3 800	4 400	NU2314E	NJ	NUP	—
	180	42	3	3	228	236	23 200	24 000	3 400	4 000	NU414	NJ	NUP	N
75	115	20	1.1	1	60.0	74.5	6 100	7 600	6 100	7 100	NU1015	NJ	NUP	N
	130	25	1.5	1.5	96.5	111	9 850	11 300	5 100	6 000	NU215	NJ	NUP	N
	130	25	1.5	1.5	130	156	13 300	16 000	4 700	5 500	NU215E	NJ	NUP	—
	130	31	1.5	1.5	130	162	13 200	16 500	4 700	5 500	NU2215	NJ	NUP	N
	130	31	1.5	1.5	162	207	16 500	21 100	4 200	4 900	NU2215E	NJ	NUP	—
	160	37	2.1	2.1	190	205	19 400	20 900	4 400	5 200	NU315	NJ	NUP	N
	160	37	2.1	2.1	240	263	24 500	26 800	4 000	4 700	NU315E	NJ	NUP	—
	160	55	2.1	2.1	258	300	26 300	31 000	3 800	4 500	NU2315	NJ	NUP	N

1) This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.

2) Production switched to E type only for bearing number for which there is no standard form.

3) Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .



**Dynamic equivalent radial load**

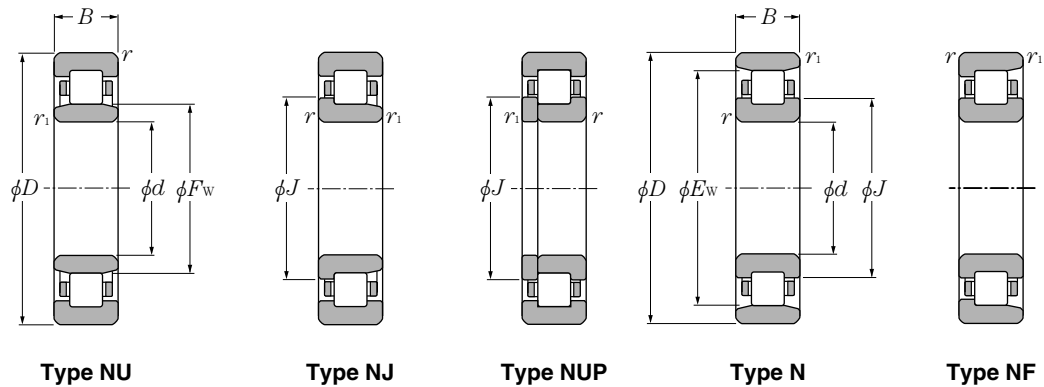
$$P_r = F_r$$

**Static equivalent radial load**

$$P_{or} = F_r$$

type	Dimensions			Abutment and fillet dimensions										Mass	
	$F_w$	$E_w$	$J$	$d_a$ min	$d_b$ min	$d_c$ max	$d_a$ min	$d_e$ min	$D_a$ max	$D_b$ max	$D_b$ min <sup>4)</sup>	$r_{as}$ max	$r_{ias}$ max	type NU (approx.)	type N
—	72	—	77.6	68	—	71	75	80	102	—	—	1.5	1.5	1.21	—
<b>NF</b>	77	113	84.2	71	71	75	79	86	119	119	116	2	2	1.8	1.76
—	77	—	84.6	71	—	75	79	86	119	—	—	2	2	2.05	—
—	77	113	84.2	71	71	75	79	86	119	119	116	2	2	2.71	2.66
—	77	—	84.6	71	—	75	79	86	119	—	—	2	2	2.96	—
<b>NF</b>	83	127	91.8	71	71	82	85	94	139	139	128	2	2	3	2.93
—	74.5	90.5	77.7	70	71.5	73	76	78.5	93.5	95	91.5	1	1	0.485	0.477
<b>NF</b>	79.6	105.6	84.8	73	73	77	81	87	112	112	108	1.5	1.5	1.02	1
—	78.5	—	84.5	73	—	77	81	87	112	—	—	1.5	1.5	1.21	—
—	79.6	105.6	84.8	73	73	77	81	87	112	112	108	1.5	1.5	1.4	1.37
—	78.5	—	84.5	73	—	77	81	87	112	—	—	1.5	1.5	1.6	—
<b>NF</b>	83.5	121.5	91	76	76	81	85	93	129	129	125	2	2	2.23	2.18
—	82.5	—	91	76	—	81	85	93	129	—	—	2	2	2.54	—
—	83.5	121.5	91	76	76	81	85	93	129	129	125	2	2	3.27	3.2
—	82.5	—	91	76	—	81	85	93	129	—	—	2	2	3.48	—
<b>NF</b>	89.3	135.3	98.5	76	76	88	91	100	149	149	137	2	2	3.6	3.5
—	80	100	84	75	76.5	78	82	85	103.5	105	101	1	1	0.699	0.689
<b>NF</b>	84.5	110.5	89.6	78	78	82	86	92	117	117	114	1.5	1.5	1.12	1.1
—	83.5	—	89.5	78	—	82	86	92	117	—	—	1.5	1.5	1.3	—
—	84.5	110.5	89.6	78	78	82	86	92	117	117	114	1.5	1.5	1.47	1.44
—	83.5	—	89.5	78	—	82	86	92	117	—	—	1.5	1.5	1.7	—
<b>NF</b>	90	130	98	81	81	87	92	100	139	139	134	2	2	2.71	2.65
—	89	—	98	81	—	87	92	100	139	—	—	2	2	3.1	—
—	90	130	98	81	81	87	92	100	139	139	134	2	2	3.98	3.9
—	89	—	98	81	—	87	92	100	139	—	—	2	2	4.25	—
<b>NF</b>	100	152	110.5	83	83	99	102	112	167	167	153	2.5	2.5	5.24	5.1
—	85	105	89	80	81.5	83	87	90	108.5	110	106	1	1	0.738	0.727
<b>NF</b>	88.5	116.5	94	83	83	87	90	96	122	122	120	1.5	1.5	1.23	1.21
—	88.5	—	94.5	83	—	87	90	96	122	—	—	1.5	1.5	1.41	—
—	88.5	116.5	94	83	83	87	90	96	122	122	120	1.5	1.5	1.55	1.52
—	88.5	—	94.5	83	—	87	90	96	122	—	—	1.5	1.5	1.79	—
<b>NF</b>	95.5	139.5	104.2	86	86	93	97	106	149	149	143	2	2	3.28	3.21
—	95	—	104.6	86	—	93	97	106	149	—	—	2	2	3.74	—
—	95.5	139.5	104.2	86	86	93	97	106	149	149	143	2	2	4.87	4.77

4) Does not apply to side of the outer ring rib of type **NF** bearings.



## d 75 ~ 95mm

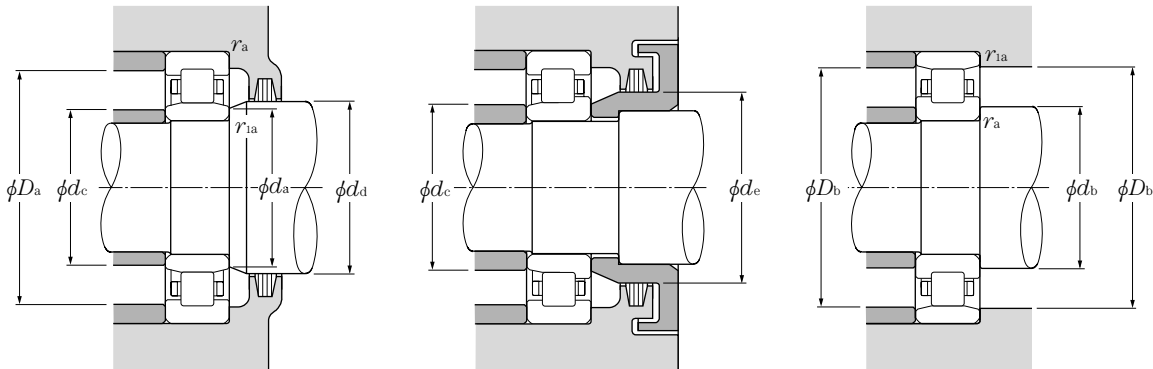
d	Boundary dimensions			Basic load ratings						Limiting speeds <sup>1)</sup>		Bearing numbers <sup>2)</sup>			
	D	B	mm	dynamic	static	dynamic	static	dynamic	static	grease	oil	type	type	type	type
	mm	mm	mm	kN	kN	kgf	kgf	kgf	kgf	min <sup>-1</sup>	min <sup>-1</sup>	NU	NJ	NUP	N
75	160	55	2.1	2.1	330	395	33 500	40 000	3 500	4 100	NU2315E	NJ	NUP	—	
	190	45	3	3	262	274	26 800	27 900	3 200	3 700	NU415	NJ	NUP	N	
80	125	22	1.1	1	72.5	90.5	7 400	9 250	5 700	6 700	NU1016	NJ	NUP	N	
	140	26	2	2	106	122	10 800	12 500	4 800	5 700	NU216	NJ	NUP	N	
	140	26	2	2	139	167	14 200	17 000	4 400	5 100	NU216E	NJ	NUP	—	
	140	33	2	2	147	186	15 000	19 000	4 400	5 100	NU2216	NJ	NUP	N	
	140	33	2	2	186	243	19 000	24 800	3 900	4 600	NU2216E	NJ	NUP	—	
	170	39	2.1	2.1	190	207	19 400	21 100	4 100	4 800	NU316	NJ	NUP	N	
	170	39	2.1	2.1	256	282	26 100	28 800	3 700	4 400	NU316E	NJ	NUP	—	
	170	58	2.1	2.1	274	330	27 900	34 000	3 600	4 200	NU2316	NJ	NUP	N	
	170	58	2.1	2.1	355	430	36 500	44 000	3 300	3 900	NU2316E	NJ	NUP	—	
	200	48	3	3	299	315	30 500	32 000	3 000	3 500	NU416	NJ	NUP	N	
85	130	22	1.1	1	74.5	95.5	7 600	9 750	5 400	6 300	NU1017	NJ	NUP	N	
	150	28	2	2	120	140	12 300	14 300	4 500	5 300	NU217	NJ	NUP	N	
	150	28	2	2	167	199	17 000	20 300	4 100	4 800	NU217E	NJ	NUP	—	
	150	36	2	2	170	218	17 300	22 200	4 100	4 800	NU2217	NJ	NUP	N	
	150	36	2	2	217	279	22 200	28 400	3 700	4 300	NU2217E	NJ	NUP	—	
	180	41	3	3	212	228	21 600	23 300	3 900	4 600	NU317	NJ	NUP	N	
	180	41	3	3	291	330	29 700	33 500	3 500	4 100	NU317E	NJ	NUP	—	
	180	60	3	3	315	380	32 000	39 000	3 400	4 000	NU2317	NJ	NUP	N	
180	60	3	3	395	485	40 000	49 500	3 100	3 700	NU2317E	NJ	NUP	—		
90	140	24	1.5	1.1	88.0	114	9 000	11 700	5 100	5 900	NU1018	NJ	NUP	N	
	160	30	2	2	152	178	15 500	18 100	4 300	5 000	NU218	NJ	NUP	N	
	160	30	2	2	182	217	18 500	22 200	3 900	4 600	NU218E	NJ	NUP	—	
	160	40	2	2	197	248	20 100	25 300	3 900	4 600	NU2218	NJ	NUP	N	
	160	40	2	2	242	315	24 700	32 000	3 500	4 100	NU2218E	NJ	NUP	—	
	190	43	3	3	240	265	24 500	27 100	3 700	4 300	NU318	NJ	NUP	N	
	190	43	3	3	315	355	32 000	36 000	3 300	3 900	NU318E	NJ	NUP	—	
	190	64	3	3	325	395	33 500	40 000	3 200	3 800	NU2318	NJ	NUP	N	
190	64	3	3	435	535	44 500	54 500	2 900	3 400	NU2318E	NJ	NUP	—		
95	145	24	1.5	1.1	90.5	120	9 250	12 300	4 800	5 600	NU1019	NJ	NUP	N	
	170	32	2.1	2.1	166	195	16 900	19 900	4 000	4 700	NU219	NJ	NUP	N	
	170	32	2.1	2.1	220	265	22 500	27 000	3 600	4 300	NU219E	NJ	NUP	—	

1) This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.

2) Production switched to E type only for bearing number for which there is no standard form.

3) Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .





**Dynamic equivalent radial load**

$$P_r = F_r$$

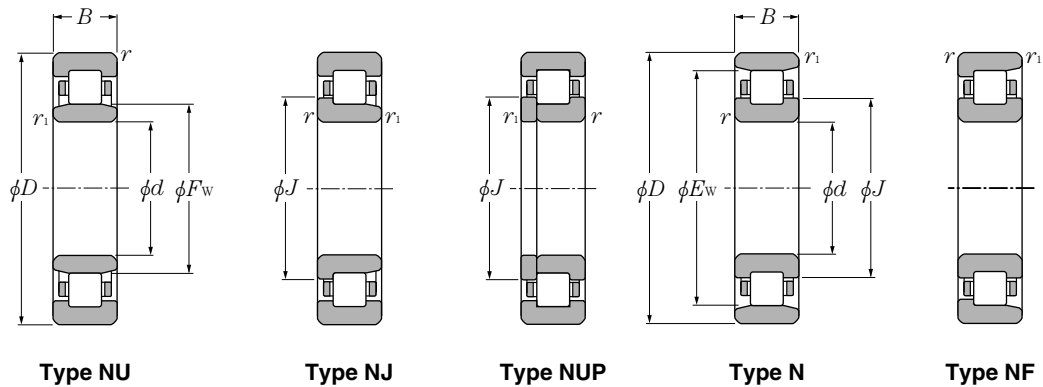
**Static equivalent radial load**

$$P_{or} = F_r$$

type	Dimensions			Abutment and fillet dimensions										Mass	
	$F_w$	$E_w$	$J$	$d_a$ min	$d_b$ min	$d_c$ max	$d_d$ min	$d_e$ min	$D_a$ max	$D_b$ max	$D_b$ min <sup>4)</sup>	$r_{as}$ max	$r_{ias}$ max	type NU (approx.)	type N
—	95	—	104.6	86	—	93	97	106	149	—	—	2	2	5.25	—
<b>NF</b>	104.5	160.5	116	88	88	103	107	118	177	177	162	2.5	2.5	6.22	6.06
—	91.5	113.5	95.9	85	86.5	90	94	97	118.5	120	114.5	1	1	0.98	0.965
<b>NF</b>	95.3	125.3	101.2	89	89	94	97	104	131	131	128	2	2	1.5	1.47
—	95.3	—	101.7	89	—	94	97	104	131	—	—	2	2	1.67	—
—	95.3	125.3	101.2	89	89	94	97	104	131	131	128	2	2	1.93	1.89
—	95.3	—	101.7	89	—	94	97	104	131	—	—	2	2	2.12	—
<b>NF</b>	103	147	111.8	91	91	99	105	114	159	159	151	2	2	3.86	3.77
—	101	—	111	91	—	99	105	114	159	—	—	2	2	4.22	—
—	103	147	111.8	91	91	99	105	114	159	159	151	2	2	5.79	5.67
—	101	—	111	91	—	99	105	114	159	—	—	2	2	6.25	—
<b>NF</b>	110	170	122	93	93	109	112	124	187	187	172	2.5	2.5	7.32	7.14
—	96.5	118.5	100.9	90	91.5	95	99	102	123.5	125	119.5	1	1	1.03	1.01
<b>NF</b>	101.8	133.8	108.2	94	94	99	104	110	141	141	137	2	2	1.87	1.83
—	100.5	—	107.7	94	—	99	104	110	141	—	—	2	2	2.11	—
—	101.8	133.8	108.2	94	94	99	104	110	141	141	137	2	2	2.44	2.39
—	100.5	—	107.7	94	—	99	104	110	141	—	—	2	2	2.68	—
<b>NF</b>	108	156	117.5	98	98	106	110	119	167	167	160	2.5	2.5	4.54	4.44
—	108	—	118.4	98	—	106	110	119	167	—	—	2.5	2.5	4.81	—
—	108	156	117.5	98	98	106	110	119	167	167	160	2.5	2.5	6.7	6.57
—	108	—	118.4	98	—	106	110	119	167	—	—	2.5	2.5	7.16	—
—	103	127	107.8	96.5	98	101	106	109	132	133.5	129	1.5	1	1.33	1.31
<b>NF</b>	107	143	114.2	99	99	105	109	116	151	151	146	2	2	2.3	2.25
—	107	—	114.6	99	—	105	109	116	151	—	—	2	2	2.44	—
—	107	143	114.2	99	99	105	109	116	151	151	146	2	2	3.1	3.04
—	107	—	114.6	99	—	105	109	116	151	—	—	2	2	3.33	—
<b>NF</b>	115	165	125	103	103	111	117	127	177	177	169	2.5	2.5	5.3	5.18
—	113.5	—	124.7	103	—	111	117	127	177	—	—	2.5	2.5	5.72	—
—	115	165	125	103	103	111	117	127	177	177	169	2.5	2.5	7.95	7.79
—	113.5	—	124.7	103	—	111	117	127	177	—	—	2.5	2.5	8.56	—
—	108	132	112.8	101.5	103	106	111	114	137	138.5	134	1.5	1	1.4	1.38
<b>NF</b>	113.5	151.5	121	106	106	111	116	123	159	159	155	2	2	2.78	2.72
—	112.5	—	121	106	—	111	116	123	159	—	—	2	2	3.02	—

4) Does not apply to side of the outer ring rib of type **NF** bearings.

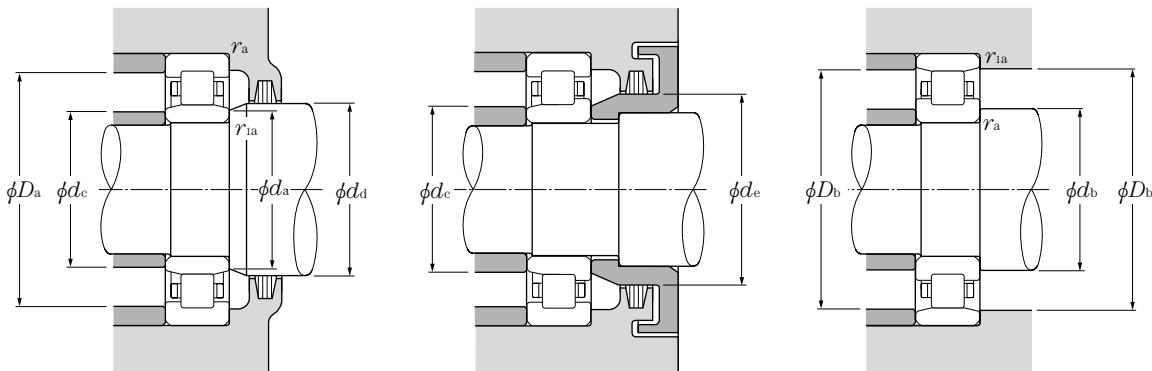




**d** 95 ~ 120mm

d	Boundary dimensions				Basic load ratings				Limiting speeds <sup>1)</sup>		Bearing numbers <sup>2)</sup>			
	D	B	$r_{s \min}^{(3)}$		dynamic	static	dynamic	static	grease	oil	type	type	type	type
	mm	mm	mm	mm	kN	kN	kgf	kgf			min <sup>-1</sup>	min <sup>-1</sup>	NU	NJ
95	170	43	2.1	2.1	230	298	23 500	30 500	3 600	4 300	NU2219	NJ	NUP	N
	170	43	2.1	2.1	286	370	29 200	38 000	3 300	3 800	NU2219E	NJ	NUP	—
	200	45	3	3	259	285	26 400	29 500	3 400	4 000	NU319	NJ	NUP	N
	200	45	3	3	335	385	34 000	39 500	3 100	3 600	NU319E	NJ	NUP	—
	200	67	3	3	370	460	38 000	47 000	3 000	3 500	NU2319	NJ	NUP	N
	200	67	3	3	460	585	47 000	59 500	2 700	3 200	NU2319E	NJ	NUP	—
100	150	24	1.5	1.1	93.0	126	9 500	12 800	4 600	5 400	NU1020	NJ	NUP	N
	180	34	2.1	2.1	183	217	18 600	22 200	3 800	4 500	NU220	NJ	NUP	N
	180	34	2.1	2.1	249	305	25 400	31 000	3 500	4 100	NU220E	NJ	NUP	—
	180	46	2.1	2.1	258	340	26 300	34 500	3 500	4 100	NU2220	NJ	NUP	N
	180	46	2.1	2.1	335	445	34 000	45 500	3 100	3 600	NU2220E	NJ	NUP	—
	215	47	3	3	299	335	30 500	34 500	3 300	3 800	NU320	NJ	NUP	N
	215	47	3	3	380	425	38 500	43 500	2 900	3 500	NU320E	NJ	NUP	—
	215	73	3	3	410	505	42 000	51 500	2 900	3 400	NU2320	NJ	NUP	N
215	73	3	3	570	715	58 000	73 000	2 600	3 100	NU2320E	NJ	NUP	—	
105	160	26	2	1.1	105	142	10 700	14 500	4 300	5 100	NU1021	NJ	NUP	N
	190	36	2.1	2.1	201	241	20 500	24 600	3 600	4 300	NU221	NJ	NUP	N
	225	49	3	3	320	360	32 500	36 500	3 100	3 700	NU321	NJ	NUP	N
110	170	28	2	1.1	131	174	13 400	17 700	4 100	4 800	NU1022	NJ	NUP	N
	200	38	2.1	2.1	240	290	24 500	29 500	3 400	4 000	NU222	NJ	NUP	N
	200	38	2.1	2.1	293	365	29 800	37 000	3 100	3 700	NU222E	NJ	NUP	—
	200	53	2.1	2.1	320	415	32 500	42 000	3 100	3 700	NU2222	NJ	NUP	N
	200	53	2.1	2.1	385	515	39 000	52 500	2 800	3 300	NU2222E	NJ	NUP	—
	240	50	3	3	360	400	36 500	41 000	3 000	3 500	NU322	NJ	NUP	N
	240	50	3	3	450	525	46 000	53 500	2 700	3 100	NU322E	NJ	NUP	—
	240	80	3	3	605	790	61 500	80 500	2 600	3 100	NU2322	NJ	NUP	N
	240	80	3	3	675	880	69 000	89 500	2 400	2 800	NU2322E	NJ	NUP	—
120	180	28	2	1.1	139	191	14 100	19 500	3 800	4 400	NU1024	NJ	NUP	N
	215	40	2.1	2.1	260	320	26 500	32 500	3 200	3 700	NU224	NJ	NUP	N
	215	40	2.1	2.1	335	420	34 000	43 000	2 900	3 400	NU224E	NJ	NUP	—
	215	58	2.1	2.1	350	460	35 500	47 000	2 900	3 400	NU2224	NJ	NUP	N
	215	58	2.1	2.1	450	620	46 000	63 000	2 600	3 000	NU2224E	NJ	NUP	—
	260	55	3	3	450	510	46 000	52 000	2 700	3 200	NU324	NJ	NUP	N

1) This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.  
 2) Production switched to E type only for bearing number for which there is no standard form.  
 3) Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .


**Dynamic equivalent radial load**

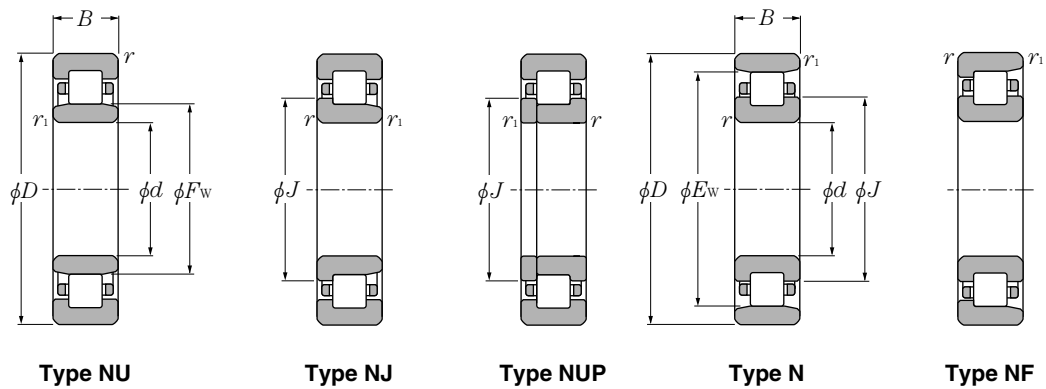
$P_r = F_r$

**Static equivalent radial load**

$P_{or} = F_r$

type	Dimensions			Abutment and fillet dimensions										Mass	
	$F_w$	$E_w$	$J$	$d_a$	$d_b$	$d_c$	$d_a$	$d_e$	$D_a$	$D_b$	$r_{as}$	$r_{ias}$	type NU	type N	
NF	mm			min	min	max	min	min	max	max	min <sup>4)</sup>	max	max	kg	kg
—	113.5	151.5	121	106	106	111	116	123	159	159	155	2	2	3.79	3.71
—	112.5	—	121	106	—	111	116	123	159	—	—	2	2	4.14	—
NF	121.5	173.5	132	108	108	119	124	134	187	187	178	2.5	2.5	6.13	5.99
—	121.5	—	132.7	108	—	119	124	134	187	—	—	2.5	2.5	6.62	—
—	121.5	173.5	132	108	108	119	124	134	187	187	178	2.5	2.5	9.2	9.02
—	121.5	—	132.7	108	—	119	124	134	187	—	—	2.5	2.5	9.8	—
—	113	137	117.8	106.5	108	111	116	119	142	143.5	139	1.5	1	1.45	1.43
NF	120	160	128	111	111	117	122	130	169	169	164	2	2	3.33	3.26
—	119	—	128	111	—	117	122	130	169	—	—	2	2	3.66	—
—	120	160	128	111	111	117	122	130	169	169	164	2	2	4.57	4.48
—	119	—	128	111	—	117	122	130	169	—	—	2	2	5.01	—
NF	129.5	185.5	140.5	113	113	125	132	143	202	202	190	2.5	2.5	7.49	7.32
—	127.5	—	140.3	113	—	125	132	143	202	—	—	2.5	2.5	8.57	—
—	129.5	185.5	140.5	113	113	125	132	143	202	202	190	2.5	2.5	11.7	11.5
—	127.5	—	140.3	113	—	125	132	143	202	—	—	2.5	2.5	12.8	—
—	119.5	145.5	124.7	111.5	114	118	122	126	151	153.5	147.5	2	1	1.84	1.81
NF	126.8	168.8	135	116	116	124	129	137	179	179	173	2	2	3.95	3.87
NF	135	195	147	118	118	132	137	149	212	212	199	2.5	2.5	8.53	8.33
—	125	155	131	116.5	119	124	128	132	161	163.5	157	2	1	2.33	2.3
NF	132.5	178.5	141.5	121	121	130	135	144	189	189	182	2	2	4.63	4.54
—	132.5	—	142.1	121	—	130	135	144	189	—	—	2	2	4.27	—
—	132.5	178.5	141.5	121	121	130	135	144	189	189	182	2	2	6.56	6.43
—	132.5	—	142.1	121	—	130	135	144	189	—	—	2	2	7.4	—
NF	143	207	155.5	123	123	140	145	158	227	227	211	2.5	2.5	10	9.77
—	143	—	156.6	123	—	140	145	158	227	—	—	2.5	2.5	11.1	—
—	143	207	155.5	123	123	140	145	158	227	227	211	2.5	2.5	17.1	16.8
—	143	—	156.6	123	—	140	145	158	227	—	—	2.5	2.5	19.4	—
—	135	165	141	126.5	129	134	138	142	171	173.5	167	2	1	2.44	2.4
NF	143.5	191.5	153	131	131	141	146	156	204	204	196	2	2	5.57	5.46
—	143.5	—	153.9	131	—	141	146	156	204	—	—	2	2	5.97	—
—	143.5	191.5	153	131	131	141	146	156	204	204	196	2	2	8.19	8.03
—	143.5	—	153.9	131	—	141	146	156	204	—	—	2	2	9.18	—
NF	154	226	168.5	133	133	151	156	171	247	247	230	2.5	2.5	12.8	12.5

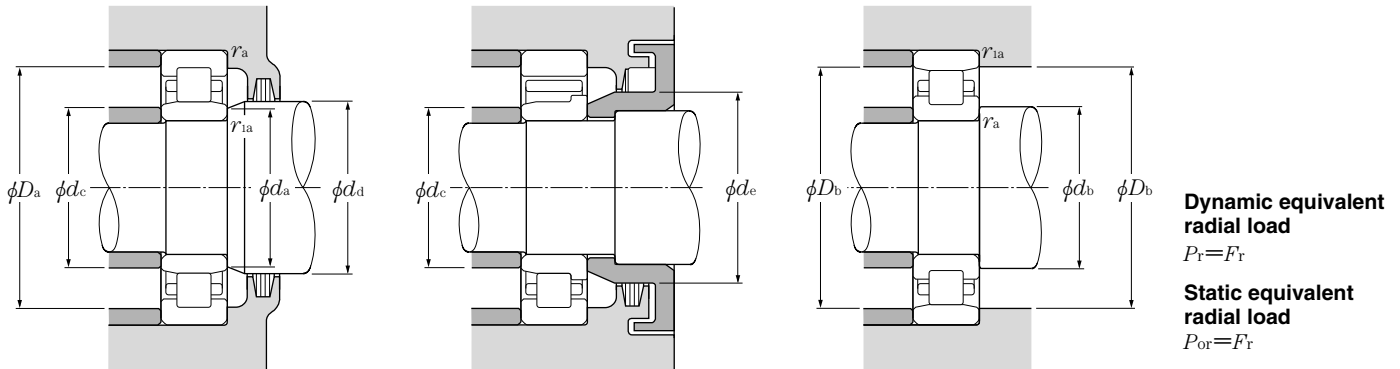
4) Does not apply to side of the outer ring rib of type NF bearings.



**d** 120 ~ 160mm

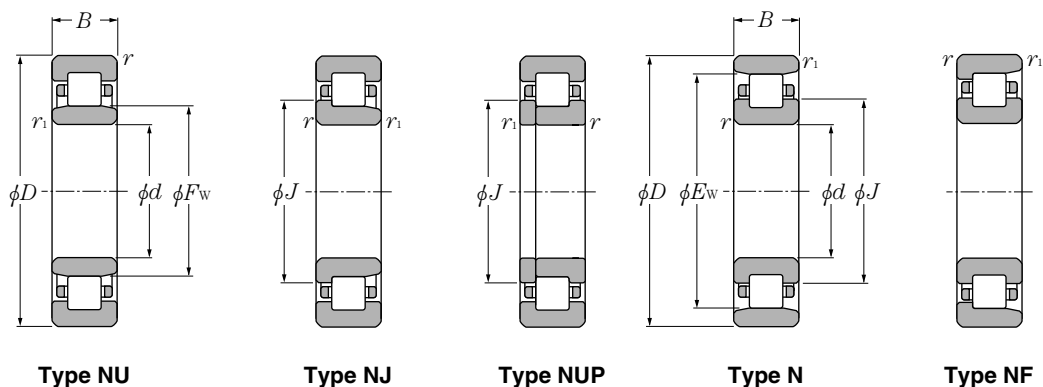
d	Boundary dimensions				Basic load ratings				Limiting speeds <sup>1)</sup>		Bearing numbers <sup>2)</sup>			
	D	B	mm		kN		kgf		min <sup>-1</sup>		type	type	type	type
	mm	mm	r <sub>s min</sub> <sup>3)</sup>	r <sub>1s min</sub> <sup>3)</sup>	C <sub>r</sub>	C <sub>or</sub>	C <sub>r</sub>	C <sub>or</sub>	grease	oil	NU	NJ	NUP	N
120	260	55	3	3	530	610	54 000	62 000	2 400	2 800	NU324E	NJ	NUP	—
	260	86	3	3	710	920	72 500	93 500	2 400	2 800	NU2324	NJ	NUP	N
	260	86	3	3	795	1 030	81 000	105 000	2 200	2 500	NU2324E	NJ	NUP	—
130	200	33	2	1.1	172	238	17 500	24 200	3 400	4 000	NU1026	NJ	NUP	N
	230	40	3	3	270	340	27 600	35 000	2 900	3 400	NU226	NJ	NUP	N
	230	40	3	3	365	455	37 000	46 000	2 600	3 100	NU226E	NJ	NUP	—
	230	64	3	3	380	530	38 500	54 000	2 600	3 100	NU2226	NJ	NUP	N
	230	64	3	3	530	735	54 000	75 000	2 300	2 700	NU2226E	NJ	NUP	—
	280	58	4	4	560	665	57 000	68 000	2 500	2 900	NU326	NJ	NUP	N
	280	58	4	4	615	735	63 000	75 000	2 200	2 600	NU326E	NJ	NUP	—
	280	93	4	4	840	1 130	85 500	115 000	2 200	2 600	NU2326	NJ	NUP	N
280	93	4	4	920	1 230	94 000	126 000	2 000	2 300	NU2326E	NJ	NUP	—	
140	210	33	2	1.1	176	250	17 900	25 500	3 200	3 800	NU1028	NJ	NUP	N
	250	42	3	3	310	400	31 500	40 500	2 700	3 100	NU228	NJ	NUP	N
	250	42	3	3	395	515	40 000	52 500	2 400	2 800	NU228E	NJ	NUP	—
	250	68	3	3	445	635	45 500	64 500	2 400	2 800	NU2228	NJ	NUP	N
	250	68	3	3	575	835	58 500	85 000	2 100	2 500	NU2228E	NJ	NUP	—
	300	62	4	4	615	745	63 000	76 000	2 300	2 700	NU328	NJ	NUP	N
	300	62	4	4	665	795	67 500	81 500	2 100	2 400	NU328E	NJ	NUP	—
	300	102	4	4	920	1 250	94 000	127 000	2 000	2 300	NU2328	NJ	NUP	N
300	102	4	4	1 020	1 380	104 000	141 000	1 800	2 100	NU2328E	NJ	NUP	—	
150	225	35	2.1	1.5	202	294	20 600	29 900	3 000	3 500	NU1030	NJ	NUP	N
	270	45	3	3	345	435	35 000	44 500	2 500	2 900	NU230	NJ	NUP	N
	270	45	3	3	450	595	45 500	60 500	2 200	2 600	NU230E	NJ	NUP	—
	270	73	3	3	500	710	51 000	72 500	2 200	2 600	NU2230	NJ	NUP	N
	270	73	3	3	660	980	67 500	100 000	2 000	2 400	NU2230E	NJ	NUP	—
	320	65	4	4	665	805	67 500	82 500	2 100	2 500	NU330	NJ	NUP	N
	320	65	4	4	760	920	77 500	94 000	1 900	2 300	NU330E	NJ	NUP	—
	320	108	4	4	1 020	1 400	104 000	143 000	1 900	2 200	NU2330	NJ	NUP	N
320	108	4	4	1 160	1 600	118 000	163 000	1 700	2 000	NU2330E	NJ	NUP	—	
160	240	38	2.1	1.5	238	340	24 200	35 000	2 800	3 300	NU1032	NJ	NUP	N
	290	48	3	3	430	570	43 500	58 000	2 300	2 700	NU232	NJ	NUP	N
	290	48	3	3	500	665	51 000	68 000	2 100	2 400	NU232E	NJ	NUP	—

1) This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.  
 2) Production switched to E type only for bearing number for which there is no standard form.  
 3) Minimal allowable dimension for chamfer dimension r or r<sub>1</sub>.



type	Dimensions			Abutment and fillet dimensions										Mass	
	$F_w$	$E_w$	$J$	$d_a$ min	$d_b$ min	$d_c$ max	$d_a$ min	$d_e$ min	$D_a$ max	$D_b$ max	$D_b$ min <sup>4)</sup>	$r_{as}$ max	$r_{1as}$ max	type NU (approx.)	type N
—	154	—	169.2	133	—	151	156	171	247	—	—	2.5	2.5	13.9	—
—	154	226	168.5	133	133	151	156	171	247	247	230	2.5	2.5	21.5	21.1
—	154	—	169.2	133	—	151	156	171	247	—	—	2.5	2.5	26.1	—
—	148	182	154.8	136.5	139	146	151	156	191	193.5	184	2	1	3.69	3.63
<b>NF</b>	156	204	165.5	143	143	151	158	168	217	217	208	2.5	2.5	6.3	6.17
—	153.5	—	164.7	143	—	151	158	168	217	—	—	2.5	2.5	6.9	—
—	156	204	165.5	143	143	151	158	168	217	217	208	2.5	2.5	10.2	10
—	153.5	—	164.7	143	—	151	158	168	217	—	—	2.5	2.5	11.8	—
<b>NF</b>	167	243	182	146	146	164	169	184	264	264	247	3	3	17.4	17
—	167	—	183	146	—	164	169	184	264	—	—	3	3	19.4	—
—	167	243	182	146	146	164	169	184	264	264	247	3	3	26.9	26.4
—	167	—	183	146	—	164	169	184	264	—	—	3	3	30.9	—
—	158	192	164.8	146.5	149	156	161	166	201	203.5	194	2	1	4.05	3.98
<b>NF</b>	169	221	179.5	153	153	166	171	182	237	237	225	2.5	2.5	7.88	7.72
—	169	—	180.2	153	—	166	171	182	237	—	—	2.5	2.5	8.73	—
—	169	221	179.5	153	153	166	171	182	237	237	225	2.5	2.5	12.9	12.6
—	169	—	180.2	153	—	166	171	182	237	—	—	2.5	2.5	15.8	—
<b>NF</b>	180	260	196	156	156	176	182	198	284	284	265	3	3	21.2	20.7
—	180	—	196.8	156	—	176	182	198	284	—	—	3	3	23.2	—
—	180	260	196	156	156	176	182	198	284	284	265	3	3	33.8	33.1
—	180	—	196.8	156	—	176	182	198	284	—	—	3	3	38.7	—
—	169.5	205.5	176.7	158	161	167	173	178	214	217	207.5	2	1.5	4.77	4.7
<b>NF</b>	182	238	193	163	163	179	184	196	257	257	242	2.5	2.5	9.92	9.72
—	182	—	194	163	—	179	184	196	257	—	—	2.5	2.5	11	—
—	182	238	193	163	163	179	184	196	257	257	242	2.5	2.5	16.3	16
—	182	—	194	163	—	179	184	196	257	—	—	2.5	2.5	19.7	—
<b>NF</b>	193	277	210	166	166	190	195	213	304	304	282	3	3	25.3	24.7
—	193	—	211	166	—	190	195	213	304	—	—	3	3	28.4	—
—	193	277	210	166	166	190	195	213	304	304	282	3	3	40.6	39.8
—	193	—	211	166	—	190	195	213	304	—	—	3	3	47.2	—
—	180	220	188	168	171	178	184	189	229	232	222	2	1.5	5.9	5.81
<b>NF</b>	195	255	207	173	173	192	197	210	277	277	259	2.5	2.5	13.7	13.4
—	195	—	207.8	173	—	192	197	210	277	—	—	2.5	2.5	15.6	—

4) Does not apply to side of the outer ring rib of type **NF** bearings.



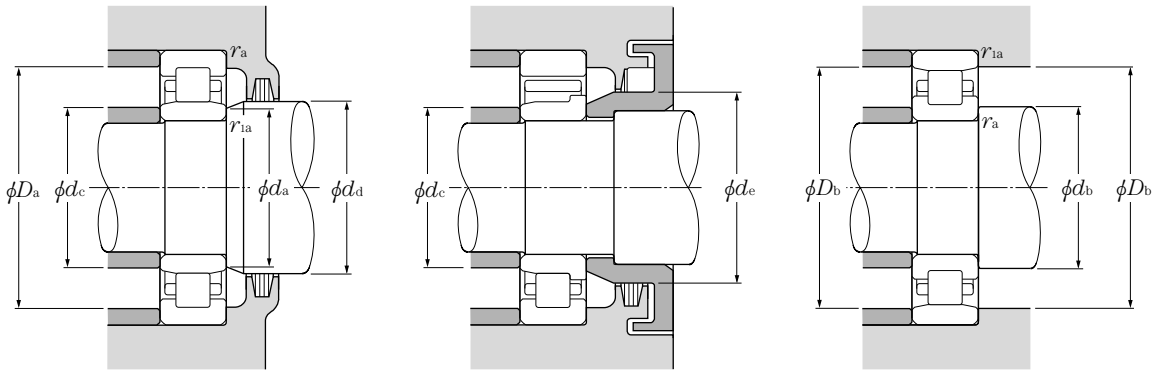
## d 160 ~ 200mm

d	Boundary dimensions				Basic load ratings				Limiting speeds <sup>1)</sup>		Bearing numbers <sup>2)</sup>			
	D	B	$r_{s \min}^{(3)}$		dynamic	static	dynamic	static	min <sup>-1</sup>		type	type	type	type
	mm	mm	mm	mm	kN	kN	kgf	kgf	grease	oil	NU	NJ	NUP	N
160	290	80	3	3	630	940	64 500	96 000	2 100	2 400	NU2232	NJ	NUP	N
	290	80	3	3	810	1 190	82 500	121 000	1 900	2 200	NU2232E	NJ	NUP	—
	340	68	4	4	700	875	71 000	89 500	2 000	2 300	NU332	NJ	NUP	N
	340	68	4	4	860	1 050	87 500	107 000	1 800	2 100	NU332E	NJ	NUP	—
	340	114	4	4	1 070	1 520	109 000	155 000	1 700	2 000	NU2332	NJ	NUP	N
	340	114	4	4	1 310	1 820	134 000	186 000	1 600	1 900	NU2332E	NJ	NUP	—
170	260	42	2.1	2.1	278	400	28 300	41 000	2 600	3 000	NU1034	NJ	NUP	N
	310	52	4	4	475	635	48 500	65 000	2 200	2 500	NU234	NJ	NUP	N
	310	52	4	4	605	800	61 500	81 500	2 000	2 300	NU234E	NJ	NUP	—
	310	86	4	4	715	1 080	73 000	110 000	2 000	2 300	NU2234	NJ	NUP	N
	310	86	4	4	965	1 410	98 500	144 000	1 800	2 100	NU2234E	NJ	NUP	—
	360	72	4	4	795	1 010	81 500	103 000	1 800	2 200	NU334	NJ	NUP	N
360	120	4	4	1 220	1 750	125 000	179 000	1 600	1 900	NU2334	NJ	NUP	N	
180	280	46	2.1	2.1	340	485	35 000	49 500	2 400	2 900	NU1036	NJ	NUP	N
	320	52	4	4	495	675	50 500	69 000	2 000	2 400	NU236	NJ	NUP	N
	320	52	4	4	625	850	64 000	87 000	1 800	2 200	NU236E	NJ	NUP	—
	320	86	4	4	745	1 140	76 000	117 000	1 800	2 200	NU2236	NJ	NUP	N
	320	86	4	4	1 010	1 510	103 000	154 000	1 600	1 900	NU2236E	NJ	NUP	—
	380	75	4	4	905	1 150	92 000	118 000	1 700	2 000	NU336	NJ	NUP	N
	380	126	4	4	1 380	1 990	141 000	203 000	1 500	1 800	NU2336	NJ	NUP	N
190	290	46	2.1	2.1	350	510	36 000	52 000	2 300	2 700	NU1038	NJ	NUP	N
	340	55	4	4	555	770	56 500	78 500	1 900	2 200	NU238	NJ	NUP	N
	340	55	4	4	695	955	71 000	97 500	1 700	2 000	NU238E	NJ	NUP	—
	340	92	4	4	830	1 290	84 500	131 000	1 700	2 000	NU2238	NJ	NUP	N
	340	92	4	4	1 100	1 670	113 000	170 000	1 500	1 800	NU2238E	NJ	NUP	—
	400	78	5	5	975	1 260	99 500	129 000	1 600	1 900	NU338	NJ	NUP	N
400	132	5	5	1 520	2 220	155 000	226 000	1 400	1 700	NU2338	NJ	NUP	N	
200	310	51	2.1	2.1	390	580	40 000	59 500	2 200	2 600	NU1040	NJ	NUP	N
	360	58	4	4	620	865	63 500	88 500	1 800	2 100	NU240	NJ	NUP	N
	360	58	4	4	765	1 060	78 000	108 000	1 600	1 900	NU240E	NJ	NUP	—
	360	98	4	4	925	1 440	94 000	147 000	1 600	1 900	NU2240	NJ	NUP	N
	360	98	4	4	1 220	1 870	125 000	191 000	1 500	1 700	NU2240E	NJ	NUP	—
	420	80	5	5	975	1 270	99 500	130 000	1 500	1 800	NU340	NJ	NUP	N

1) This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.

2) Production switched to E type only for bearing number for which there is no standard form.

3) Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .



**Dynamic equivalent radial load**

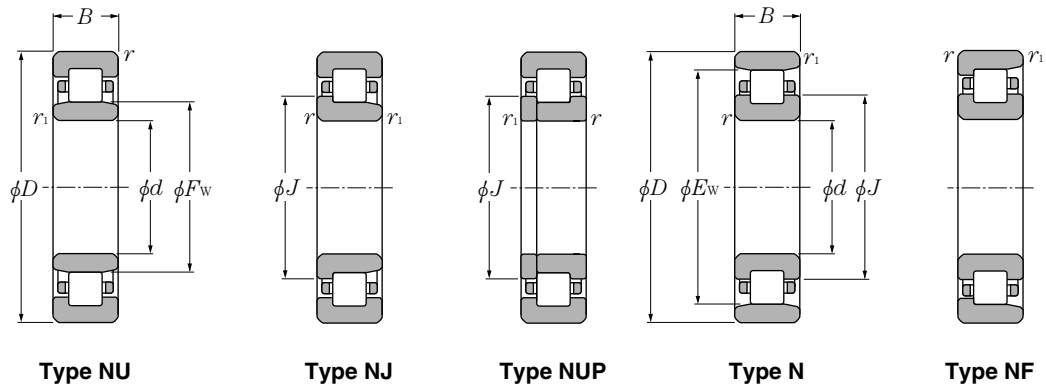
$$P_r = F_r$$

**Static equivalent radial load**

$$P_{Or} = F_r$$

type	Dimensions			Abutment and fillet dimensions										Mass	
	$F_w$	$E_w$	$J$	$d_a$ min	$d_b$ min	$d_c$ max	$d_a$ min	$d_e$ min	$D_a$ max	$D_b$ max	$D_b$ min <sup>4)</sup>	$r_{as}$ max	$r_{1as}$ max	type NU (approx.)	type N
—	195	255	207	173	173	192	197	210	277	277	259	2.5	2.5	22	21.6
—	193	—	206.6	173	—	192	197	210	277	—	—	2.5	2.5	25.1	—
<b>NF</b>	208	292	225	176	176	200	211	228	324	324	297	3	3	31.3	30.6
—	204	—	223.2	176	—	200	211	228	324	—	—	3	3	34	—
—	208	292	225	176	176	200	211	228	324	324	297	3	3	50.5	49.5
—	204	—	223.2	176	—	200	211	228	324	—	—	3	3	56	—
—	193	237	201.8	181	181	190	197	203	249	249	239	2	2	7.88	7.76
<b>NF</b>	208	272	220.5	186	186	204	211	223	294	294	277	3	3	17	16.7
—	207	—	221.4	186	—	204	211	223	294	—	—	3	3	19.6	—
—	208	272	220.5	186	186	204	211	223	294	294	277	3	3	27.2	26.7
—	205	—	220.2	186	—	204	211	223	294	—	—	3	3	31	—
<b>NF</b>	220	310	238	186	186	216	223	241	344	344	315	3	3	37	36.1
—	220	310	238	186	186	216	223	241	344	344	315	3	3	59.5	58.3
—	205	255	215	191	191	203	209	216	269	269	257	2	2	10.3	10.1
<b>NF</b>	218	282	230.5	196	196	214	221	233	304	304	287	3	3	17.7	17.3
—	217	—	231.4	196	—	214	221	233	304	—	—	3	3	20.4	—
—	218	282	230.5	196	196	214	221	233	304	304	287	3	3	28.4	27.8
—	215	—	230.2	196	—	214	221	233	304	—	—	3	3	31.9	—
<b>NF</b>	232	328	252	196	196	227	235	255	364	364	333	3	3	44.2	43.2
—	232	328	252	196	196	227	235	255	364	364	333	3	3	69.5	68.1
—	215	265	225	201	201	213	219	226	279	279	267	2	2	10.7	10.5
<b>NF</b>	231	299	244.5	206	206	227	234	247	324	324	304	3	3	21.3	20.8
—	230	—	245.2	206	—	227	234	247	324	—	—	3	3	24.2	—
—	231	299	244.5	206	206	227	234	247	324	324	304	3	3	34.4	33.7
—	228	—	244	206	—	227	234	247	324	—	—	3	3	39.5	—
<b>NF</b>	245	345	265	210	210	240	248	268	380	380	351	4	4	49.4	48.3
—	245	345	265	210	210	240	248	268	380	380	351	4	4	80.5	78.9
—	229	281	239.4	211	211	226	233	241	299	299	283	2	2	13.9	13.7
<b>NF</b>	244	316	258	216	216	240	247	261	344	344	321	3	3	25.3	24.8
—	243	—	259	216	—	240	247	261	344	—	—	3	3	28.1	—
—	244	316	258	216	216	240	247	261	344	344	321	3	3	41.3	40.5
—	241	—	257.8	216	—	240	247	261	344	—	—	3	3	47.8	—
<b>NF</b>	260	360	280	220	220	254	263	283	400	400	366	4	4	55.8	54.5

4) Does not apply to side of the outer ring rib of type **NF** bearings.

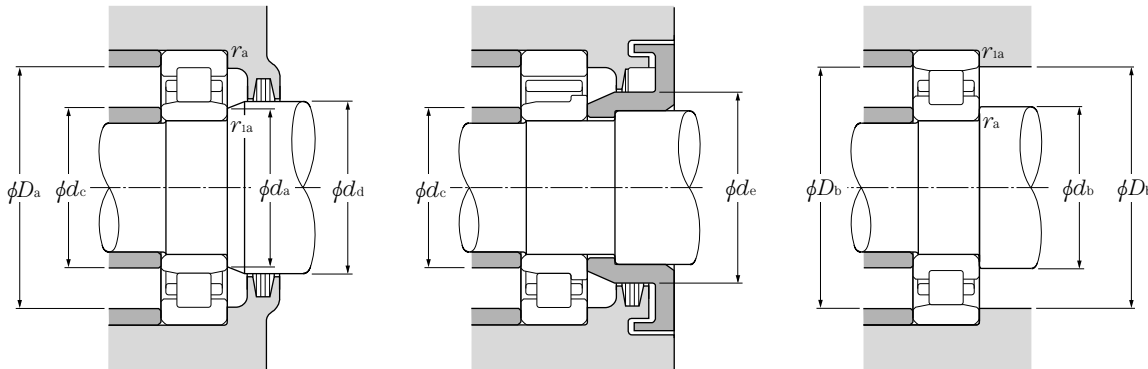


**d** 200 ~ 360mm

d	Boundary dimensions			Basic load ratings					Limiting speeds <sup>1)</sup>		Bearing numbers <sup>2)</sup>			
	D	B	mm	dynamic	static	dynamic	static	grease	oil	type NU	type NJ	type NUP	type N	
	mm	mm	$r_{1s \min}^{(3)}$	$r_{1s \min}^{(3)}$	$C_r$	$C_{or}$	$C_r$							$C_{or}$
200	420	138	5	5	1 510	2 240	154 000	229 000	1 400	1 600	NU2340	NJ	NUP	N
	340	56	3	3	500	750	51 000	76 500	2 000	2 300	NU1044	NJ	NUP	N
220	400	65	4	4	760	1 080	77 500	110 000	1 600	1 900	NU244	NJ	NUP	N
	400	108	4	4	1 140	1 810	116 000	184 000	1 500	1 700	NU2244	NJ	NUP	N
	460	88	5	5	1 190	1 570	122 000	161 000	1 400	1 600	NU344	NJ	NUP	N
	460	145	5	5	1 780	2 620	181 000	268 000	1 200	1 400	NU2344	NJ	NUP	N
240	360	56	3	3	530	820	54 000	83 500	1 800	2 100	NU1048	NJ	NUP	N
	440	72	4	4	935	1 340	95 500	136 000	1 500	1 700	NU248	NJ	NUP	N
	440	120	4	4	1 440	2 320	146 000	236 000	1 300	1 600	NU2248	NJ	NUP	N
	500	95	5	5	1 430	1 950	146 000	198 000	1 300	1 500	NU348	NJ	NUP	N
	500	155	5	5	2 100	3 200	214 000	325 000	1 100	1 300	NU2348	NJ	NUP	N
260	400	65	4	4	645	1 000	65 500	102 000	1 600	1 900	NU1052	NJ	NUP	N
	480	80	5	5	1 150	1 660	117 000	170 000	1 300	1 600	NU252	NJ	NUP	N
	480	130	5	5	1 780	2 930	182 000	299 000	1 200	1 400	NU2252	NJ	NUP	N
	540	102	6	6	1 620	2 230	165 000	228 000	1 200	1 400	NU352	NJ	NUP	N
	540	165	6	6	2 340	3 600	239 000	365 000	1 000	1 200	NU2352	NJ	NUP	N
280	420	65	4	4	660	1 050	67 000	107 000	1 500	1 800	NU1056	NJ	NUP	N
	500	80	5	5	1 190	1 760	121 000	180 000	1 200	1 400	NU256	NJ	NUP	N
	500	130	5	5	1 840	3 100	188 000	315 000	1 100	1 300	NU2256	NJ	NUP	N
	580	108	6	6	1 820	2 540	185 000	259 000	1 100	1 200	NU356	NJ	NUP	N
	580	175	6	6	2 700	4 250	275 000	430 000	920	1 100	NU2356	NJ	NUP	N
300	460	74	4	4	855	1 340	87 000	137 000	1 400	1 600	NU1060	NJ	NUP	N
	540	85	5	5	1 400	2 070	143 000	211 000	1 100	1 300	NU260	NJ	NUP	N
	540	140	5	5	2 180	3 650	223 000	370 000	1 000	1 200	NU2260	NJ	NUP	N
320	480	74	4	4	875	1 410	89 500	143 000	1 300	1 500	NU1064	NJ	NUP	N
	580	92	5	5	1 600	2 390	164 000	244 000	1 000	1 200	NU264	NJ	NUP	N
	580	150	5	5	2 550	4 350	260 000	445 000	950	1 100	NU2264	NJ	NUP	N
340	520	82	5	5	1 050	1 670	107 000	170 000	1 200	1 400	NU1068	NJ	NUP	N
360	540	82	5	5	1 080	1 750	110 000	179 000	1 100	1 300	NU1072	NJ	NUP	N

1) This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.  
 2) Production switched to E type only for bearing number for which there is no standard form.  
 3) Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .





**Dynamic equivalent radial load**

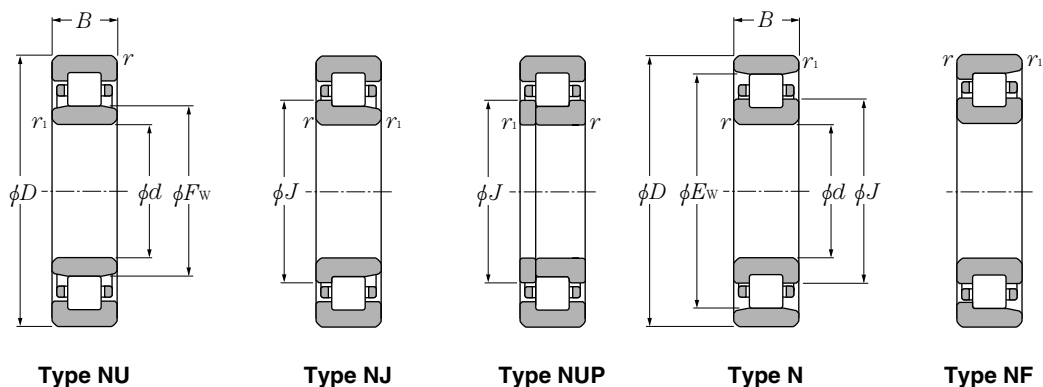
$$P_r = F_r$$

**Static equivalent radial load**

$$P_{Or} = F_r$$

type	Dimensions			Abutment and fillet dimensions										Mass	
	mm			mm										kg	
NF	$F_w$	$E_w$	$J$	$d_a$ min	$d_b$ min	$d_c$ max	$d_d$ min	$d_e$ min	$D_a$ max	$D_b$ max	$D_b$ min <sup>4)</sup>	$r_{as}$ max	$r_{1as}$ max	type NU (approx.)	type N
—	260	360	280	220	220	254	263	283	400	400	366	4	4	92.6	90.7
—	250	310	262	233	233	248	254	264	327	327	313	2.5	2.5	18.2	17.9
NF	270	350	286	236	236	266	273	289	384	384	355	3	3	37.7	37
—	270	350	286	236	236	266	273	289	384	384	355	3	3	59	57.8
NF	284	396	307	240	240	279	287	307	440	440	402	4	4	73.4	71.7
—	284	396	307	240	240	279	287	307	440	440	402	4	4	116	114
—	270	330	282	253	253	268	275	284	347	347	333	2.5	2.5	19.6	19.3
NF	295	385	313	256	256	293	298	316	424	424	390	3	3	50.2	49.2
—	295	385	313	256	256	293	298	316	424	424	390	3	3	80	78.4
NF	310	430	335	260	260	305	313	333	480	480	436	4	4	93.4	91.3
—	310	430	335	260	260	305	313	333	480	480	436	4	4	147	144
—	296	364	309.6	276	276	292	300	312	384	384	367	3	3	29.1	28.7
NF	320	420	340	280	280	318	323	343	460	460	426	4	4	66.9	65.6
—	320	420	340	280	280	318	323	343	460	460	426	4	4	104	102
NF	336	464	362	284	284	331	339	359	516	516	471	5	5	117	114
—	336	464	362	284	284	331	339	359	516	516	471	5	5	182	178
—	316	384	329.6	296	296	312	320	332	404	404	387	3	3	30.9	30.4
NF	340	440	360	300	300	336	343	365	480	480	446	4	4	70.8	69.4
—	340	440	360	300	300	336	343	365	480	480	446	4	4	109	107
NF	362	498	390	304	304	356	366	386	556	556	505	5	5	142	139
—	362	498	390	304	304	356	366	386	556	556	505	5	5	222	218
—	340	420	356	316	316	336	344	358	444	444	423	3	3	43.6	42.9
NF	364	476	387	320	320	361	368	392	520	520	482	4	4	88.2	86.4
—	364	476	387	320	320	361	368	392	520	520	482	4	4	138	135
—	360	440	376	336	336	356	364	378	464	464	443	3	3	46	45.3
NF	390	510	415	340	340	386	393	419	560	560	516	4	4	111	109
—	390	510	415	340	340	386	393	419	560	560	516	4	4	172	168
—	385	475	403	360	360	381	390	405	500	500	479	4	4	61.8	60.8
—	405	495	423	380	380	401	410	425	520	520	499	4	4	64.7	63.7

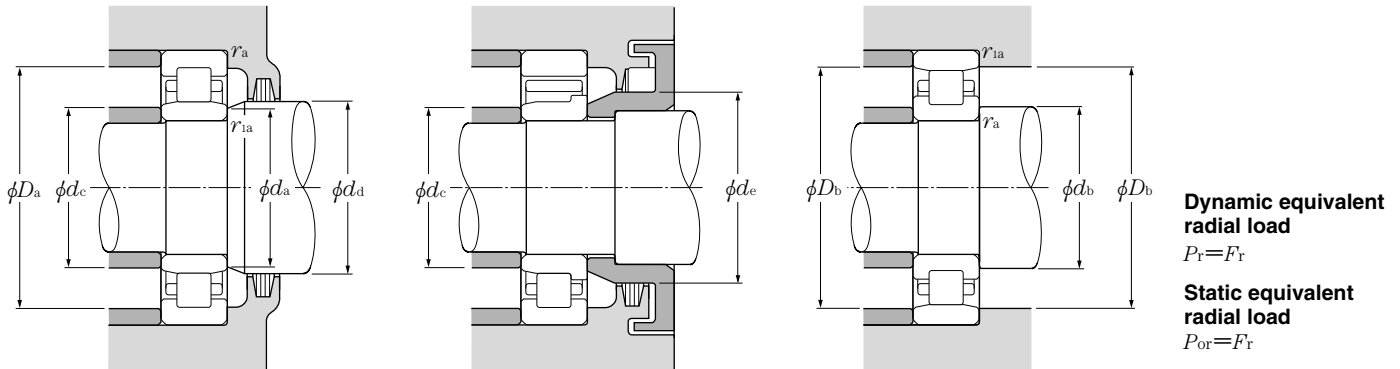
4) Does not apply to side of the outer ring rib of type NF bearings.



**d** 380 ~ 500mm

d	Boundary dimensions			Basic load ratings				Limiting speeds <sup>1)</sup>		Bearing numbers <sup>2)</sup>				
	D	B	mm	dynamic	static	dynamic	static	grease	oil	type	type	type	type	
				kN	C <sub>or</sub>	C <sub>r</sub>	C <sub>or</sub>	min <sup>-1</sup>		NU	NJ	NUP	N	
<b>380</b>	560	82	5	5	1 100	1 840	112 000	187 000	1 100	1 200	<b>NU1076</b>	<b>NJ</b>	<b>NUP</b>	<b>N</b>
<b>400</b>	600	90	5	5	1 320	2 190	134 000	223 000	990	1 200	<b>NU1080</b>	<b>NJ</b>	<b>NUP</b>	<b>N</b>
<b>420</b>	620	90	5	5	1 350	2 290	138 000	233 000	950	1 100	<b>NU1084</b>	<b>NJ</b>	<b>NUP</b>	<b>N</b>
<b>440</b>	650	94	6	6	1 430	2 430	146 000	248 000	900	1 100	<b>NU1088</b>	<b>NJ</b>	<b>NUP</b>	<b>N</b>
<b>460</b>	680	100	6	6	1 540	2 630	157 000	269 000	850	1 000	<b>NU1092</b>	<b>NJ</b>	<b>NUP</b>	<b>N</b>
<b>480</b>	700	100	6	6	1 580	2 750	161 000	280 000	810	960	<b>NU1096</b>	<b>NJ</b>	<b>NUP</b>	<b>N</b>
<b>500</b>	720	100	6	6	1 610	2 870	164 000	292 000	770	910	<b>NU10/500</b>	<b>NJ</b>	<b>NUP</b>	<b>N</b>

1) This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.  
 2) Production switched to E type only for bearing number for which there is no standard form.  
 3) Minimal allowable dimension for chamfer dimension *r* or *r*<sub>1</sub>.



type NF	Dimensions			Abutment and fillet dimensions										Mass	
	$F_w$	$E_w$	$J$	$d_a$ min	$d_b$ min	$d_c$ max	$d_a$ min	$d_e$ min	$D_a$ max	$D_b$ max	$D_b$ min <sup>4)</sup>	$r_{as}$ max	$r_{1as}$ max	type NU (approx.)	type N
—	425	515	443	400	400	421	430	445	540	540	519	4	4	67.5	66.5
—	450	550	470	420	420	446	455	473	580	580	554	4	4	87.6	86.3
—	470	570	490	440	440	466	475	493	600	600	574	4	4	91	89.6
—	493	597	513.8	464	464	488	499	517	626	626	602	5	5	105	103
—	516	624	537.6	484	484	511	522	541	656	656	629	5	5	122	120
—	536	644	557.6	504	504	531	542	561	676	676	649	5	5	126	124
—	556	664	577.6	524	524	551	562	581	696	696	669	5	5	130	128

4) Does not apply to side of the outer ring rib of type **NF** bearings.