www.ntnsnr.ru Тел. (499) 703-40-50 snr-mail@ya.ru

Cylindrical roller bearings

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Cylindrical roller bearings

Definition and capabilities

Definition

Cylindrical roller bearings offer excellent resistance to instantaneous overloads and shocks.

They simplify assembly thanks to their detachable elements and allow, for certain types, axial displacement or low axial load, for other types.

Cages

The standard cage for these bearings is the polyamide cage (suffix Gl5) which allows bearing operating temperatures of 120°C or 248°F (150° or 302°F peak).

The standard cage for series 4 is in pressed steel.

The machined brass cage is available on option. Large-dimension bearings are equipped with a machined brass cage (suffix M). For special applications in which the synthetic material cage is unacceptable, a metal cage can be provided on request.

Capabilities

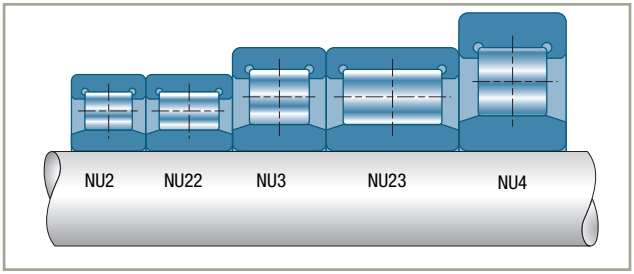
Loads and speeds

Cylindrical roller bearings are designed to:
- withstand radial loads
- withstand moderate axial loads if the position of the shoulders on the rings allows them
- accept high speeds of rotation

Misalignment

Cylindrical roller bearings accept misalignment of about 0.06° thanks to the correction on the roller surface profiles.

Series



Variants

Types of bearings

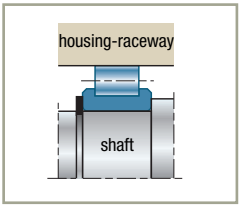
Groove for snap ring

These bearings can be supplied on request with a groove in the outer ring (N) and snap ring (NR) per ISO 464 standard.

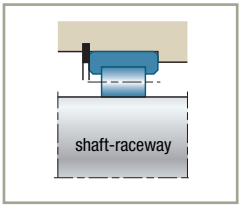
The dimensions of the grooves and rings are therefore the same as those defined for the ball bearings of the same dimension series.

Incomplete bearings

Type RN: type N bearing without outer ring.



Type RNU: type NU bearing without inner ring.



In both cases, the raceway corresponding to the absent ring is integrally machined in the mechanism. The geometry, surface condition and hardness of the part forming the raceway must meet precise specifications. Consult SNR.

Cylindrical roller bearings *(continued)*

Tolerances and clearances

Tolerances

These bearings are supplied in standard precision with tolerances in compliance with ISO 492 Standard.

SNR can supply bearings with tightened tolerances on one or several characteristics on request (bore, outer diameter, precision of rotation).

Clearances

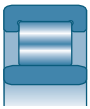
Internal radial clearance

The bearing is supplied matched (in conformity with ISO 5753 Standard), that is to say that the detachable elements

(outer ring and inner ring) are associated so that the clearance is in the "matched" bearing category.

If one of the detachable elements is replaced by the complementary element of another bearing, the clearance enters the "interchangeable" bearing category, with a higher tolerance.

Order of size of recommended residual clearance after fitting: $J_{rm} = 4\ d^{1/2}\ 10^{-3}$



Series N..2-N..3-N..4-N..22-N..23

Bore diameter	Group 2		Group N		Group 3		Group 4		Group 5	
d (mm)	min	max	min	max	min	max	min	max	min	max
d≤ 10	0	25	20	45	35	60	50	75	–	–
10 <d≤ 24	0	25	20	45	35	60	50	75	65	90
24 <d≤ 30	0	25	20	45	35	60	50	75	70	95
30 <d≤ 40	5	30	25	50	45	70	60	85	80	105
40 <d≤ 50	5	35	30	60	50	80	70	100	95	125
50 <d≤ 65	10	40	40	70	60	90	80	110	110	140
65 <d≤ 80	10	45	40	75	65	100	90	125	130	165
80 <d≤ 100	15	50	50	85	75	110	105	140	155	190
100 <d≤ 120	15	55	50	90	85	125	125	165	180	220
120 <d≤ 140	15	60	60	105	100	145	145	190	200	245
140 <d≤ 160	20	70	70	120	115	165	165	215	225	275
160 <d≤ 180	25	75	75	125	120	170	170	220	250	300
180 <d≤ 200	35	90	90	145	140	195	195	250	275	330
200 <d≤ 225	45	105	105	165	160	220	220	280	305	365
225 <d≤ 250	45	110	110	175	170	235	235	300	330	395
250 <d≤ 280	55	125	125	195	190	260	260	330	370	440
280 <d≤ 315	55	130	130	205	200	275	275	350	410	485
315 <d≤ 355	65	145	145	225	225	305	305	385	455	535
355 <d≤ 400	100	190	190	280	280	370	370	460	510	600
400 <d≤ 450	110	210	210	310	310	410	410	510	565	665
450 <d≤ 500	110	220	220	330	330	440	440	550	625	735

Value in µm

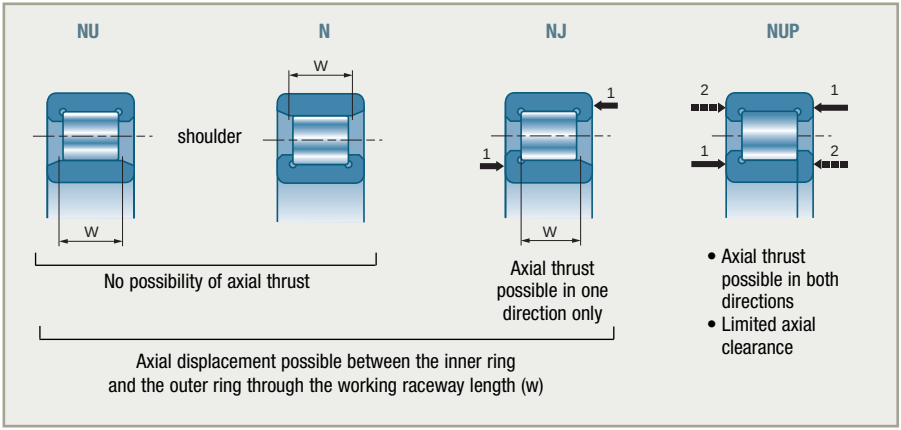
Cylindrical roller bearings *(continued)*

Axial clearance

The axial clearance of cylindrical roller bearings is only specified for type NUP bearings. It is limited by the 4 internal shoulders. It is in the range of 0.1 mm.

Bearings of types N, NU or NJ allow axial displacement between the inner ring and the outer ring. It is defined by the difference between the working length (W) of the ring raceways and the effective length of the rollers.

For types N or NU, it is in the range of 2 mm for bearings with bore diameters below 80 mm in series 2, and below 50 mm in series 3. For the largest bearings it is of the order of 3 mm. For all type NJ bearings the possible axial displacement is half the values indicated above.



Design criteria

Bearing life

Cylindrical roller bearings are only designed to withstand radial loads F_r.

However, these bearings can accept an axial load F_a if their inner and outer rings are shouldered.

If the ratio F_a/F_r is less than 0.1, only the radial load is taken into consideration.

If the ratio F_a/F_r is greater than 0.1, the friction energy generated on the shoulders by the axial load and the wear that can result from this may be so high that bearing performance is drastically modified.

Consult SNR to evaluate the ratio according to the operating conditions (speed, lubrication, etc.).

Maximum static radial capacity

This is given by the basic static capacity C_0.

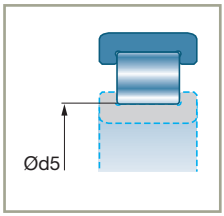
Installation/assembly criteria

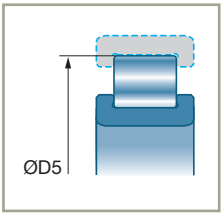
As the rings of cylindrical roller bearings are separable, they are totally interchangeable within the clearance tolerance limits.

They can also be interchanged with bearings of the same reference from other manufacturers. The dimension above the rollers (D_5) or below the rollers (d_5) and the tolerances are indicated in the "Tables of Product Characteristics" in conformity with DIN 5412 Standard.

However, since the raceway profile corrections, quality of steel and surface conditions are specific to each manufacturer, the performance of such assemblies may be significantly changed in a replacement, therefore they should be avoided.

Caution: dimensions D_5 and d_5 of the new generation of cylindrical roller bearings (suffix E) differ from those of the previous generation.

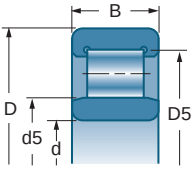


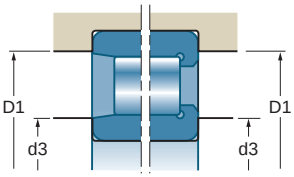


Suffixes

E	Optimised capacity bearing
G15	Polyamide cage
J	Clearance. The first figure designates the ISO clearance category, the second designates the normal precision class (0). Equivalence: J20 = C2, J30 = C3, J40 = C4, J50 = C5
M	Machined brass cage centred on the rollers
N	Outer ring with groove for snap ring
NR	Outer ring with groove and snap ring fitted

Cylindrical roller bearings *(continued)*

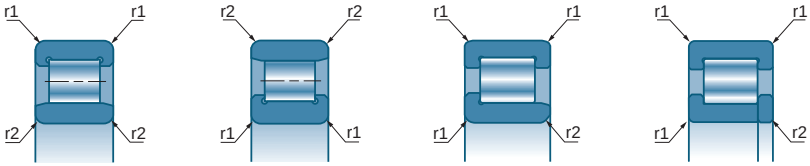




d		D	B	D5 (Ø above the rollers)	d5 (Ø below the rollers)	C	C_0
mm	References	mm	mm	mm	mm	10^3N	10^3N
15	NJ 202 EG15	35	11	–	19,3	15,1	10,4
	NU 202 EG15	35	11	–	19,3	15,1	10,4
17	NJ 203 EG15	40	12	–	22,1	20,8	14,6
	NU 203 EG15	40	12	–	22,1	17,6	14,6
	NJ 2203 EG15	40	16	–	22,1	28,5	21,9
	NU 2203 EG15	40	16	–	22,1	24	22
	NJ 303 EG15	47	14	–	24,2	30	21,2
	NU 303 EG15	47	14	–	24,2	25,5	21,2
20	N 204 EG15	47	14	41,5	–	32,5	24,7
	NJ 204 EG15	47	14	–	26,5	27,5	24,5
	NU 204 EG15	47	14	–	26,5	27,5	24,5
	NUP 204 EG15	47	14	–	26,5	27,5	24,5
	NJ 2204 EG15	47	18	–	26,5	32,5	31
	NU 2204 EG15	47	18		26,5	32,5	31
	N 304 EG15	52	15	45,5	–	36,5	26
	NJ 304 EG15	52	15	–	27,5	31,5	27
	NU 304 EG15	52	15	–	27,5	31,5	27
	NJ 2304 EG15	52	21	–	27,5	41,5	39
	NU 2304 EG15	52	21	–	27,5	41,5	39
25	N 205 EG15	52	15	46,5	–	34,5	27,5
	NJ205E	52	15	–	31,5	29,3	27,7
	NJ 205 EG15	52	15	–	31,5	29	27,5
	NU 205 EG15	52	15	–	31,5	29	27,5
	NUP 205 EG15	52	15	–	31,5	29	27,5
	NJ 2205 EG15	52	18	–	31,5	34,5	34,5
	NU 2205 EG15	52	18	–	31,5	34,5	34,5
	NUP 2205 EG15	52	18	–	31,5	34,5	34,5
	N 305 EG15	62	17	54	–	48	36,5
	NJ 305 EG15	62	17	–	34	41,5	37,5
	NU 305 EG15	62	17	–	34	41,5	37,5
	NUP 305 EG15	62	17	–	34	41,5	37,5
	NJ2305E	62	24	–	34	56,9	56,1
	NJ 2305 EG15	62	24	–	34	57	56
	NU 2305 EG15	62	24	–	34	57	56
30	N 206 EG15	62	16	55,5	–	45	36
	NJ206E	62	16	–	37,5	39,1	37,4
	NJ 206 EG15	62	16	–	37,5	39	37,5
	NU206E	62	16	–	37,5	39,1	37,4
	NU 206 EG15	62	16	–	37,5	39	37,5
	NUP 206 EG15	62	16	–	37,5	39	37,5
	NJ 2206 EG15	62	20	–	37,5	49	50
	NU 2206 EG15	62	20	–	37,5	49	50
	NUP 2206 EG15	62	20	–	37,5	49	50

Characteristics

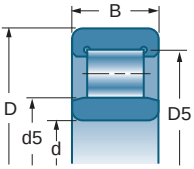
Single-row cylindrical roller bearings

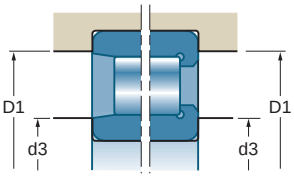


References	rpm*	rpm*	d3 max	D1 min	r1 max	r2 max	kg
			mm	mm	mm	mm	
NJ 202 EG15	17000	21000	17,4	30,8	0,6	0,3	0,049
NU 202 EG15	17000	21000	17,4	30,8	0,6	0,3	0,050
NJ 203 EG15	15000	18000	19,4	35,8	0,6	0,3	0,070
NU 203 EG15	15000	18000	19,4	35,8	0,6	0,3	0,069
NJ 2203 EG15	15000	18000	19,4	35,8	0,6	0,3	0,053
NU 2203 EG15	15000	18000	19,4	35,8	0,6	0,3	0,051
NJ 303 EG15	13000	15000	21,2	41,4	1	0,6	0,125
NU 303 EG15	13000	15000	21,2	41,4	1	0,6	0,122
N 204 EG15	12000	15000	24,2	41,4	1	0,6	0,110
NJ 204 EG15	12000	15000	24,2	41,4	1	0,6	0,117
NU 204 EG15	12000	15000	24,2	41,4	1	0,6	0,114
NUP 204 EG15	12000	15000	24,2	41,4	1	0,6	0,119
NJ 2204 EG15	12000	15000	24,2	41,4	1	0,6	0,150
NU 2204 EG15	12000	15000	24,2	41,4	1	0,6	0,146
N 304 EG15	11000	13000	24,2	46,4	1,1	0,6	0,151
NJ 304 EG15	11000	13000	24,2	46,4	1,1	0,6	0,156
NU 304 EG15	11000	13000	24,2	46,4	1,1	0,6	0,140
NJ 2304 EG15	10000	13000	24,2	46,4	1,1	0,6	0,220
NU 2304 EG15	10000	13000	24,2	46,4	1,1	0,6	0,215
N 205 EG15	11000	13000	29,2	46,4	1	0,6	0,135
NJ205E	12600	15000	29,2	46,4	1	0,6	0,147
NJ 205 EG15	11000	13000	29,2	46,4	1	0,6	0,140
NU 205 EG15	11000	13000	29,2	46,4	1	0,6	0,137
NUP 205 EG15	11000	13000	29,2	46,4	1	0,6	0,145
NJ 2205 EG15	11000	13000	29,2	46,4	1	0,6	0,164
NU 2205 EG15	11000	13000	29,2	46,4	1	0,6	0,164
NUP 2205 EG15	11000	13000	29,2	46,4	1	0,6	0,174
N 305 EG15	9500	11000	32	55	1,1	1,1	0,242
NJ 305 EG15	9500	11000	32	55	1,1	1,1	0,250
NU 305 EG15	9500	11000	32	55	1,1	1,1	0,245
NUP 305 EG15	9500	11000	32	55	1,1	1,1	0,256
NJ2305E	11000	13000	32	55	1,1	1,1	0,367
NJ 2305 EG15	9000	11000	32	55	1,1	1,1	0,347
NU 2305 EG15	9000	11000	32	55	1,1	1,1	0,349
N 206 EG15	9400	11000	34,2	56,4	1	0,6	0,210
NJ206E	10600	12600	34,2	56,4	1	0,6	0,221
NJ 206 EG15	9400	11000	34,2	56,4	1	0,6	0,213
NU206E	10600	12600	34,2	56,4	1	0,6	0,216
NU 206 EG15	9400	11000	34,2	56,4	1	0,6	0,213
NUP 206 EG15	9400	11000	34,2	56,4	1	0,6	0,220
NJ 2206 EG15	9400	11000	34,2	56,4	1	0,6	0,261
NU 2206 EG15	9400	11000	34,2	56,4	1	0,6	0,255
NUP 2206 EG15	9400	11000	34,2	56,4	1	0,6	0,268

* These are the speed limits according to the SNR concept (see pages 85 to 87).

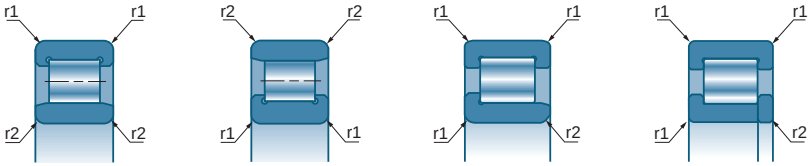
Cylindrical roller bearings *(continued)*





d		D	B	D5 (Ø above the rollers)	d5 (Ø below the rollers)	C	C_0
mm	References	mm	mm	mm	mm	10^3N	10^3N
30	N 306 EG15	72	19	62,5	–	61	48
	NJ306E	72	19	–	40,5	50,9	47,5
	NJ 306 EG15	72	19	–	40,5	51	48
	NU306E	72	19	–	40,5	50,9	47,5
	NU 306 EG15	72	19	–	40,5	51	48
	NUP 306 EG15	72	19	–	40,5	51	48
	NJ2306E	72	27	–	40,5	72,5	74,9
	NJ 2306 EG15	72	27	–	40,5	73,5	75
	NU 2306 EG15	72	27	–	40,5	73,5	75
35	N 207 EG15	72	17	64	–	58	48,5
	NJ207E	72	17	–	44	50,3	50,2
	NJ 207 EG15	72	17	–	44	50	50
	NU207E	72	17	–	44	50,3	50,2
	NU 207 EG15	72	17	–	44	50	50
	NUP207E	72	17	–	44	50,3	50,2
	NUP 207 EG15	72	17	–	44	50	50
	NJ 2207 EG15	72	23	–	44	62	65,5
	NU2207E	72	23	–	44	61,6	65,3
	NU 2207 EG15	72	23	–	44	62	65,5
	NUP 2207 EG15	72	23	–	44	62	65,5
	N 307 EG15	80	21	70,2	–	76	63
	NJ 307 EG15	80	21	–	46,2	64	63
	NU 307 EG15	80	21	–	46,2	64	63
	NUP 307 EG15	80	21	–	46,2	64	63
	NJ 2307 EG15	80	31	–	46,2	91,5	98
	NU 2307 EG15	80	31	–	46,2	91,5	98
	NJ 407	100	25	–	53	79	71
	NU 407	100	25	–	53	79	71
40	N 208 EG15	80	18	71,5	–	53	53
	NJ208E	80	18	–	49,5	53,1	52,1
	NJ 208 EG15	80	18	–	49,5	53	53
	NU208E	80	18	–	49,5	53,1	52,1
	NU 208 EG15	80	18	–	49,5	53	53
	NUP208E	80	18	–	49,5	53,1	52,1
	NUP 208 EG15	80	18	–	49,5	53	53
	NJ2208E	80	23	–	49,5	69,9	74,3
	NJ 2208 EG15	80	23	–	49,5	71	75
	NU2208E	80	23	–	49,5	69,9	74,3
	NU 2208 EG15	80	23	–	49,5	71	75
	NUP 2208 EG15	80	23	–	49,5	71	75
	N 308 EG15	90	23	80	–	95	78
	NJ308E	90	23	–	52	80,4	78
	NJ 308 EG15	90	23	–	52	81,5	78
	NU308E	90	23	–	52	80,4	78
	NU 308 EG15	90	23	–	52	81,5	78

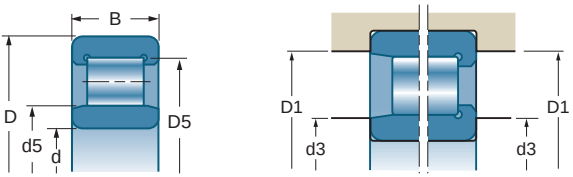
Single-row cylindrical roller bearings *(continued)*



References	rpm*	rpm*	d3 max	D1 min	r1 max	r2 max	kg
			mm	mm	mm	mm	
N 306 EG15	8100	9700	37	65	1,1	1,1	0,366
NJ306E	8400	10000	37	65	1,1	1,1	0,375
NJ 306 EG15	8100	9700	37	65	1,1	1,1	0,376
NU306E	8400	10000	37	65	1,1	1,1	0,375
NU 306 EG15	8100	9700	37	65	1,1	1,1	0,368
NUP 306 EG15	8100	9700	37	65	1,1	1,1	0,385
NJ2306E	9500	11500	37	65	1,1	1,1	0,558
NJ 2306 EG15	7700	9700	37	65	1,1	1,1	0,540
NU 2306 EG15	7700	9700	37	65	1,1	1,1	0,529
N 207 EG15	8100	9800	39,2	65	1,1	0,6	0,300
NJ207E	8900	10600	39,2	65	1,1	0,6	0,319
NJ 207 EG15	8100	9800	39,2	65	1,1	0,6	0,309
NU207E	8900	10600	39,2	65	1,1	0,6	0,312
NU 207 EG15	8100	9800	39,2	65	1,1	0,6	0,303
NUP207E	8900	10600	39,2	65	1,1	0,6	0,337
NUP 207 EG15	8100	9800	39,2	65	1,1	0,6	0,317
NJ 2207 EG15	8100	9800	39,2	65	1,1	0,6	0,416
NU2207E	8900	10600	39,2	65	1,1	0,6	0,410
NU 2207 EG15	8100	9800	39,2	65	1,1	0,6	0,406
NUP 2207 EG15	8100	9800	39,2	65	1,1	0,6	0,427
N 307 EG15	7200	8500	42	71	1,5	1,1	0,486
NJ 307 EG15	7200	8500	42	71	1,5	1,1	0,496
NU 307 EG15	7200	8500	42	71	1,5	1,1	0,485
NUP 307 EG15	7200	8500	42	71	1,5	1,1	0,506
NJ 2307 EG15	6800	8500	42	71	1,5	1,1	0,736
NU 2307 EG15	6800	8500	42	71	1,5	1,1	0,723
NJ 407	6300	7600	46	89	1,5	1,5	1,030
NU 407	6300	7600	46	89	1,5	1,5	1,030
N 208 EG15	7200	8700	47	73	1,1	1,1	0,360
NJ208E	7900	9400	47	73	1,1	1,1	0,402
NJ 208 EG15	7200	8700	47	73	1,1	1,1	0,389
NU208E	7900	9400	47	73	1,1	1,1	0,394
NU 208 EG15	7200	8700	47	73	1,1	1,1	0,379
NUP208E	7900	9400	47	73	1,1	1,1	0,388
NUP 208 EG15	7200	8700	47	73	1,1	1,1	0,399
NJ2208E	7500	8900	47	73	1,1	1,1	0,515
NJ 2208 EG15	7200	8700	47	73	1,1	1,1	0,504
NU2208E	7500	8900	47	73	1,1	1,1	0,504
NU 2208 EG15	7200	8700	47	73	1,1	1,1	0,492
NUP 2208 EG15	7200	8700	47	73	1,1	1,1	0,518
N 308 EG15	6300	7500	49	81	1,5	1,5	0,660
NJ308E	6700	7900	49	81	1,5	1,5	0,690
NJ 308 EG15	6300	7500	49	81	1,5	1,5	0,674
NU308E	6700	7900	49	81	1,5	1,5	0,690
NU 308 EG15	6300	7500	49	81	1,5	1,5	0,659

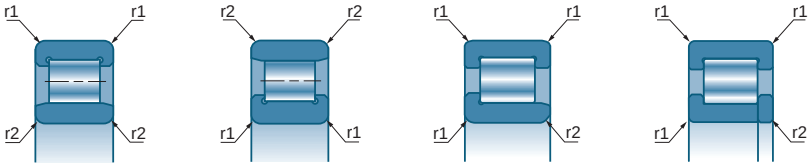
* These are the speed limits according to the SNR concept (see pages 85 to 87).

Cylindrical roller bearings *(continued)*



d		D	B	D5 (Ø above the rollers)	d5 (Ø below the rollers)	C	C_0
mm	References	mm	mm	mm	mm	10^3N	10^3N
40	NUP 308 EG15	90	23	–	52	81,5	78
	NJ 2308 EG15	90	33	–	52	112	120
	NU 2308 EG15	90	33	–	52	112	120
	NJ 408	110	27	–	58	93	86,5
	NU 408	110	27	–	58	93	86,5
45	N 209 EG15	85	19	76,5	–	61	63
	NJ209E	85	19	–	54,5	60,4	62,8
	NJ 209 EG15	85	19	–	54,5	61	63
	NU209E	85	19	–	54,5	60,4	62,8
	NU 209 EG15	85	19	–	54,5	61	63
	NUP209E	85	19	–	54,5	60,4	62,8
	NUP 209 EG15	85	19	–	54,5	61	63
	NJ 2209 EG15	85	23	–	54,5	73,5	81,5
	NU2209E	85	23	–	54,5	73,5	80,9
	NU 2209 EG15	85	23	–	54,5	73,5	81,5
	NUP 2209 EG15	85	23	–	54,5	73,5	81,5
	N 309 EG15	100	25	88,5	–	115	98
	NJ309E	100	25	–	58,5	97,4	98,3
	NJ 309 EG15	100	25	–	58,5	98	100
	NU309E	100	25	–	58,5	97,4	98,3
	NU 309 EG15	100	25	–	58,5	98	100
	NUP 309 EG15	100	25	–	58,5	98	100
	NJ 2309 EG15	100	36	–	58,5	137	153
	NU2309E	100	36	–	58,5	137,3	153
	NU 2309 EG15	100	36	–	58,5	137	153
	NJ 409	120	29	–	64,5	106	100
	NU 409	120	29	–	64,5	106	100
50	N 210 EG15	90	20	81,5	–	64	68
	NJ210E	90	20	–	59,5	63,2	68
	NJ 210 EG15	90	20	–	59,5	64	68
	NU210E	90	20	–	59,5	63,2	68
	NU 210 EG15	90	20	–	59,5	64	68
	NUP210E	90	20	–	59,5	63,2	68
	NUP 210 EG15	90	20	–	59,5	64	68
	NJ 2210 EG15	90	23	–	59,5	78	88
	NU2210E	90	23	–	59,5	76,9	87,6
	NU 2210 EG15	90	23	–	59,5	78	88
	NUP 2210 EG15	90	23	–	59,5	78	88
	N 310 EG15	110	27	97	–	130	113
	NJ 310 EG15	110	27	–	65	110	114
	NU 310 EG15	110	27	–	65	110	114
	NUP 310 EG15	110	27	–	65	110	114
	NJ 2310 EG15	110	40	–	65	163	186
	NU 2310 EG15	110	40	–	65	163	186
	NJ 410	130	31	–	70,8	136	128
	NU 410	130	31	–	70,8	129	125

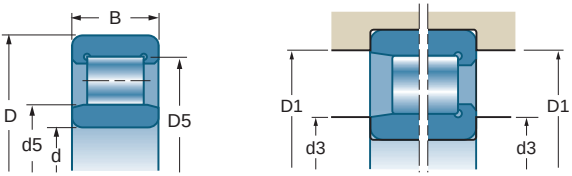
Single-row cylindrical roller bearings *(continued)*



References	rpm*	rpm*	d3 max	D1 min	r1 max	r2 max	kg
NUP 308 EG15	6300	7500	49	81	1,5	1,5	0,688
NJ 2308 EG15	6000	7500	49	81	1,5	1,5	0,978
NU 2308 EG15	6000	7500	49	81	1,5	1,5	0,958
NJ 408	5700	6900	53	97	2	2	1,310
NU 408	5700	6900	53	97	2	2	1,300
N 209 EG15	6700	8000	52	78	1,1	1,1	0,430
NJ209E	7500	8900	52	78	1,1	1,1	0,455
NJ 209 EG15	6700	8000	52	78	1,1	1,1	0,445
NU209E	7500	8900	52	78	1,1	1,1	0,444
NU 209 EG15	6700	8000	52	78	1,1	1,1	0,445
NUP209E	7500	8900	52	78	1,1	1,1	0,478
NUP 209 EG15	6700	8000	52	78	1,1	1,1	0,457
NJ 2209 EG15	6700	8000	52	78	1,1	1,1	0,530
NU2209E	7100	8400	52	78	1,1	1,1	0,543
NU 2209 EG15	6700	8000	52	78	1,1	1,1	0,532
NUP 2209 EG15	6700	8000	52	78	1,1	1,1	0,559
N 309 EG15	5700	6800	54	91	1,5	1,5	0,895
NJ309E	6000	7100	54	91	1,5	1,5	0,936
NJ 309 EG15	5700	6800	54	91	1,5	1,5	0,913
NU309E	6000	7100	54	91	1,5	1,5	0,915
NU 309 EG15	5700	6800	54	91	1,5	1,5	0,893
NUP 309 EG15	5700	6800	54	91	1,5	1,5	0,934
NJ 2309 EG15	5400	6800	54	91	1,5	1,5	1,330
NU2309E	5600	6700	54	91	1,5	1,5	1,330
NU 2309 EG15	5400	6800	54	91	1,5	1,5	1,290
NJ 409	5200	6300	58	107	2	2	1,650
NU 409	5200	6300	58	107	2	2	1,650
N 210 EG15	6200	7500	57	83	1,1	1,1	0,490
NJ210E	6700	7900	57	83	1,1	1,1	0,510
NJ 210 EG15	6200	7500	57	83	1,1	1,1	0,503
NU210E	6700	7900	57	83	1,1	1,1	0,503
NU 210 EG15	6200	7500	57	83	1,1	1,1	0,490
NUP210E	6700	7900	57	83	1,1	1,1	0,532
NUP 210 EG15	6200	7500	57	83	1,1	1,1	0,517
NJ 2210 EG15	6200	7500	57	83	1,1	1,1	0,586
NU2210E	6300	7500	57	83	1,1	1,1	0,581
NU 2210 EG15	6200	7500	57	83	1,1	1,1	0,575
NUP 2210 EG15	6200	7500	57	83	1,1	1,1	0,600
N 310 EG15	5100	6100	61	99	2	2	1,160
NJ 310 EG15	5100	6100	61	99	2	2	1,190
NU 310 EG15	5100	6100	61	99	2	2	1,160
NUP 310 EG15	5100	6100	61	99	2	2	1,210
NJ 2310 EG15	4900	6100	61	99	2	2	1,770
NU 2310 EG15	4900	6100	61	99	2	2	1,750
NJ 410	4700	5700	64	116	2,1	2,1	2,080
NU 410	4700	5700	64	116	2,1	2,1	2,000

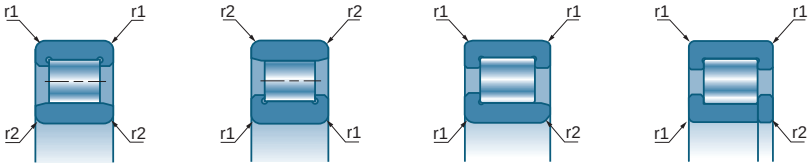
* These are the speed limits according to the SNR concept (see pages 85 to 87).

Cylindrical roller bearings *(continued)*



d		D	B	D5 (Ø above the rollers)	d5 (Ø below the rollers)	C	C_0
mm	References	mm	mm	mm	mm	10^3N	10^3N
55	N 211 EG15	100	21	90	–	83	95
	NJ211E	100	21	–	66	83,1	94,2
	NJ 211 EG15	100	21	–	66	83	95
	NU211E	100	21	–	66	83,1	94,2
	NU 211 EG15	100	21	–	66	83	95
	NUP211E	100	21	–	66	83,1	94,2
	NUP 211 EG15	100	21	–	66	83	95
	NJ 2211 EG15	100	25	–	66	98	118
	NU 2211 EG15	100	25	–	66	98	118
	NUP 2211 EG15	100	25	–	66	98	118
	N 311 EG15	120	29	106,5	–	159	139
	NJ 311 EG15	120	29	–	70,5	134	140
	NU 311 EG15	120	29	–	70,5	134	140
	NUP 311 EG15	120	29	–	70,5	134	140
	NJ 2311 EG15	120	43	–	70,5	200	228
	NU 2311 EG15	120	43	–	70,5	200	228
60	N 212 EG15	110	22	100	–	95	104
	NJ 212 EG15	110	22	–	72	95	104
	NU 212 EG15	110	22	–	72	95	104
	NUP 212 EG15	110	22	–	72	95	104
	NJ 2212 EG15	110	28	–	72	129	153
	NU 2212 EG15	110	28	–	72	129	153
	NUP 2212 EG15	110	28	–	72	129	153
	N 312 EG15	130	31	115		177	157
	NJ 312 EG15	130	31	–	77	150	156
	NU 312 EG15	130	31	–	77	150	156
	NUP 312 EG15	130	31	–	77	150	156
	NJ 2312 EG15	130	46	–	77	224	260
	NU 2312 EG15	130	46	–	77	224	260
	NU 412	150	35	–	83	181	187
65	N 213 EG15	120	23	108,5	–	127	119
	NJ 213 EG15	120	23	–	78,5	108	120
	NU 213 EG15	120	23	–	78,5	108	120
	NUP 213 EG15	120	23	–	78,5	108	120
	NJ 2213 EG15	120	31	–	78,5	150	183
	NU 2213 EG15	120	31	–	78,5	150	183
	N 313 EG15	140	33	124,5		214	191
	NJ 313 EG15	140	33	–	82,5	180	190
	NU 313 EG15	140	33	–	82,5	180	190
	NJ 2313 EG15	140	48	–	82,5	245	285
	NU 2313 EG15	140	48	–	82,5	245	285
70	N 214 EG15	125	24	113,5	–	140	137
	NJ 214 EG15	125	24		83,5	120	137

Single-row cylindrical roller bearings *(continued)*

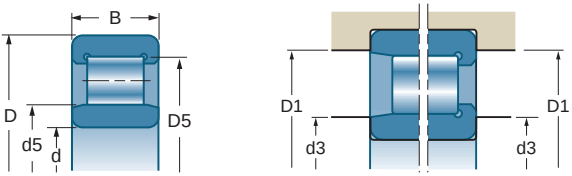


NU **N** **NJ** **NUP**

References	rpm*	rpm*	d3 max	D1 min	r1 max	r2 max	kg
			mm	mm	mm	mm	
N 211 EG15	5600	6700	62	91	1,5	1,1	0,670
NJ211E	6300	7500	62	91	1,5	1,1	0,688
NJ 211 EG15	5600	6700	62	91	1,5	1,1	0,679
NU211E	6300	7500	62	91	1,5	1,1	0,674
NU 211 EG15	5600	6700	62	91	1,5	1,1	0,665
NUP211E	6300	7500	62	91	1,5	1,1	0,702
NUP 211 EG15	5600	6700	62	91	1,5	1,1	0,693
NJ 2211 EG15	5600	6700	62	91	1,5	1,1	0,780
NU 2211 EG15	5600	6700	62	91	1,5	1,1	0,800
NUP 2211 EG15	5600	6700	62	91	1,5	1,1	0,828
N 311 EG15	4700	5600	66	109	2	2	1,410
NJ 311 EG15	4700	5600	66	109	2	2	1,510
NU 311 EG15	4700	5600	66	109	2	2	1,480
NUP 311 EG15	4700	5600	66	109	2	2	1,540
NJ 2311 EG15	4500	5600	66	109	2	2	2,270
NU 2311 EG15	4500	5600	66	109	2	2	2,230
N 212 EG15	5100	6100	69	101	1,5	1,5	0,830
NJ 212 EG15	5100	6100	69	101	1,5	1,5	0,845
NU 212 EG15	5100	6100	69	101	1,5	1,5	0,824
NUP 212 EG15	5100	6100	69	101	1,5	1,5	0,909
NJ 2212 EG15	5100	6100	69	101	1,5	1,5	1,100
NU 2212 EG15	5100	6100	69	101	1,5	1,5	1,080
NUP 2212 EG15	5100	6100	69	101	1,5	1,5	1,120
N 312 EG15	4300	5200	72	118	2,1	2,1	1,850
NJ 312 EG15	4300	5200	72	118	2,1	2,1	1,890
NU 312 EG15	4300	5200	72	118	2,1	2,1	1,850
NUP 312 EG15	4300	5200	72	118	2,1	2,1	1,930
NJ 2312 EG15	4100	5200	72	118	2,1	2,1	2,830
NU 2312 EG15	4100	5200	72	118	2,1	2,1	2,780
NU 412	4000	4900	74	136	2,1	2,1	3,000
N 213 EG15	4700	5600	74	111	1,5	1,5	1,050
NJ 213 EG15	4700	5600	74	111	1,5	1,5	1,050
NU 213 EG15	4700	5600	74	111	1,5	1,5	1,040
NUP 213 EG15	4700	5600	74	111	1,5	1,5	1,090
NJ 2213 EG15	4700	5600	74	111	1,5	1,5	1,460
NU 2213 EG15	4700	5600	74	111	1,5	1,5	1,430
N 313 EG15	4000	4800	77	128	2,1	2,1	2,240
NJ 313 EG15	4000	4800	77	128	2,1	2,1	2,320
NU 313 EG15	4000	4800	77	128	2,1	2,1	2,280
NJ 2313 EG15	3800	4800	77	128	2,1	2,1	3,380
NU 2313 EG15	3800	4800	77	128	2,1	2,1	3,320
N 214 EG15	4400	5300	79	116	1,5	1,5	1,159
NJ 214 EG15	4400	5300	79	116	1,5	1,5	1,180

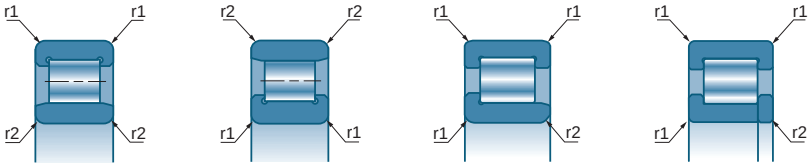
* These are the speed limits according to the SNR concept (see pages 85 to 87).

Cylindrical roller bearings *(continued)*



d		D	B	D5 (Ø above the rollers)	d5 (Ø below the rollers)	C	C_0
mm	References	mm	mm	mm	mm	10^3N	10^3N
70	NU 214 EG15	125	24	–	83,5	120	137
	NUP 214 EG15	125	24	–	83,5	120	137
	NJ 2214 EG15	125	31	–	83,5	156	196
	NU 2214 EG15	125	31	–	83,5	156	196
	N 314 EG15	150	35	133	–	242	222
	NJ 314 EG15	150	35	–	89	204	220
	NU 314 EG15	150	35	–	89	204	220
	NJ 2314 EG15	150	51	–	89	275	325
	NU 2314 EG15	150	51	–	89	275	325
	NJ 414M	180	42	–	100	246	260
75	N 215 EG15	130	25	118,5	–	132	156
	NJ 215 EG15	130	25	–	88,5	132	156
	NU215E	130	25	–	88,5	130	156,4
	NU 215 EG15	130	25	–	88,5	132	156
	NUP 215 EG15	130	25	–	88,5	132	156
	NJ 2215 EG15	130	31	–	88,5	163	208
	NU 2215 EG15	130	31	–	88,5	163	208
	N 315 EG15	160	37	143	–	285	265
	NJ 315 EG15	160	37	–	95	240	265
	NU 315 EG15	160	37	–	95	240	265
	NJ 2315 EG15	160	55	–	95	325	390
	NU 2315 EG15	160	55	–	95	325	390
80	N 216 EG15	140	26	127,3	–	165	167
	NJ 216 EG15	140	26	–	95,3	140	170
	NU 216 EG15	140	26	–	95,3	140	170
	NJ 2216 EG15	140	33	–	95,3	186	245
	NU 2216 EG15	140	33	–	95,3	186	245
	N 316 EG15	170	39	151	–	300	275
	NJ 316 EG15	170	39	–	101	300	275
	NU 316 EG15	170	39	–	101	255	275
	NUP 316 EG15	170	39	–	101	255	275
	NU 2316 EG15	170	58	–	101	420	425
85	N 217 EG15	150	28	136,5	–	194	194
	NJ 217 EG15	150	28	–	100,5	163	193
	NU 217 EG15	150	28	–	100,5	163	193
	NJ 2217 EG15	150	36	–	100,5	216	275
	NU 2217 EG15	150	36	–	100,5	216	275
	N 317 EM	180	41	160	–	340	325
	NJ 317 EG15	180	41	–	108	320	300
	NU 317 EG15	180	41	–	108	270	300
	NUP 317 EG15	180	41	–	108	270	300
	NU 2317 EG15	180	60	–	108	435	445

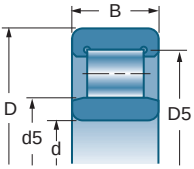
Single-row cylindrical roller bearings *(continued)*

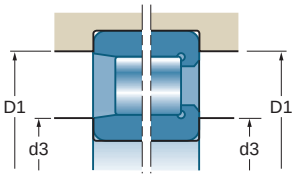


References	rpm*	rpm*	d3 max	D1 min	r1 max	r2 max	kg
			mm	mm	mm	mm	
NU 214 EG15	4400	5300	79	116	1,5	1,5	1,150
NUP 214 EG15	4400	5300	79	116	1,5	1,5	1,200
NJ 2214 EG15	4400	5300	79	116	1,5	1,5	1,520
NU 2214 EG15	4400	5300	79	116	1,5	1,5	1,520
N 314 EG15	3700	4500	82	138	2,1	2,1	2,800
NJ 314 EG15	3700	4500	82	138	2,1	2,1	2,840
NU 314 EG15	3700	4500	82	138	2,1	2,1	2,790
NJ 2314 EG15	3600	4500	82	138	2,1	2,1	4,090
NU 2314 EG15	3600	4500	82	138	2,1	2,1	4,020
NJ 414M	3400	4100	86	164	3	3	6,070
N 215 EG15	4200	5100	84	121	1,5	1,5	1,290
NJ 215 EG15	4200	5100	84	121	1,5	1,5	1,300
NU215E	4500	5300	84	121	1,5	1,5	1,300
NU 215 EG15	4200	5100	84	121	1,5	1,5	1,270
NUP 215 EG15	4200	5100	84	121	1,5	1,5	1,330
NJ 2215 EG15	4200	5100	84	121	1,5	1,5	1,640
NU 2215 EG15	4200	5100	84	121	1,5	1,5	1,610
N 315 EG15	3500	4200	87	148	2,1	2,1	3,300
NJ 315 EG15	3500	4200	87	148	2,1	2,1	3,390
NU 315 EG15	3500	4200	87	148	2,1	2,1	3,330
NJ 2315 EG15	3300	4200	87	148	2,1	2,1	5,040
NU 2315 EG15	3300	4200	87	148	2,1	2,1	4,950
N 216 EG15	3900	4700	91	129	2	2	1,540
NJ 216 EG15	3900	4700	91	129	2	2	1,580
NU 216 EG15	3900	4700	91	129	2	2	1,540
NJ 2216 EG15	3900	4700	91	129	2	2	2,050
NU 2216 EG15	3900	4700	91	129	2	2	2,020
N 316 EG15	3300	3900	92	158	2,1	2,1	3,930
NJ 316 EG15	3300	3900	92	158	2,1	2,1	4,040
NU 316 EG15	3300	3900	92	158	2,1	2,1	3,960
NUP 316 EG15	3300	3900	92	158	2,1	2,1	4,110
NU 2316 EG15	3100	3900	92	158	2,1	2,1	5,900
N 217 EG15	3700	4400	96	139	2	2	1,890
NJ 217 EG15	3700	4400	96	139	2	2	1,950
NU 217 EG15	3700	4400	96	139	2	2	1,910
NJ 2217 EG15	3700	4400	96	139	2	2	2,550
NU 2217 EG15	3700	4400	96	139	2	2	2,500
N 317 EM	3100	3700	99	166	3	3	5,330
NJ 317 EG15	3100	3700	99	166	3	3	4,712
NU 317 EG15	3100	3700	99	166	3	3	4,620
NUP 317 EG15	3100	3700	99	166	3	3	5,200
NU 2317 EG15	2900	3700	99	166	3	3	6,710

* These are the speed limits according to the SNR concept (see pages 85 to 87).

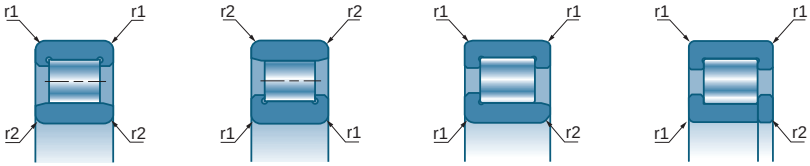
Cylindrical roller bearings *(continued)*





d		D	B	D5 (Ø above the rollers)	d5 (Ø below the rollers)	C	C_0
mm	References	mm	mm	mm	mm	10^3N	10^3N
90	N 218 EG15	160	30	145	–	215	217
	NJ 218 EG15	160	30	–	107	183	216
	NU 218 EG15	160	30	–	107	183	216
	NJ 2218 EG15	160	40	–	107	240	315
	NU 2218 EG15	160	40	–	107	240	315
	N 318 EM	190	43	169,5		370	350
	NJ 318 EG15	190	43	–	113,5	370	350
	NU 318 EG15	190	43	–	113,5	315	345
	NJ 2318 EM	190	64	–	113,5	510	530
	NU 2318 EG15	190	64	–	113,5	510	530
95	N 219 EG15	170	32	154,5	–	260	265
	NJ 219 EG15	170	32	–	112,5	260	265
	NU 219 EG15	170	32	–	112,5	260	265
	NJ 2219 EG15	170	43	–	112,5	340	370
	NU 2219 EG15	170	43	–	112,5	340	370
	N 319 EM	200	45	177,5	–	390	380
	NJ 319 EG15	200	45	–	121,5	390	380
	NU 319 EG15	200	45	–	121,5	390	380
	NU 2319 EG15	200	67	–	121,5	540	580
100	N 220 EG15	180	34	163	–	295	305
	NJ 220 EG15	180	34	–	119	295	305
	NU 220 EG15	180	34	–	119	295	305
	NJ 2220 EG15	180	46	–	119	395	445
	NU 2220 EG15	180	46	–	119	395	445
	N 320 EM	215	47	191,5	–	450	425
	NJ 320 EG15	215	47	–	127,5	450	425
	NU 320 EG15	215	47	–	127,5	450	425
	NJ 2320 EM	215	73	–	127,5	680	720
	NU 2320 EG15	215	73	–	127,5	680	720
105	NJ 221 EG15	190	36	–	125,5	310	320
	NU 221 EG15	190	36	–	125,5	310	320
	NU 221 EM	190	36	–	125,5	310	320
	NU 321 EM	225	49	–	133	435	495
110	N 222 EM	200	38	180,5	–	345	365
	NJ 222 EG15	200	38	–	132,5	345	365
	NU 222 EG15	200	38	–	132,5	345	365
	NU 2222 EG15	200	53	–	132,5	455	520
	N 322 EM	240	50	211	–	520	510
	NJ 322 EG15	240	50	–	143	495	475
	NU 322 EG15	240	50	–	143	495	475
	NJ 2322 EM	240	80	–	143	750	800
	NU 2322 EM	240	80	–	143	750	800

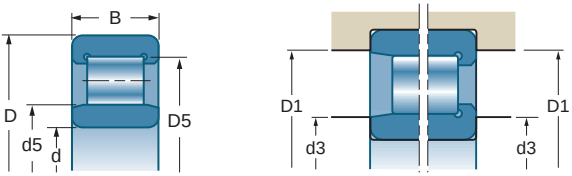
Single-row cylindrical roller bearings *(continued)*



References	rpm*	rpm*	d3 max mm	D1 min mm	r1 max mm	r2 max mm	kg
N 218 EG15	3400	4200	101	149	2	2	2,360
NJ 218 EG15	3400	4200	101	149	2	2	2,410
NU 218 EG15	3400	4200	101	149	2	2	2,360
NJ 2218 EG15	3400	4200	101	149	2	2	3,230
NU 2218 EG15	3400	4200	101	149	2	2	3,170
N 318 EM	2900	3500	104	176	3	3	6,210
NJ 318 EG15	2900	3500	104	176	3	3	5,500
NU 318 EG15	2900	3500	104	176	3	3	5,390
NJ 2318 EM	2800	3500	104	176	3	3	9,100
NU 2318 EG15	2800	3500	104	176	3	3	8,040
N 219 EG15	3200	3900	107	158	2,1	2,1	2,750
NJ 219 EG15	3200	3900	107	158	2,1	2,1	2,940
NU 219 EG15	3200	3900	107	158	2,1	2,1	2,880
NJ 2219 EG15	3200	3900	107	158	2,1	2,1	3,900
NU 2219 EG15	3200	3900	107	158	2,1	2,1	3,900
N 319 EM	2800	3300	109	186	3	3	7,200
NJ 319 EG15	2800	3300	109	186	3	3	6,440
NU 319 EG15	2800	3300	109	186	3	3	6,320
NU 2319 EG15	2600	3300	109	186	3	3	9,400
N 220 EG15	3100	3700	112	168	2,1	2,1	3,320
NJ 220 EG15	3100	3700	112	168	2,1	2,1	3,480
NU 220 EG15	3100	3700	112	168	2,1	2,1	3,550
NJ 2220 EG15	3100	3700	112	168	2,1	2,1	4,850
NU 2220 EG15	3100	3700	112	168	2,1	2,1	4,800
N 320 EM	2600	3100	114	201	3	3	8,800
NJ 320 EG15	2600	3100	114	201	3	3	7,760
NU 320 EG15	2600	3100	114	201	3	3	7,610
NJ 2320 EM	2500	3100	114	201	3	3	13,500
NU 2320 EG15	2500	3100	114	201	3	3	12,000
NJ 221 EG15	2900	3500	117	178	2,1	2,1	4,083
NU 221 EG15	2900	3500	117	178	2,1	2,1	4,100
NU 221 EM	2900	3500	117	178	2,1	2,1	4,620
NU 321 EM	2500	2900	119	211	3	3	9,950
N 222 EM	2800	3300	122	188	2,1	2,1	5,500
NJ 222 EG15	2800	3300	122	188	2,1	2,1	4,930
NU 222 EG15	2800	3300	122	188	2,1	2,1	4,840
NU 2222 EG15	2800	3300	125	188	2,1	2,1	6,800
N 322 EM	2300	2800	124	226	3	3	11,900
NJ 322 EG15	2300	2800	124	226	3	3	10,330
NU 322 EG15	2300	2800	124	226	3	3	10,500
NJ 2322 EM	2200	2800	124	226	3	3	18,600
NU 2322 EM	2200	2800	124	226	3	3	18,300

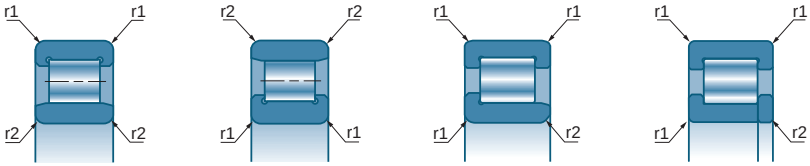
* These are the speed limits according to the SNR concept (see pages 85 to 87).

Cylindrical roller bearings *(continued)*



d		D	B	D5 (Ø above the rollers)	d5 (Ø below the rollers)	C	C_0
mm	References	mm	mm	mm	mm	10^3N	10^3N
120	NJ 224 EG15	215	40	–	143,5	390	415
	NU 224 EG15	215	40	–	143,5	390	415
	NU 2224 EG15	215	58	–	143,5	530	610
	N 324 EM	260	55	230	–	610	600
	NJ 324 EG15	260	55	–	154	610	600
	NU 324 EG15	260	55	–	154	610	600
	NJ 2324 EM	260	86	–	154	930	1010
	NU 2324 EM	260	86	–	154	930	1010
130	NJ 226 EG15	230	40	–	153,5	425	445
	NU 226 EG15	230	40	–	153,5	425	445
	NU 2226 EG15	230	64	–	153,5	620	730
	N 326 EM	280	58	247	–	720	720
	NJ 326 EG15	280	58	–	167	680	670
	NU 326 EG15	280	58	–	167	680	670
	NJ 2326 EM	280	93	–	167	1080	1220
	NU 2326 EM	280	93	–	167	1080	1220
140	N 228 EM	250	42	225	–	460	510
	NJ 228 EM	250	42	–	169	460	510
	NU 228 EM	250	42	–	169	460	510
	N 328 EM	300	62	264	–	790	800
	NU 328 EM	300	62	–	180	790	800
	NU 2328 EM	300	102	–	180	1210	1390
150	NJ 230 EM	270	45	–	182	520	590
	NU 230 EM	270	45	–	182	520	590
	N 330 EM	320	65	283	–	900	930
	NU 330 EM	320	65	–	193	900	930
	NU 2330 EM	320	108	–	193	1380	1600
160	NJ 232 EM	290	48	–	195	590	670
	NU 232 EM	290	48	–	195	590	670
	NU 2332 EM	340	114	–	204	1320	1830
170	NU 234 EM	310	52	–	207	700	780
	N 334 EM	360	72	318	–	965	1220
180	NU 236 EM	320	52	–	217	730	830
190	NU 238 EM	340	55	–	230	680	930
	N 338 EM	400	78	353		1150	1490
200	N 340 EM	420	80	370	–	1180	1530

Single-row cylindrical roller bearings *(continued)*



References	rpm*	rpm*	d3 max	D1 min	r1 max	r2 max	kg
NJ 224 EG15	2500	3100	132	203	2,1	2,1	5,890
NU 224 EG15	2500	3100	132	203	2,1	2,1	5,780
NU 2224 EG15	2500	3100	135	203	2,1	2,1	8,400
N 324 EM	2100	2600	134	246	3	3	15,110
NJ 324 EG15	2100	2600	134	246	3	3	13,540
NU 324 EG15	2100	2600	134	246	3	3	13,200
NJ 2324 EM	2000	2600	134	246	3	3	23,800
NU 2324 EM	2000	2600	134	246	3	3	23,200
NJ 226 EG15	2400	2900	144	216	3	3	6,600
NU 226 EG15	2400	2900	144	216	3	3	6,480
NU 2226 EG15	2400	2900	144	216	3	3	10,400
N 326 EM	2000	2400	147	263	4	4	18,440
NJ 326 EG15	2000	2400	147	263	4	4	16,700
NU 326 EG15	2000	2400	147	263	4	4	16,400
NJ 2326 EM	1900	2400	147	263	4	4	29,200
NU 2326 EM	1900	2400	147	263	4	4	28,800
N 228 EM	2200	2700	154	236	3	3	9,490
NJ 228 EM	2200	2700	154	236	3	3	9,650
NU 228 EM	2200	2700	154	236	3	3	9,500
N 328 EM	1800	2200	157	283	4	4	22,510
NU 328 EM	1800	2200	157	283	4	4	22,450
NU 2328 EM	1800	2200	157	283	4	4	36,000
NJ 230 EM	2000	2500	164	256	3	3	12,200
NU 230 EM	2000	2500	164	256	3	3	12,000
N 330 EM	1700	2100	167	303	4	4	26,800
NU 330 EM	1700	2100	167	303	4	4	27,400
NU 2330 EM	1600	2100	167	303	4	4	43,200
NJ 232 EM	1900	2300	174	276	3	3	15,100
NU 232 EM	1900	2300	174	276	3	3	14,900
NU 2332 EM	1500	1900	177	323	4	4	51,500
NU 234 EM	1800	2100	187	293	4	4	18,130
N 334 EM	1500	1800	187	343	4	4	37,900
NU 236 EM	1700	2000	197	303	4	4	18,910
NU 238 EM	1600	1900	207	323	4	4	23,100
N 338 EM	1400	1600	210	380	5	5	50,500
N 340 EM	1300	1500	220	400	5	5	57,000

* These are the speed limits according to the SNR concept (see pages 85 to 87).