

## SINGLE ROW FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS

### Design

Single row full complement cylindrical roller bearings suit locations with high radial load and lower revolution frequencies, comparing to roller bearings with cage. Full complement cylindrical roller bearings have the highest possible number of rollers, and are cageless; they are manufactured in two versions.

### NSF design

Inner bearing ring has guide flanges on both sides; the outer ring has one guide flange (fig.12.4.14). NSF design bearing is axially guiding in one direction; in one direction the bearing captures axial load whilst in other direction it allows axial displacement of shaft against the body. Outer ring is on the side without guide flange provided with snap ring that ensures components in assembled state. The NSF design complies with SKF bearings in NCF version, and with FAG bearings in SL1818, SL1829, SL1830 and SL1822 version.

### NJB design

Outer bearing ring has guide flanges on both sides; the inner ring has one guide flange (fig.12.4.15). NJB design bearing is axially guiding in one direction; in one direction the bearing captures axial load whilst in other direction it allows axial displacement of shaft against body. NJB bearing is a separable type bearing; when inner ring is dismantled, rollers are held together by outer ring which is given by optimum adjustment of the outer ring raceway diameter, diameter and number of rollers. NJB bearing is in the heavy dimension series 23. The NJB design complies with SKF bearings in NJG design, and with FAG bearings in SL1923 design.

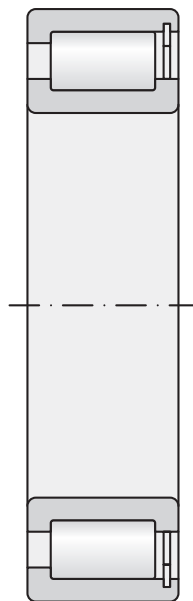


Fig. 12.4.14

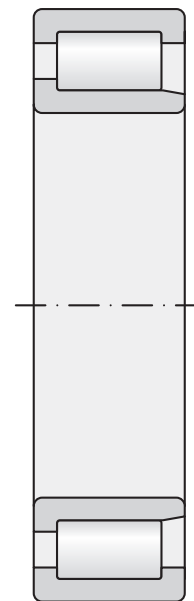


Fig. 12.4.15

## General information

### Main dimensions

The main dimensions of single row full complement cylindrical roller bearings stated in the dimension tables comply with international dimensional plan ISO 15.

### Tolerances

Single row full complement cylindrical roller bearings are usually made in normal accuracy level P0 which is not presented. The limit values of bearing dimension and run accuracy deviations comply with the standard ISO 492.

### Radial clearance

Single row full complement cylindrical roller are usually made with normal radial clearance that is not designated on the bearing. Bearings are made also with increased radial clearance C3; the availability must be consulted with the supplier. Values of radial clearances comply with the standard ISO 5753 and apply for bearings in non-assembled state [see Tab. 7.19].

### Misalignment

The same conditions as for usual single row roller bearings with cage apply to misalignment of single row full complement cylindrical roller bearings. (See the chapter Single row roller bearings.)

### Service temperatures

Rings of single row full complement cylindrical roller bearings are usually made with dimension stabilisation "S0"; service temperature of these bearings is therefore within 150 °C. Upon request, roller bearings with "S1" dimension stabilisation for operation at temperatures up to 200 °C can be supplied.

### Minimum load

Minimum radial load recommended for single row full complement cylindrical roller bearings is such that equals to 4% of the basic dynamic load bearing capacity of the bearing.

### Axial dynamic load rating

Single row full complement cylindrical roller bearings can besides radial load transfer also single direction axial load. In usual service conditions when the temperature difference between the bearing and ambient area does not exceed 60 °C at specific heat passage of 0.5 mWmm<sup>-2</sup>°C<sup>-1</sup>, at minimum value of viscosity rate 2, the maximum admissible axial load can be calculated with sufficient accuracy from the below equation:

### for lubrication with oil

$$F_{a \max} = \frac{C_{or} \cdot 10^4}{n (d + D)} - 0.3 F_r \quad [\text{kN}]$$



for lubrication with grease

$$F_{a \max} = \frac{0.5 C_{or} \cdot 10^4}{n (d + D)} - 0.15 F_r \quad [\text{kN}]$$

$F_{a \max}$  . . . . . maximum admissible axial load [kN]

$C_{or}$  . . . . . basic radial static load rating [kN]

$F_r$  . . . . . radial load of bearings [kN]

$n$  . . . . . rotational frequency [ $\text{min}^{-1}$ ]

$d$  . . . . . bearing bore diameter [mm]

$D$  . . . . . outer diameter of bearing [mm]

The  $F_{a \max}$  values calculated according to the above stated equations apply on condition of acting of constant axial force. In case of interrupted load or impact load the admissible axial load can grow by two or three times towards the calculated value. At acting axial load roller bearings operate reliably only if the bearings are loaded radially at the same time. The relation  $F_a/F_r \leq 0.5$  has to be maintained.

### Equivalent dynamic load of bearing

Axially guiding bearings are capable of transferring both radial and axial load; the following applies to these bearings:

$$P = F_r \quad \text{for } F_a/F_r \leq e$$

$$P = 0.92 F_r + Y F_a \quad \text{for } F_a/F_r > e$$

where the arithmetic coefficient  $e$  . . . . . = 0.2 for bearings of series 18  
 . . . . . = 0.3 for bearings of other series 22, 23, 28, 29 and 30  
 and axial load coefficient  $Y$  . . . . . = 0.6 for bearings of series 18  
 . . . . . = 0.4 for bearings of other series 22, 23, 28, 29 and 30

### Equivalent static load of bearing

$$P_0 = F_r$$

### Additional designations

- CV . . . . . modified internal designation, full complement
- V . . . . . full complement (without cage)
- VH . . . . . full complement, rolling elements form non-separable unit with at least one ring

## DOUBLE ROW FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS

### Design

Double row full complement cylindrical roller bearings transfer big radial loads but at lower rpm than usual bearings with cage. These bearings have as many rolling elements as possible, and are in cageless version. ZKL manufacture these bearings in three versions that are non-separable and uncovered.

### NNSL design

Inner bearing ring has three guide flanges; outer bearing ring does not have any flange; outer ring is provided with snap ring located between the rollers which secures components in assembled state (fig. 12.4.16). NNSL bearing version is axially free; it allows axial displacement of shaft against body. The NNSL design complies with SKF bearings in NNCL version, and with FAG bearings in SL0248 and SL0249 version.

### NNSF design

Inner bearing ring has three guide flanges; outer bearing ring has one guide flange and snap ring on the other side which secures components in assembled state (fig. 12.4.17). NNSF bearing is axially guiding in one direction; it can capture axial load on the guide flange side. The NNSF design complies with SKF bearings in NNCF version, and with FAG bearings in SL1850 version.

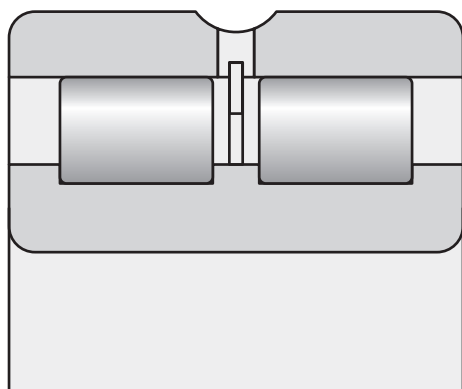


Fig. 12.4.16

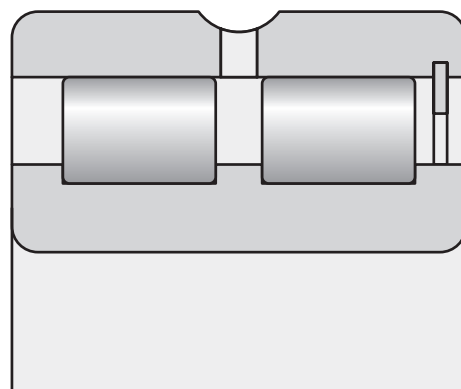


Fig. 12.4.17







## Lubrication groove and bores on outer ring

All sizes of double row full complement cylindrical roller bearings are manufactured with a slot and lubrication bores on outer ring (W33). This design allows supply of lubricant directly in the bearing between two rows of rollers which will ensure better lubrication of bearings and higher service reliability.

## Minimum load

Minimum radial load recommended for double row full complement cylindrical roller bearings is such that equals to 4% of the basic dynamic load bearing capacity of the bearing.

## Axial dynamic load capacity

Double row full complement cylindrical roller bearings can besides radial load transfer also axial load in one direction. In usual service conditions when the temperature difference between the bearing and ambient area does not exceed 60 °C at specific heat passage of 0.5 mWmm<sup>-2</sup>°C<sup>-1</sup>, at minimum value of viscosity rate 2, the maximum admissible axial load can be calculated with sufficient accuracy from the below equation:

for lubrication with oil

$$F_{a \max} = \frac{0.35 C_{or} \cdot 10^4}{n (d + D)} - 0.1 F_r \quad [\text{kN}]$$

for lubrication with grease

$$F_{a \max} = \frac{0.2 C_{or} \cdot 10^4}{n (d + D)} - 0.06 F_r \quad [\text{kN}]$$

$F_{a \max}$  . . . . . maximum admissible axial load [kN]

$C_{or}$  . . . . . basic radial static load rating [kN]

$F_r$  . . . . . radial load of bearings [kN]

$n$  . . . . . rotational frequency [min<sup>-1</sup>]

$d$  . . . . . bearing bore diameter [mm]

$D$  . . . . . outer diameter of bearing [mm]

The  $F_{a \max}$  values calculated according to the above stated equations apply on condition of acting of constant axial force. In case of interrupted load or impact load the admissible axial load can grow by two or three times towards the calculated value.

At acting axial load cylindrical roller bearings operate reliably only if the bearings are loaded radially at the same time. The relation  $F_a/F_r \leq 0.25$  has to be maintained.

### Equivalent dynamic load of bearing

Axially free NNSL type bearings are capable of transferring radial load only; the following applies to these bearings:

$$P = F_r$$

Axially guiding bearings in NNCF and NNC version are capable of transferring both radial and axial load; the following applies to these bearings:

$$P = F_r$$

$$\text{for } F_a/F_r \leq e$$

$$P = 0.92 F_r + Y F_a$$

$$\text{for } F_a/F_r > e$$

where the arithmetic coefficient  $e = 0.15$  for double row full complement bearing

and axial load coefficient  $Y = 0.4$  for double row full complement bearing

### Equivalent static load of bearing

$$P_0 = F_r$$

### Additional designations

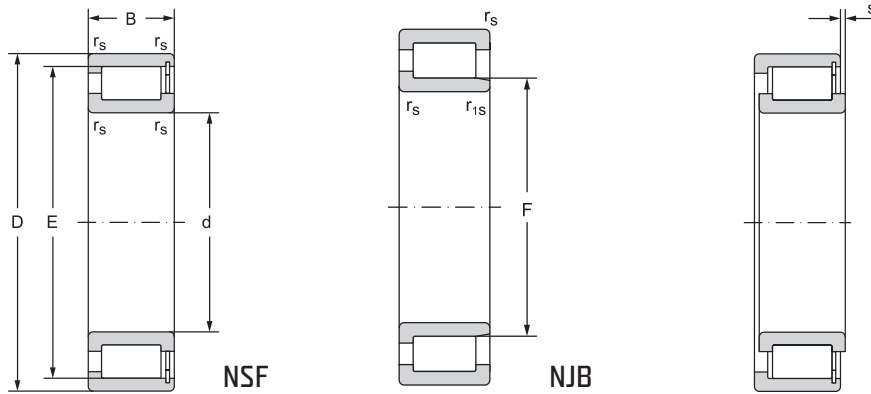
**CV** . . . . .modified internal design, full complement

**V** . . . . .full complement (without cage)





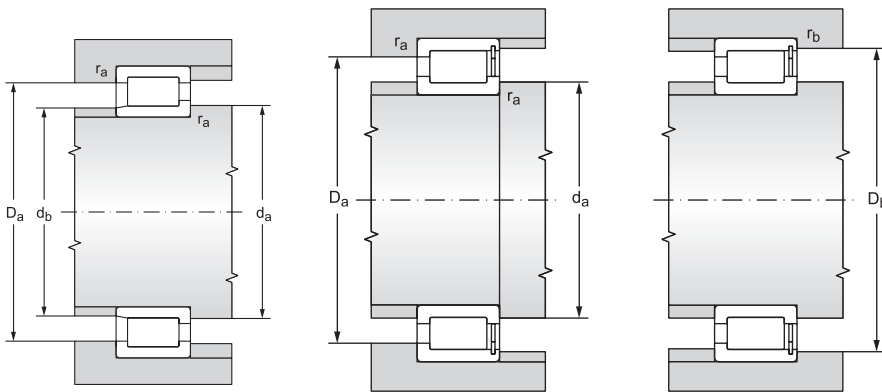
## Single row full complement cylindrical roller bearings d = 20 to 1000 mm



12.4.3

Main dimensions								Bearing designation	Basic load rating	
d	D	B	r <sub>s</sub>	r <sub>1s</sub>	F	E	s <sup>1)</sup>		dynamic C <sub>r</sub>	static C <sub>or</sub>
			min	min						
mm								kN		
20	42	16,00	0,6	0,6		36,80	1,5	<b>NSF3004CV</b>	26,0	28,0
25	47	16,00	0,6	0,6		42,50	1,5	<b>NSF3005CV</b>	30,0	34,0
	62	24,00	1,1		31,74		1,7	<b>NJB2305VH</b>	64,0	65,0
30	55	19,00	1,0	1,0		49,60	2,0	<b>NSF3006CV</b>	37,0	41,0
	72	27,00	1,1		38,36		1,8	<b>NJB2306VH</b>	80,0	82,0
35	62	20,00	1,0	1,0		55,50	2,0	<b>NSF3007CV</b>	46,0	53,0
	80	31,00	1,5		44,75		2,0	<b>NJB2307VH</b>	103,0	108,0
40	68	21,00	1,0	1,0		61,70	2,0	<b>NSF3008CV</b>	53,0	65,0
	90	33,00	1,5		51,15		2,4	<b>NJB2308VH</b>	138,0	149,0
45	75	23,00	1,0	1,0		66,90	2,0	<b>NSF3009CV</b>	55,0	71,0
	100	36,00	1,5		56,14		2,4	<b>NJB2309VH</b>	167,0	188,0
50	80	23,00	1,0	1,0		72,30	2,0	<b>NSF3010CV</b>	70,0	93,0
55	90	26,00	1,1	1,1		83,50	2,0	<b>NSF3011CV</b>	100,0	136,0
	120	43,00	2,0		67,14		2,6	<b>NJB2311VH</b>	225,0	250,0
60	85	16,00	1,0	1,0		78,65	1,0	<b>NSF2912CV</b>	51,0	75,0
	95	26,00	1,1	1,1		86,70	1,6	<b>NSF3012CV</b>	101,0	137,0
65	90	16,00	1,0	1,0		85,35	1,0	<b>NSF2913CV</b>	54,0	82,0
	100	26,00	1,1	1,1		93,10	2,0	<b>NSF3013CV</b>	106,0	155,0
	140	48,00	2,1		80,71		3,0	<b>NJB2313VH</b>	291,0	345,0
70	100	19,00	1,0	1,0		92,50	1,0	<b>NSF2914CV</b>	72,0	108,0
	110	30,00	1,1	1,1		100,30	3,0	<b>NSF3014CV</b>	119,0	164,0
	150	51,00	2,1		84,22		3,0	<b>NJB2314VH</b>	324,0	389,0
75	105	19,00	1,0	1,0		97,60	1,0	<b>NSF2915CV</b>	73,0	112,0
	115	30,00	1,1	1,1		107,90	3,0	<b>NSF3015CV</b>	124,0	181,0
	160	55,00	2,1		91,24		3,0	<b>NJB2315VH</b>	379,0	463,0
80	110	19,00	1,0	1,0		102,70	1,0	<b>NSF2916CV</b>	76,0	123,0
	125	34,00	1,1	1,1		117,00	4,0	<b>NSF3016CV</b>	151,0	219,0
	170	58,00	2,1		98,26		4,0	<b>NJB2316VH</b>	437,0	552,0

d = 20 to 80 mm



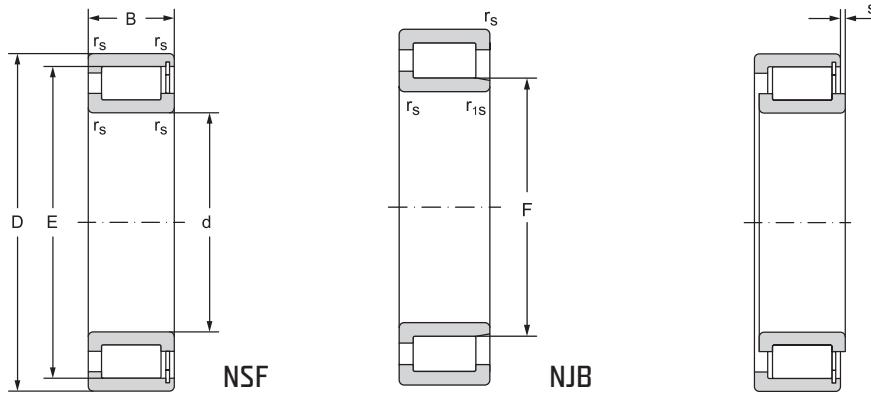
1) Admissible axial load  
2) Recommended diameter of fitting for axially loaded bearings

Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions								Weight
	grease	oil	d	d <sub>a</sub>	d <sub>as</sub> <sup>2)</sup>	d <sub>b</sub>	D <sub>a</sub>	D <sub>b</sub>	r <sub>a</sub>	r <sub>b</sub>	
P <sub>u</sub>				min		max	max	max	max	max	~
kN	min <sup>-1</sup>		mm								kg
3,41	6900	8200	20	24	26,9	-	38	40	0,6	0,6	0,11
4,15	5700	6800	25	29	32,3	-	43	45	0,6	0,6	0,12
7,93	3600	4300		32	33,9	30,0	55	-	1,0		0,38
5,00	4800	5700	30	35	37,8	-	50	52	1,0	1,0	0,20
10,00	3315	3900		37	40,8	36,0	65	-	1,0		0,56
6,46	4300	5100	35	40	42,8	-	57	59	1,0	1,0	0,26
13,17	2800	3300		44	47,6	42,0	71	-	1,5		0,75
7,93	3900	4600	40	45	47,9	-	63	65	1,0	1,0	0,31
18,17	2400	2900		49	54,4	49,0	81	-	1,5		1,00
8,66	3400	4100	45	50	53,0	-	70	72	1,0	1,0	0,40
22,93	2200	2700		54	59,3	54,0	91	-	1,5		1,45
11,34	3200	3800	50	55	56,7	-	75	77	1,0	1,0	0,43
16,59	2700	3200	55	61	65,8	-	84	86	1,0	1,0	0,64
30,49	1780	2100		66	71,3	66,0	109	-	2,0		2,30
9,15	2900	3500	60	65	66,8	-	80	80	1,0	1,0	0,29
16,71	2800	3300		66	68,9	-	89	91	1,0	1,0	0,69
10,00	2600	3100	65	70	73,4	-	85	85	1,0	1,0	0,31
18,90	2400	2900		71	75,6	-	94	96	1,0	1,0	0,73
42,07	1500	1800		77	85,3	78,0	128	-	2,0		3,55
13,17	2400	2900	70	75	78,5	-	95	95	1,0	1,0	0,49
20,00	2200	2700		76	78,7	-	104	106	1,0	1,0	1,02
47,44	1400	1700		82	89,0	81,0	138	-	2,0		4,40
14,10	2200	2700	75	80	83,8	-	100	100	1,0	1,0	0,52
22,42	2100	2500		81	86,5	-	109	111	1,0	1,0	1,06
53,80	1200	1500		87	96,1	88,0	148	-	2,0		5,35
15,23	2100	2500	80	85	88,6	-	105	105	1,0	1,0	0,55
26,51	1900	2300		86	92,0	-	119	121	1,0	1,0	1,43
62,96	1100	1400		92	104,0	95,0	158	-	2,0		6,40



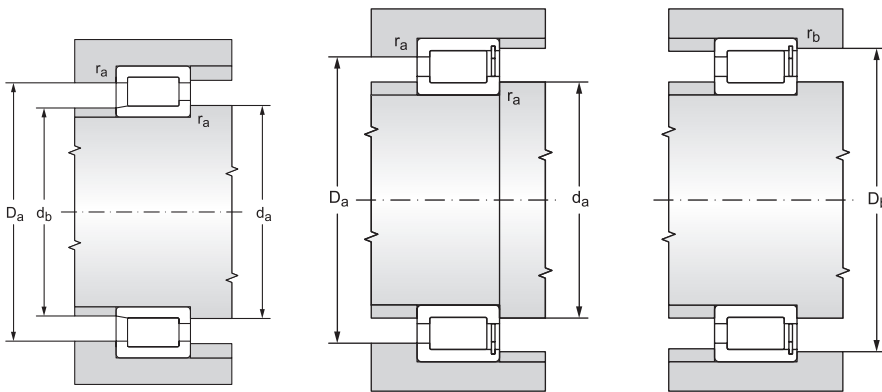
Single row full complement cylindrical roller bearings

d = 85 to 160 mm



12.4.3

Main dimensions								Bearing designation	Basic load rating	
d	D	B	r <sub>s</sub>	r <sub>1s</sub>	F	E	s <sup>1)</sup>		dynamic C <sub>r</sub>	static C <sub>or</sub>
			min	min						
mm								kN		
85	120	22,00	1,1	1,1		109,70	1,0	<b>NSF2917CV</b>	94,0	156,0
	130	34,00	1,1	1,1		121,40	4,0	<b>NSF3017CV</b>	160,0	225,0
	180	60,00	3,0		107		4,0	<b>NJB2317VH</b>	455,0	605,0
90	125	22,00	1,1	1,1		115,60	1,0	<b>NSF2918CV</b>	98,0	165,0
	140	37,00	1,5	1,5		130,10	4,0	<b>NSF3018CV</b>	185,0	260,0
	190	64,00	3,0		105,3		4,0	<b>NJB2318VH</b>	505,0	650,0
100	140	24,00	1,1	1,1		130,60	1,5	<b>NSF2920CV</b>	110,0	185,0
	150	37,00	1,5	1,5		139,70	4,0	<b>NSF3020CV</b>	195,0	295,0
	215	73,00	3,0		119,3		4,0	<b>NJB2320VH</b>	665,0	850,0
110	150	24,00	1,1	1,1		141,10	1,5	<b>NSF2922CV</b>	120,0	205,0
	170	45,00	2,0	2,0		156,10	5,5	<b>NSF3022CV</b>	260,0	375,0
	240	80,00	3,0		134,3		5,0	<b>NJB2322VH</b>	840,0	1030,0
120	165	27,00	1,1	1,1		154,30	1,5	<b>NSF2924CV</b>	160,0	275,0
	180	46,00	2,0	2,0		167,60	5,5	<b>NSF3024CV</b>	275,0	420,0
	215	58,00	2,1	2,1		192,32	4,0	<b>NSF2224V</b>	500,0	720,0
	260	86,00	3,0		147,4		5,0	<b>NJB2324VH</b>	925,0	1200,0
130	180	30,00	1,5	1,5		167,10	2,0	<b>NSF2926CV</b>	190,0	340,0
	200	52,00	2,0	1,0		183,00	5,5	<b>NSF3026CV</b>	395,0	600,0
	280	93,00	4,0		157,9		6,0	<b>NJB2326VH</b>	1040,0	1400,0
140	190	30,00	1,5	1,5		180,00	2,0	<b>NSF2928CV</b>	205,0	375,0
	210	53,00	2,0	1,0		197,00	5,5	<b>NSF3028CV</b>	420,0	660,0
	250	68,00	3,0	3,0		221,90	5,0	<b>NSF2228V</b>	680,0	1000,0
	300	102,00	4,0		168,5		6,5	<b>NJB2328VH</b>	1150,0	1560,0
150	210	36,00	2,0	2,0		196,40	2,5	<b>NSF2930CV</b>	275,0	475,0
	225	56,00	2,1	1,1		206,00	7,0	<b>NSF3030CV</b>	440,0	695,0
	270	73,00	3,0	3,0		236,70	6,0	<b>NSF2230V</b>	770,0	1130,0
	320	108,00	4,0		182,5		6,5	<b>NJB2330VH</b>	1390,0	1870,0
160	220	36,00	2,0	2,0		207,20	2,5	<b>NSF2932CV</b>	290,0	510,0
	240	60,00	2,1	1,1		224,00	7,0	<b>NSF3032CV</b>	490,0	780,0
	290	80,00	3,0	3,0		266,40	6,0	<b>NSF2232V</b>	970,0	1470,0



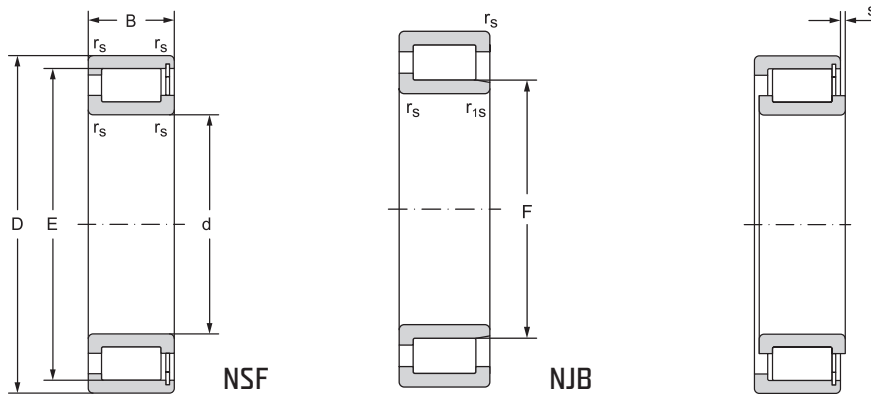
1) Admissible axial load  
2) Recommended diameter of fitting for axially loaded bearings

Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions								Weight
	grease	oil	d	da	das <sup>2)</sup>	db	Da	Db	ra	rb	
pu				min		max	max	max	max	max	~
kN	min <sup>-1</sup>		mm								kg
18,88	2100	2500	85	91	93,9	-	114	114	1,0	1,0	0,81
26,85	1900	2300		91	96,2	-	124	126	1,0	1,0	1,51
67,81	1100	1300		99	113,0	104,0	166	-	2,5		7,40
19,69	1900	2300	90	96	99,8	-	119	119	1,0	1,0	0,84
30,41	1700	2100		97	103,0	-	133	135	1,5	1,5	1,97
71,66	1100	1300		104	111,0	105,0	176	-	2,5		8,75
21,36	1700	2100	100	106	111,0	-	134	134	1,0	1,0	1,14
33,65	1600	1900		107	112,0	-	143	145	1,5	1,5	2,15
90,45	900	1100		114	126,0	119,0	201	-	2,5		13,0
23,11	1500	1800	110	116	122,0	-	144	144	1,0	1,0	1,23
41,34	1400	1700		120	124,0	-	160	165	2,0	2,0	3,50
106,20	850	1000		124	143,0	130,0	226	-	2,5		17,5
30,16	1400	1700	120	126	133,0	-	159	159	1,0	1,0	1,73
45,35	1300	1600		130	135,0	-	170	175	2,0	2,0	3,80
75,22	1100	1300		131	145,0	-	204	204	2,0	2,0	9,05
120,71	850	1000		134	156,0	142,0	246	-	2,5		22,5
36,36	1200	1500	130	137	143,0	-	173	173	1,5	1,5	2,33
62,96	1100	1400		140	148,0	-	190	195	2,0	1,0	5,80
137,65	800	950		147	166,0	153,0	263	-	3,0		28,0
39,35	1100	1400	140	147	155,0	-	183	183	1,5	1,5	2,42
68,05	1100	1300		150	159,0	-	200	205	2,0	1,0	6,10
99,81	900	1100		143	167,0	-	127	127	2,5	2,5	14,5
150,17	720	850		157	178,0	163,0	283	-	3,0		35,5
48,56	1100	1300	150	159	166,0	-	201	201	2,0	2,0	3,77
70,19	1000	1200		161	167,0	-	214	234	2,0	1,0	7,50
110,31	850	1000		153	178,0	-	137	137	2,5	2,5	18,4
176,48	680	800		167	192,0	178,0	303	-	3,0		42,5
51,30	1000	1200	160	169	177,0	-	211	211	2,0	2,0	4,00
77,26	900	1100		171	180,0	-	229	304	2,0	1,0	9,10
140,56	800	950		163	201,0	-	147	147,0	2,5	2,5	23,0



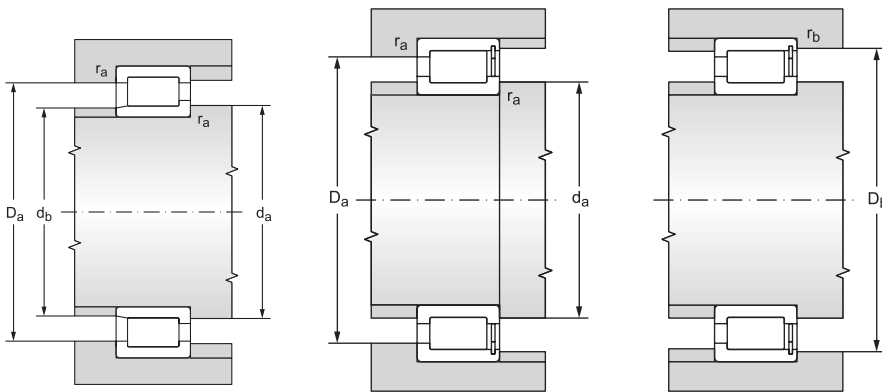
Single row full complement cylindrical roller bearings

d = 170 to 280 mm



12.4.3

Main dimensions								Bearing designation	Basic load rating		
d	D	B	r <sub>s</sub>	r <sub>1s</sub>	F	E	s <sup>1)</sup>		dynamic C <sub>r</sub>	static C <sub>or</sub>	
			min	min							
mm								kN			
170	230	36,00	2,0	2,0		218,00	2,5	NSF2934CV	300,0	545,0	
	260	67,00	2,1	1,1		242,00	7,0	NSF3034CV	640,0	1030,0	
	310	86,00	4,0	4,0		281,10	7,0	NSF2234V	1050,0	1670,0	
	360	120,00	4,0		203,55		7,0	NJB2334VH	1690,0	2410,0	
180	250	42,00	2,0	2,0		232,00	2,5	NSF2936CV	375,0	680,0	
	280	74,00	2,1	2,1		260,00	7,0	NSF3036CV	740,0	1210,0	
	380	126,00	4,0		221,7		8,0	NJB2336VH	1800,0	2620,0	
190	260	42,00	2,0	2,0		244,00	2,5	NSF2938CV	415,0	765,0	
	290	75,00	2,1	2,1		269,00	9,0	NSF3038CV	765,0	1275,0	
	340	92,00	4,0	4,0		311,00	7,0	NSF2238V	1200,0	1880,0	
	400	132,00	5,0		224,5		8,0	NJB2338VH	2090,0	2970,0	
200	250	24,00	1,5	1,1		237,50	1,8	NSF1840V	170,0	330,0	
	280	48,00	2,1	2,1		262,00	3,0	NSF2940CV	515,0	950,0	
	310	82,00	2,1	2,1		287,00	9,0	NSF3040CV	880,0	1500,0	
	420	138,00	5,0		238,6		9,0	NJB2340VH	2200,0	3150,0	
220	270	24,00	1,5	1,1		258,00	1,8	NSF1844V	180,0	360,0	
	300	48,00	2,1	2,1		283,00	3,0	NSF2944CV	525,0	1030,0	
	340	90,00	3,0	3,0		312,00	9,0	NSF3044CV	1030,0	1770,0	
	400	108,00	4,0	4,0		366,00	8,0	NSF2244V	1800,0	2700,0	
	460	145,00	5,0		266,7		10,0	NJB2344VH	2450,0	3510,0	
240	300	28,00	2,0	1,1		287,00	1,8	NSF1848V	250,0	510,0	
	320	48,00	2,1	2,1		303,00	3,0	NSF2948CV	545,0	1110,0	
	360	92,00	3,0	3,0		335,00	11,0	NSF3048CV	1080,0	1940,0	
	500	155,00	5,0		280,6		10,0	NJB2348VH	2710,0	3860,0	
260	320	28,00	2,0	1,1		307,20	1,8	NSF1852V	260,0	550,0	
	360	60,00	2,1	2,1		333,00	3,5	NSF2952CV	715,0	1400,0	
	400	104,00	4,0	4,0		376,00	11,0	NSF3052CV	1450,0	2520,0	
	540	165,00	6,0		615,6		11,0	NJB2352VH	3300,0	4770,0	
280	350	33,00	2,0	1,1		334,00	2,5	NSF1856V	330,0	690,0	
	380	60,00	2,1	2,1		359,10	3,5	NSF2956CV	840,0	1710,0	
	420	106,00	4,0	4,0		391,00	11,0	NSF3056CV	1690,0	2630,0	



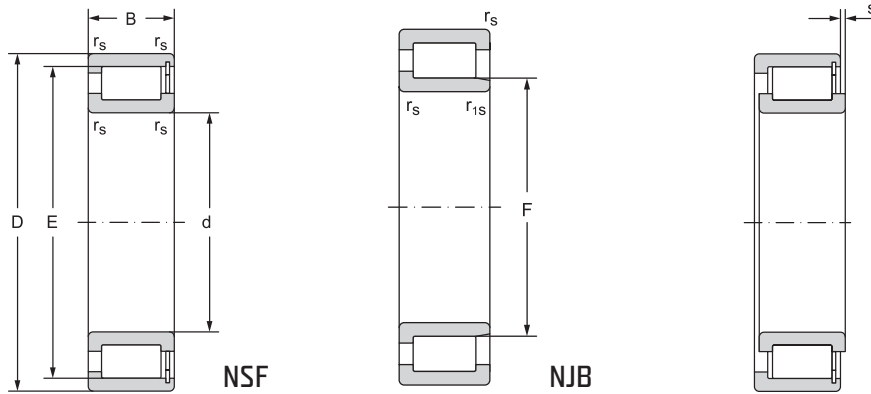
1) Admissible axial load  
2) Recommended diameter of fitting for axially loaded bearings

Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions								Weight
	grease	oil	d	da	das <sup>2)</sup>	db	Da	Db	ra	rb	~
P <sub>u</sub>				min		max	max	max	max	max	
kN	min <sup>-1</sup>		mm								kg
53,99	900	1100	170	179	188,0	-	221	221,0	2,0	2,0	4,30
99,84	850	1000		181	192,0	-	249	274,0	2,0	1,0	12,5
156,62	760	900		185	212,0	-	295	295,0	3,0	3,0	28,7
219,40	590	700		187	214,0	200,0	343	-	3,0		59,5
65,91	850	1000	180	189	199,0	-	241	241,0	2,0	2,0	6,20
114,94	850	1000		191	206,0	-	269	269,0	2,0	2,0	16,5
234,61	570	670		197	232,0	216,0	363	-	3,0		69,5
73,15	850	1000	190	199	208,0	-	251	251,0	2,0	2,0	6,50
119,57	850	1000		201	216,0	-	279	279,0	2,0	2,0	17,0
171,15	680	800		205	235,0	-	325	325,0	3,0	3,0	35,7
261,82	530	630		210	237,0	222,0	380	-	4,0		80,0
31,55	850	1000	200	207	215,0	-	243	245,0	1,5	1,0	2,60
89,09	830	980		211	222,0	-	269	269,0	2,0	2,0	9,10
138,14	800	950		211	230,0	-	299	299,0	2,0	2,0	22,5
273,58	630	750		220	252,0	232,0	400	-	4,0		92,0
33,55	800	950	220	227	235,0	-	263	265,0	1,5	1,0	2,85
94,30	800	950		231	242,0	-	289	289,0	2,0	2,0	9,90
158,49	720	850		233	248,0	-	327	327,0	2,5	2,5	29,5
234,50	590	700		235	260,0	-	385	385,0	3,0	3,0	58,0
296,52	570	670		240	281,0	260,0	440	-	4,0		111
46,17	760	900	240	249	259,0	-	291	295,0	2,0	1,0	4,40
99,39	720	850		251	263,0	-	309	309,0	2,0	2,0	10,6
170,16	680	800		253	271,0	-	347	347,0	2,5	2,5	32,0
317,92	530	630		260	295,0	282,0	480	-	4,0		147
48,73	680	800	260	270	279,0	-	310	315,0	2,0	1,0	4,75
121,59	630	750		271	286,0	-	349	349,0	2,0	2,0	18,5
214,80	590	700		275	295,0	-	385	385,0	3,0	3,0	46,5
383,78	360	430		286	332,0	309,0	514	-	5,0		177
59,64	630	750	280	289	303,0	-	341	344,0	2,0	1,0	7,10
145,76	590	700		291	309,0	-	369	369,0	2,0	2,0	19,7
220,25	570	670		295	310,0	-	405	405,0	3,0	3,0	50,0



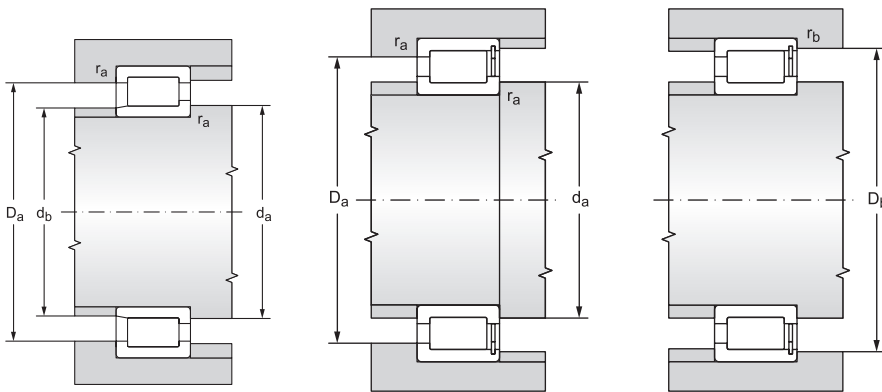
Single row full complement cylindrical roller bearings

d = 300 to 460 mm



12.4.3

Main dimensions								Bearing designation	Basic load rating	
d	D	B	r <sub>s</sub>	r <sub>1s</sub>	F	E	s <sup>1)</sup>		dynamic	static
			min	min					C <sub>r</sub>	C <sub>or</sub>
mm									kN	
300	380	38,00	2,1	1,5		363,00	3,0	NSF1860V	410,0	850,0
	420	72,00	3,0	3,0		390,50	5,0	NSF2960CV	1050,0	2180,0
	460	118,00	4,0	4,0		433,00	14,0	NSF3060CV	1810,0	3230,0
320	400	38,00	2,1	1,5		383,00	3,0	NSF1864V	430,0	900,0
	440	72,00	3,0	3,0		411,00	5,0	NSF2964CV	1070,0	2340,0
	480	121,00	4,0	4,0		449,00	14,0	NSF3064CV	1900,0	3440,0
340	420	38,00	2,1	1,5		403,00	3,0	NSF1868V	440,0	950,0
	460	72,00	3,0	3,0		431,00	5,0	NSF2968CV	1100,0	2490,0
	520	133,00	5,0	5,0		485,00	14,0	NSF3068CV	2300,0	4140,0
360	440	38,00	2,1	1,5		418,90	4,5	NSF1872V	400,0	900,0
	480	72,00	3,0	3,0		451,50	5,0	NSF2972CV	1150,0	2590,0
	540	134,00	5,0	5,0		503,00	14,0	NSF3072CV	2340,0	4290,0
380	480	46,00	2,1	1,5		458,00	3,5	NSF1876V	620,0	1290,0
	520	82,00	4,0	4,0		488,00	5,0	NSF2976CV	1460,0	3230,0
	560	135,00	5,0	5,0		521,00	14,0	NSF3076CV	2430,0	4540,0
400	500	46,00	2,1	1,5		475,00	3,5	NSF1880V**	620,0	1340,0
	540	82,00	4,0	4,0		511,00	5,0	NSF2980CV**	1550,0	3450,0
	600	148,00	5,0	5,0		558,00	14,0	NSF3080CV**	2850,0	5500,0
420	520	46,00	2,1	1,5		499,00	3,5	NSF1884V**	660,0	1430,0
	560	82,00	4,0	4,0		524,00	5,0	NSF2984CV**	1550,0	3600,0
	620	150,00	5,0	5,0		577,00	15,0	NSF3084CV**	2930,0	5700,0
440	540	46,00	2,1	1,5		516,00	3,5	NSF1888V**	670,0	1460,0
	540	60,00	2,1	1,5		516,00	3,5	NSF2888V**	1050,0	2700,0
	600	95,00	4,0	4,0		565,50	6,0	NSF2988V**	2010,0	4400,0
	650	157,00	6,0	6,0		611,00	16,0	NSF3088CV**	3430,0	6550,0
460	580	56,00	3,0	3,0		553,00	5,0	NSF1892V**	910,0	1960,0
	580	72,00	3,0	3,0		553,00	5,0	NSF2892V**	1300,0	3050,0
	620	95,00	4,0	4,0		579,00	6,0	NSF2992V**	2050,0	4500,0
	680	163,00	6,0	6,0		635,00	16,0	NSF3092CV**	3570,0	6950,0



1) Admissible axial load  
2) Recommended diameter of fitting for axially loaded bearings

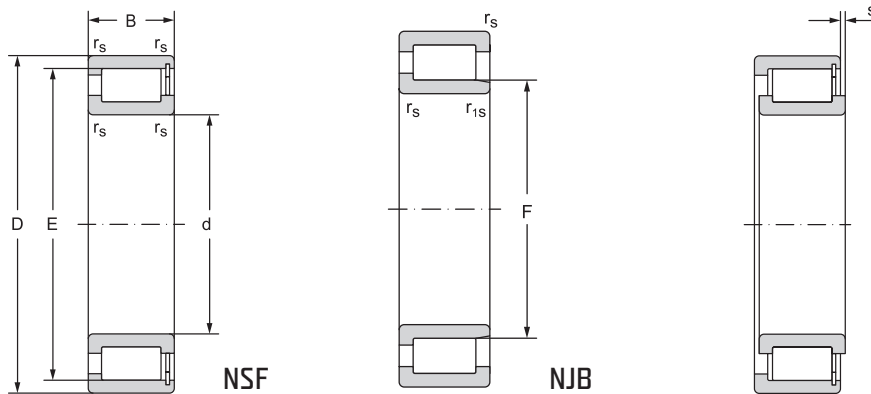
Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions								Weight
	grease	oil	d	d <sub>a</sub>	d <sub>as</sub> <sup>2)</sup>	d <sub>b</sub>	D <sub>a</sub>	D <sub>b</sub>	r <sub>a</sub>	r <sub>b</sub>	
P <sub>u</sub>				min		max	max	max	max	max	~
kN	min <sup>-1</sup>		mm								kg
71,81	570	670	300	311	326,0	-	369	373,0	2,0	1,5	10,00
181,03	570	670		313	334,0	-	407	407,0	2,5	2,5	31,2
263,91	510	600		315	344,0	-	445	445,0	3,0	3,0	69,0
74,74	530	630	320	331	346,0	-	389	393,0	2,0	1,5	10,5
191,19	510	600		333	353,0	-	427	427,0	2,5	2,5	32,9
276,77	470	560		335	359,0	-	465	465,0	3,0	3,0	74,5
77,62	510	600	340	351	366,0	-	409	413,0	2,0	1,5	11,0
200,34	470	560		353	373,0	-	447	447,0	2,5	2,5	35,0
325,95	450	530		358	384,0	-	502	502,0	4,0	4,0	100,0
72,41	470	560	360	371	384,0	-	429	433,0	2,0	1,5	11,5
205,36	450	530		373	396,0	-	467	467,0	2,5	2,5	36,5
333,18	420	500		378	402,0	-	522	522,0	4,0	4,0	105
101,56	450	530	380	391	411,0	-	469	473,0	2,0	1,5	19,5
250,86	420	500		395	420,0	-	505	505,0	3,0	3,0	52,5
348,03	400	480		398	420,0	-	542	542,0	4,0	4,0	110
104,07	420	500	400	411	428,0	-	489	493,0	2,0	1,5	20,5
264,47	400	480		415	442,0	-	525	525,0	3,0	3,0	54,5
413,86	380	450		418	449,0	-	582	582,0	4,0	4,0	145
109,62	400	480	420	431	452,0	-	509	513,0	2,0	1,5	21,0
272,54	380	450		435	455,0	-	545	545,0	3,0	3,0	57,0
423,90	360	430		438	469,0	-	602	602,0	4,0	4,0	150
110,53	380	450	440	451	469,0	-	529	533,0	2,0	1,5	22,0
204,40	380	450		451	469,0	-	529	533,0	2,0	1,5	29,0
327,22	360	430		455	492,0	-	585	585,0	3,0	3,0	80,5
480,30	340	400		463	488,0	-	627	627,0	5,0	5,0	175
145,76	360	430	460	473	495,0	-	567	567,0	2,5	2,5	34,0
226,82	360	430		473	495,0	-	567	567,0	2,5	2,5	44,0
330,89	340	400		475	506,0	-	605	605,0	3,0	3,0	83,5
502,82	320	380		483	511,0	-	657	657,0	5,0	5,0	195





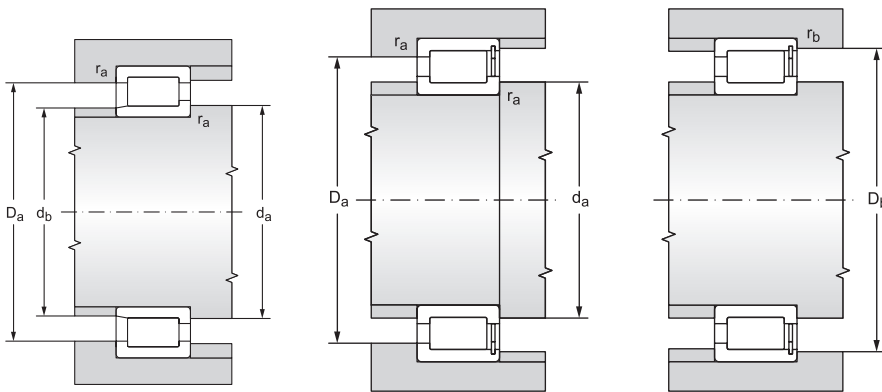
Single row full complement cylindrical roller bearings

d = 480 to 750 mm



12.4.3

Main dimensions								Bearing designation	Basic load rating	
d	D	B	r <sub>s</sub>	r <sub>1s</sub>	F	E	s <sup>1)</sup>		dynamic	static
			min	min					C <sub>r</sub>	C <sub>or</sub>
mm									kN	
480	600	56,00	3,0	3,0		573,50	5,0	NSF1896V**	930,0	2040,0
	600	72,00	3,0	3,0		573,50	5,0	NSF2896V**	1320,0	3150,0
	650	100,00	5,0	5,0		600,00	7,0	NSF2996V**	2280,0	4900,0
	700	165,00	6,0	6,0		654,00	16,0	NSF3096CV**	3600,0	7200,0
500	620	56,00	3,0	3,0		594,00	5,0	NSF18/500V**	950,0	2120,0
	620	72,00	3,0	3,0		594,00	2,4	NSF28/500V**	1340,0	3350,0
	670	100,00	5,0	5,0		630,90	7,0	NSF29/500V**	2300,0	5000,0
	720	167,00	6,0	6,0		676,00	16,0	NSF30/500CV**	3700,0	7500,0
530	650	56,00	3,0	3,0		624,50	5,0	NSF18/530V**	990,0	2230,0
	650	72,00	3,0	3,0		624,50	5,0	NSF28/530V**	1400,0	3450,0
	710	106,00	5,0	5,0		676,00	7,0	NSF29/530V**	2600,0	6100,0
	780	185,00	6,0	6,0		732,30	16,0	NSF30/530V**	5200,0	10600,0
560	680	56,00	3,0	3,0		655,00	5,0	NSF18/560V**	1020,0	2350,0
	680	72,00	3,0	3,0		655,00	4,3	NSF28/560V**	1400,0	3650,0
	750	112,00	5,0	5,0		718,00	7,0	NSF29/560V**	3050,0	6700,0
	820	195,00	6,0	6,0		770,00	16,0	NSF30/560V**	5800,0	11800,0
600	730	60,00	3,0	3,0		696,00	7,0	NSF18/600V**	1050,0	2550,0
	730	78,00	3,0	3,0		696,00	6,0	NSF28/600V**	1550,0	4300,0
	800	118,00	5,0	5,0		754,00	7,0	NSF29/600V**	3150,0	7100,0
630	780	69,00	4,0	4,0		739,00	8,0	NSF18/630V**	1250,0	2900,0
	780	88,00	4,0	4,0		739,00	8,0	NSF28/630V**	1850,0	5000,0
	850	128,00	6,0	6,0		807,00	8,0	NSF29/630V**	3750,0	8650,0
670	820	69,00	4,0	4,0		783,00	8,0	NSF18/670V**	1300,0	3150,0
	820	88,00	4,0	4,0		783,00	8,0	NSF28/670V**	1950,0	5300,0
	900	136,00	6,0	6,0		846,00	10,0	NSF29/670V**	3900,0	9000,0
710	870	74,00	4,0	4,0		831,00	8,0	NSF18/710V**	1550,0	3750,0
	870	95,00	4,0	4,0		831,00	8,0	NSF28/710V**	2330,0	6300,0
	950	140,00	6,0	6,0		896,00	10,0	NSF29/710V**	4300,0	10000,0
750	920	78,00	5,0	5,0		882,00	8,0	NSF18/750V**	1850,0	4500,0
	920	100,00	5,0	5,0		878,00	8,0	NSF28/750V**	2650,0	6950,0
	1000	145,00	6,0	6,0		937,00	11,0	NSF29/750V**	4450,0	10600,0



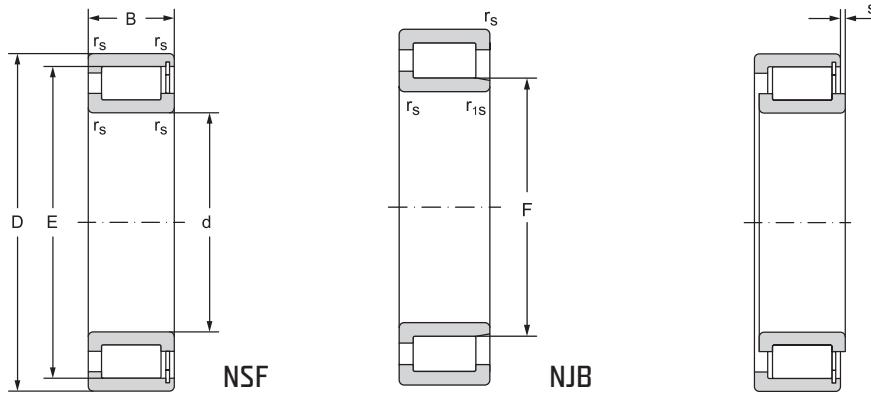
1) Admissible axial load  
2) Recommended diameter of fitting for axially loaded bearings

Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions								Weight
	grease	oil	d	da	das <sup>2)</sup>	db	Da	Db	ra	rb	
P <sub>u</sub>				min		max	max	max	max	max	~
kN	min <sup>-1</sup>		mm								kg
150,00	340	400	480	493	516,0	-	587	587,0	2,5	2,5	35,5
231,62	340	400		493	516,0	-	587	587,0	2,5	2,5	46,0
355,44	320	380		498	527,0	-	632	632,0	4,0	4,0	98,0
515,54	300	360		503	532,0	-	677	677,0	5,0	5,0	205
154,19	320	380	500	513	536,0	-	607	607,0	2,5	2,5	36,5
243,65	320	380		513	536,0	-	607	607,0	2,5	2,5	48,0
358,93	320	380		518	544,0	-	652	652,0	4,0	4,0	100,0
531,68	300	360		523	553,0	-	697	697,0	5,0	5,0	215
159,67	300	360	530	543	567,0	-	637	637,0	2,5	2,5	38,5
247,03	300	360		543	566,0	-	637	637,0	2,5	2,5	49,5
430,33	290	340		548	589,0	-	692	692,0	4,0	4,0	120
735,56	270	320		553	595,0	-	757	757,0	5,0	5,0	300
165,78	290	340	560	573	597,0	-	667	667,0	2,5	2,5	40,5
257,49	290	340		573	599,0	-	667	667,0	2,5	2,5	54,0
464,93	270	320		578	617,0	-	732	732,0	4,0	4,0	140
806,15	250	300		583	626,0	-	797	797,0	5,0	5,0	345
176,15	340	400	600	613	638,0	-	717	717,0	2,5	2,5	51,5
297,04	340	400		613	638,0	-	717	717,0	2,5	2,5	67,5
482,96	320	380		618	652,0	-	782	782,0	4,0	4,0	170
196,85	250	300	630	645	674,0	-	765	765,0	3,0	3,0	72,5
339,39	250	300		645	674,0	-	765	765,0	3,0	3,0	92,5
578,67	240	280		653	698,0	-	827	827,0	5,0	5,0	205
210,31	240	280	670	685	718,0	-	805	805,0	3,0	3,0	76,5
353,85	240	280		685	718,0	-	805	805,0	3,0	3,0	97,5
591,52	220	260		693	737,0	-	877	877,0	5,0	5,0	245
246,00	220	260	710	725	759,0	-	855	855,0	3,0	3,0	92,5
413,27	220	260		725	759,0	-	855	855,0	3,0	3,0	115
646,34	200	240		733	761,0	-	927	927,0	5,0	5,0	275
290,33	200	240	750	768	802,0	-	902	902,0	4,0	4,0	110
448,40	200	240		768	799,0	-	902	902,0	4,0	4,0	140
674,36	185	220		773	820,0	-	957	957,0	5,0	5,0	315



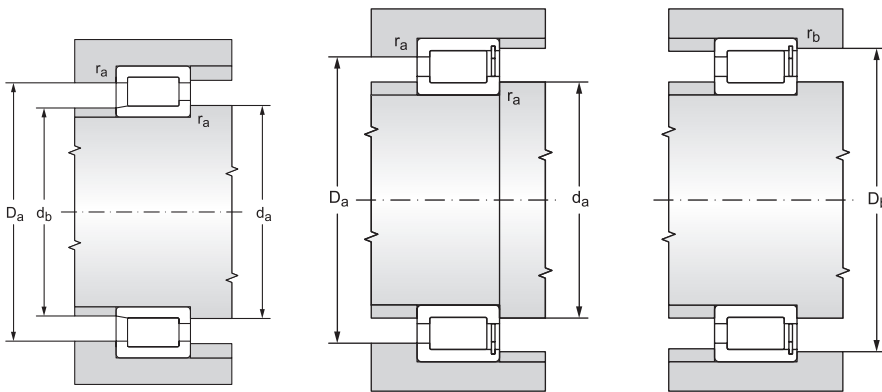
Single row full complement cylindrical roller bearings

d = 800 to 1000 mm



12.4.3

Main dimensions								Bearing designation	Basic load rating	
d	D	B	r <sub>s</sub>	r <sub>1s</sub>	F	E	s <sup>1)</sup>		dynamic C <sub>r</sub>	static C <sub>or</sub>
			min	min						
mm								kN		
800	980	82,00	5,0	5,0		936,00	9,0	NSF18/800V**	1950,0	4800,0
	980	106,00	5,0	5,0		936,00	10,0	NSF28/800V**	2750,0	7500,0
	1060	150,00	6,0	6,0		1002,00	11,0	NSF29/800V**	4950,0	12200,0
850	1030	82,00	5,0	5,0		985,00	9,0	NSF18/850V**	2000,0	5100,0
	1030	106,00	5,0	5,0		986,00	10,0	NSF28/850V**	2850,0	8000,0
	1120	155,00	6,0	6,0		1061,00	13,0	NSF29/850V**	5200,0	12700,0
900	1090	85,00	5,0	5,0		1044,00	9,0	NSF18/900V**	2350,0	6000,0
	1090	112,00	5,0	5,0		1044,00	10,0	NSF28/900V**	3200,0	9150,0
	1180	165,00	6,0	6,0		1120,00	13,0	NSF29/900V**	5900,0	14600,0
950	1150	90,00	5,0	5,0		1103,00	10,0	NSF18/950V**	2400,0	6300,0
	1150	118,00	5,0	5,0		1103,00	12,0	NSF28/950V**	3400,0	9800,0
	1250	175,00	7,5	7,5		1179,00	14,0	NSF29/950V**	6600,0	16300,0
1000	1220	100,00	6,0	6,0		1165,00	12,0	NSF18/1000V**	2900,0	7500,0
	1220	128,00	6,0	6,0		1165,00	12,0	NSF28/1000V**	4100,0	11600,0
	1320	185,00	7,5	7,5		1252,00	14,0	NSF29/1000V**	7450,0	18600,0

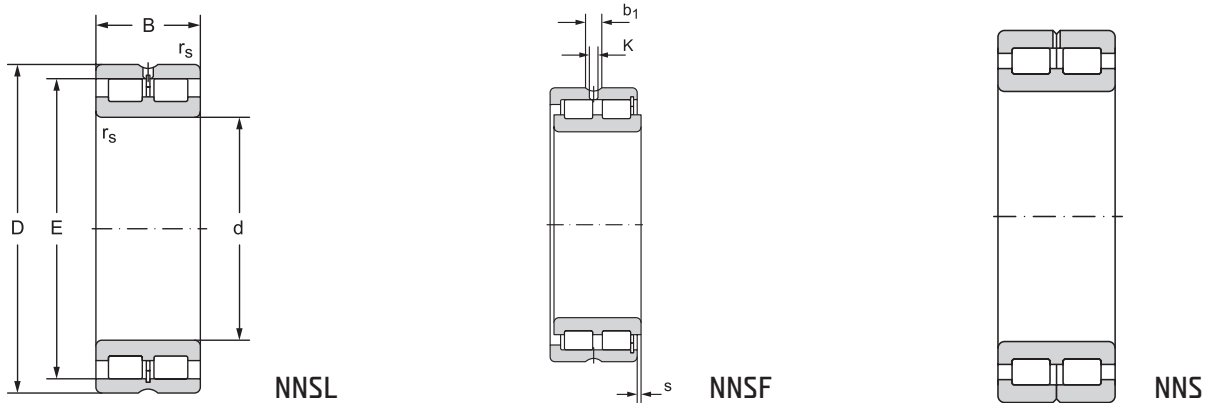


1) Admissible axial load  
2) Recommended diameter of fitting for axially loaded bearings

Fatigue load limit	Limiting speed for lubrication with		Abutment and fillet dimensions								Weight
	grease	oil	d	$d_a$	$d_{as}^{2)}$	$d_b$	$D_a$	$D_b$	$r_a$	$r_b$	
$P_u$				min		max	max	max	max	max	
kN	$\text{min}^{-1}$		mm								kg
303,82	185	220	800	818	855,0	-	962	962,0	4,0	4,0	130
474,71	185	220		818	855,0	-	962	962,0	4,0	4,0	165
762,08	170	200		823	860,0	-	977	977,0	5,0	5,0	360
317,55	170	200	850	868	902,0	-	1012	1012,0	4,0	4,0	135
498,12	170	200		868	903,0	-	1012	1012,0	4,0	4,0	175
779,76	160	190		873	914,0	-	1097	1097,0	5,0	5,0	405
367,27	160	190	900	918	957,0	-	1072	1072,0	4,0	4,0	160
560,09	160	190		918	957,0	-	1072	1072,0	4,0	4,0	208
881,92	145	170		923	982,0	-	1127	1127,0	5,0	5,0	472
379,46	145	170	950	968	1012,0	-	1132	1132,0	4,0	4,0	185
590,28	145	170		968	1012,0	-	1132	1132,0	4,0	4,0	240
968,18	135	160		978	1033,0	-	1222	1222,0	6,0	6,0	565
444,27	135	160	1000	1023	1063,0	-	1197	1197,0	5,0	5,0	230
687,14	135	160		1023	1063,0	-	1197	1197,0	5,0	5,0	310
1 087,33	125	150		1028	1091,0	-	1292	1292,0	6,0	6,0	680



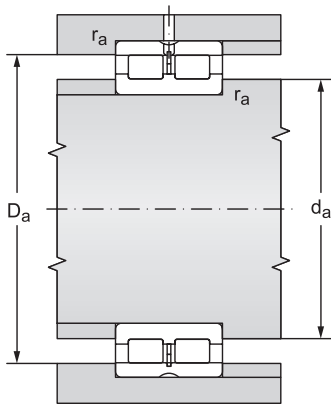
## Double row full complement cylindrical roller bearings d = 20 to 400 mm



12.4.4

Main dimensions						Basic load rating		Fatigue load limit
d	D	B	r <sub>s</sub>	E	s <sup>1)</sup>	dynamic C <sub>r</sub>	static C <sub>or</sub>	P <sub>u</sub>
mm						kN		kN
20	42	30	0,6	36,81	1,0	47,0	56,0	6,83
25	47	30	0,6	42,51	1,0	54,0	70,0	8,54
30	55	34	1,0	49,60	1,5	69,0	88,0	10,73
35	62	36	1,0	55,52	1,5	83,0	112,0	13,66
40	68	38	1,0	61,74	1,5	101,0	139,0	16,95
45	75	40	1,0	66,85	1,5	107,0	156,0	19,02
50	80	40	1,0	72,23	1,5	137,0	197,0	24,02
55	90	46	1,1	83,54	1,5	184,0	280,0	34,15
60	85	25	1,0	77,51	1,0	74,0	136,0	16,59
	85	25	1,0	77,51	-	74,0	136,0	16,59
	85	25	1,0	77,51	1,0	74,0	136,0	16,59
	95	46	1,1	86,74	1,5	192,0	300,0	36,59
65	100	46	1,1	93,09	1,5	203,0	325,0	39,63
70	100	30	1,0	91,87	1,0	109,0	193,0	23,54
	100	30	1,0	91,87	-	109,0	193,0	23,54
	100	30	1,0	91,87	1,0	109,0	193,0	23,54
	110	54	1,1	100,28	3,0	231,0	345,0	42,07
75	115	54	1,1	107,90	3,0	245,0	380,0	31,05
80	110	30	1,0	100,78	1,0	115,0	215,0	17,57
	110	30	1,0	100,78	-	115,0	215,0	17,57
	110	30	1,0	100,78	1,0	115,0	215,0	17,57
	125	60	1,1	116,99	3,5	300,0	455,0	36,34
85	130	60	1,1	121,44	3,5	305,0	475,0	37,40
90	125	35	1,1	115,20	1,5	155,0	300,0	23,62
	125	35	1,1	115,20	-	155,0	300,0	23,62
	125	35	1,1	115,20	1,5	155,0	300,0	23,62
	140	67	1,5	130,11	4,0	360,0	560,0	43,21

d = 20 to 90 mm



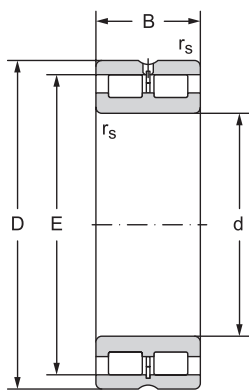
<sup>1)</sup> Admissible axial load

<sup>2)</sup> Recommended diameter of fitting for axially loaded bearings

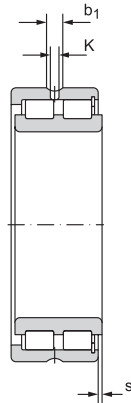
Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions					Lubrication slot and holes		Weight
grease	oil		d	d <sub>a</sub>	d <sub>as</sub> <sup>2)</sup>	D <sub>a</sub>	r <sub>a</sub>	a	b	
min <sup>-1</sup>			mm							kg
7000	8300	NNSF5004CV	20	23,2	26,6	38,8	0,6	3,0	4,5	0,20
5700	6800	NNSF5005CV	25	28,2	28,2	43,8	0,6	3,0	4,5	0,23
6200	7300	NNSF5006CV	30	34,6	34,6	50,4	1,0	3,0	4,5	0,35
4300	5100	NNSF5007CV	35	39,6	39,6	57,4	1,0	3,0	4,5	0,46
3900	4600	NNSF5008CV	40	44,6	44,6	63,4	1,0	3,0	4,5	0,56
3400	4100	NNSF5009CV	45	49,6	49,6	70,4	1,0	3,0	4,5	0,71
3200	3800	NNSF5010CV	50	54,6	54,6	75,4	1,0	3,0	4,5	0,76
2700	3200	NNSF5011CV	55	61	61	84	1,0	3,5	4,5	1,16
2800	3400	NNSF4912CV	60	64,6	68,5	80,4	1,0	3,5	4,5	0,48
2800	3400	NNS4912CV		64,6	68,5	80,4	1,0	3,5	4,5	0,48
2800	3400	NNSL4912CV		64,6	-	80,4	1,0	3,5	4,5	0,48
2700	3200	NNSF5012CV		66	69,2	89	1,0	3,5	4,5	1,24
2400	2900	NNSF5013CV	65	71	71	94	1,0	3,5	4,5	1,32
2400	2900	NNSF4914CV	70	74,6	80,4	95,4	1,0	3,5	4,5	0,77
2400	2900	NNS4914CV		74,6	80,4	95,4	1,0	3,5	4,5	0,77
2400	2900	NNSL4914CV		74,6	-	95,4	1,0	3,5	4,5	0,77
2200	2700	NNSF5014CV		76	78,9	104	1,0	3,5	5,0	1,85
2100	2500	NNSF5015CV	75	81	81	109	1,0	3,5	5,0	1,93
2100	2500	NNSF4916CV	80	84,6	89,4	105,4	1,0	3,5	5,0	0,87
2100	2500	NNS4916CV		84,6	89,4	105,4	1,0	3,5	5,0	0,87
2100	2500	NNSL4916CV		84,6	-	105,4	1,0	3,5	5,0	0,87
1950	2300	NNSF5016CV		86	92	119	1,0	3,5	5,0	2,59
1950	2300	NNSF5017CV	85	91	91	124	1,0	3,5	5,0	2,72
1950	2300	NNSF4918CV	90	96	101	119	1,0	3,5	5,0	1,33
1950	2300	NNS4918CV		96	101	119	1,0	3,5	5,0	1,33
1950	2300	NNSL4918CV		96	-	119	1,0	3,5	5,0	1,33
1700	2100	NNSF5018CV		97	103	133	1,5	3,5	5,0	3,62

Double row full complement cylindrical roller bearings

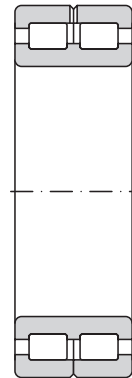
d = 100 to 160 mm



NNSL



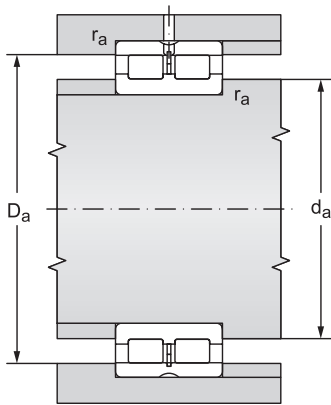
NNSF



NNS

12.4.4

Main dimensions						Basic load rating		Fatigue load limit
d	D	B	r <sub>s</sub>	E	s <sup>1)</sup>	dynamic C <sub>r</sub>	static C <sub>or</sub>	P <sub>u</sub>
			min					
mm						kN		kN
100	140	40	1,1	129,60	2,0	200,0	400,0	30,47
	140	40	1,1	129,60	-	200,0	400,0	30,47
	140	40	1,1	129,60	2,0	200,0	400,0	30,47
	150	67	1,5	139,65	4,0	380,0	620,0	46,65
110	150	40	1,1	138,20	2,0	210,0	430,0	31,98
	150	40	1,1	138,20	-	210,0	430,0	31,98
	150	40	1,1	138,20	2,0	210,0	430,0	31,98
	170	80	2,0	156,13	5,0	500,0	800,0	58,19
120	165	45	1,1	153,55	3,0	230,0	480,0	34,73
	165	45	1,1	153,55	-	230,0	480,0	34,73
	165	45	1,1	153,55	3,0	230,0	480,0	34,73
	180	80	2,0	167,58	5,0	530,0	880,0	62,69
130	180	50	1,5	165,40	4,0	265,0	530,0	37,39
	180	50	1,5	165,40	-	265,0	530,0	37,39
	180	50	1,5	165,40	4,0	265,0	530,0	37,39
	200	95	2,0	183,81	5,0	750,0	1250,0	86,54
140	190	50	1,5	175,90	4,0	275,0	570,0	39,46
	190	50	1,5	175,90	-	275,0	570,0	39,46
	190	50	1,5	175,90	4,0	275,0	570,0	39,46
	210	95	2,0	197,82	5,0	800,0	1370,0	93,19
150	190	40	1,1	178,30	2,0	245,0	585,0	40,14
	190	40	1,1	178,30	-	245,0	585,0	40,14
	190	40	1,1	178,30	2,0	245,0	585,0	40,14
	210	60	2,0	192,77	4,0	420,0	830,0	55,98
	210	60	2,0	192,77	-	420,0	830,0	55,98
	210	60	2,0	192,77	4,0	420,0	830,0	55,98
	225	100	2,0	206,80	6,0	830,0	1430,0	95,28
160	200	40	1,1	186,90	2,0	245,0	610,0	41,14
	200	40	1,1	186,90	-	245,0	610,0	41,14
	200	40	1,1	186,90	2,0	245,0	610,0	41,14
	220	60	2,0	206,16	4,0	435,0	910,0	60,39
	220	60	2,0	206,16	-	435,0	910,0	60,39
	220	60	2,0	206,16	4,0	435,0	910,0	60,39
	240	109	2,1	224,80	6,0	940,0	1600,0	104,56



<sup>1)</sup> Admissible axial load

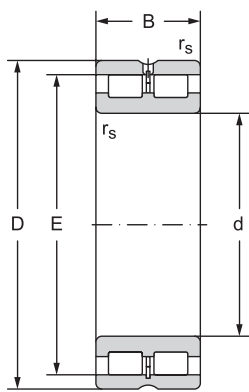
<sup>2)</sup> Recommended diameter of fitting for axially loaded bearings

Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions					Lubrication slot and holes		Weight
grease	oil		d	d <sub>a</sub>	d <sub>as</sub> <sup>2)</sup>	D <sub>a</sub>	r <sub>a</sub>	a	b	
min <sup>-1</sup>			mm							kg
1600	1900	NNSF4920CV	100	106	114	134	1,0	3,5	5,0	1,93
1600	1900	NNS4920CV		106	114	134	1,0	3,5	5,0	1,93
1600	1900	NNSL4920CV		106	-	134	1,0	3,5	5,0	1,93
1600	1900	NNSF5020CV		107	112	143	1,5	3,5	6,0	3,94
1500	1800	NNSF4922CV	110	116	122	144	1,0	3,5	6,0	2,13
1500	1800	NNS4922CV		116	122	144	1,0	3,5	6,0	2,13
1500	1800	NNSL4922CV		116	-	144	1,0	3,5	6,0	2,13
1450	1700	NNSF5022CV		120	124	160	2,0	3,5	6,0	6,32
1350	1600	NNSF4924CV	120	126	136	159	1,0	3,5	6,0	2,90
1350	1600	NNS4924CV		126	136	159	1,0	3,5	6,0	2,90
1350	1600	NNSL4924CV		126	-	159	1,0	3,5	6,0	2,90
1350	1600	NNSF5024CV		130	135	170	2,0	3,5	6,0	6,77
1270	1500	NNSF4926CV	130	137	146	173	1,5	3,5	6,0	3,90
1270	1500	NNS4926CV		137	146	173	1,5	3,5	6,0	3,90
1270	1500	NNSL4926CV		137	-	173	1,5	3,5	6,0	3,90
1190	1400	NNSF5026CV		140	140	190	2,0	4,0	7,0	10,2
1190	1400	NNSF4928CV	140	147	156	183	1,5	3,5	6,0	4,15
1190	1400	NNS4928CV		147	156	183	1,5	3,5	6,0	4,20
1190	1400	NNSL4928CV		147	-	183	1,5	3,5	6,0	4,10
1100	1300	NNSF5028CV		150	150	200	2,0	4,0	7,0	11,1
1190	1400	NNSF4830CV	150	156	163	184	1,0	4,0	7,0	2,80
1190	1400	NNS4830CV		156	163	184	1,0	4,0	7,0	2,90
1190	1400	NNSL4830CV		156	-	184	1,0	4,0	7,0	2,70
1100	1300	NNSF4930CV		160	167	200	2,0	4,0	7,0	6,55
1100	1300	NNS4930CV		160	167	200	2,0	4,0	7,0	6,65
1100	1300	NNSL4930CV		160	-	200	2,0	4,0	7,0	6,45
1020	1200	NNSF5030CV		160	160	215	2,0	4,0	7,0	13,3
1100	1300	NNSF4832CV	160	166	171	194	1,0	4,0	7,0	3,00
1100	1300	NNS4832CV		166	171	194	1,0	4,0	7,0	3,10
1100	1300	NNSL4832CV		166	-	194	1,0	4,0	7,0	2,90
1020	1200	NNSF4932CV		170	181	210	2,0	4,0	7,0	6,90
1020	1200	NNS4932CV		170	181	210	2,0	4,0	7,0	7,00
1020	1200	NNSL4932CV		170	-	210	2,0	4,0	7,0	6,80
930	1100	NNSF5032CV		171	171	229	2,0	4,0	7,0	16,2

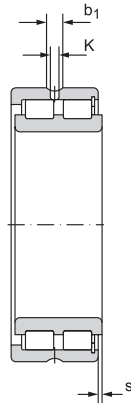


Double row full complement cylindrical roller bearings

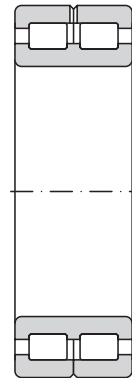
d = 170 to 220 mm



NNSL



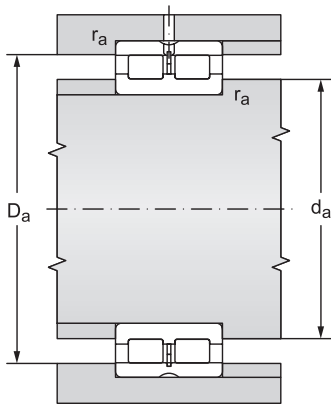
NNSF



NNS

12.4.4

Main dimensions						Basic load rating		Fatigue load limit
d	D	B	r <sub>s</sub>	E	s <sup>1)</sup>	dynamic C <sub>r</sub>	static C <sub>or</sub>	P <sub>u</sub>
			min					
mm						kN		kN
170	215	45	1,1	201,30	3,0	270,0	650,0	42,97
	215	45	1,1	201,30	-	270,0	650,0	42,97
	215	45	1,1	201,30	3,0	270,0	650,0	42,97
	230	60	2,0	215,08	4,0	450,0	950,0	62,08
	230	60	2,0	215,08	-	450,0	950,0	62,08
	230	60	2,0	215,08	4,0	450,0	950,0	62,08
	260	122	2,1	243,00	6,0	1200,0	2100,0	134,29
180	225	45	1,1	214,10	3,0	290,0	695,0	45,25
	225	45	1,1	214,10	-	290,0	695,0	45,25
	225	45	1,1	214,10	3,0	485,0	695,0	45,25
	250	69	2,0	230,50	4,0	580,0	1220,0	78,02
	250	69	2,0	230,50	-	580,0	1220,0	78,02
	250	69	2,0	230,50	4,0	580,0	1220,0	78,02
	280	136	2,1	260,50	8,0	1400,0	2500,0	156,67
190	240	50	1,5	225,00	4,0	320,0	750,0	47,96
	240	50	1,5	225,00	-	320,0	750,0	47,96
	240	50	1,5	225,00	4,0	320,0	750,0	47,96
	260	69	2,0	240,70	4,0	590,0	1290,0	81,38
	260	69	2,0	240,70	-	590,0	1290,0	81,38
	260	69	2,0	240,70	4,0	590,0	1290,0	81,38
	290	136	2,1	270,00	8,0	1450,0	2600,0	160,87
200	250	50	1,5	235,50	4,0	325,0	800,0	50,47
	250	50	1,5	235,50	-	325,0	800,0	50,47
	250	50	1,5	235,50	4,0	325,0	800,0	50,47
	280	80	2,1	259,34	5,0	690,0	1500,0	92,81
	280	80	2,1	259,34	-	690,0	1500,0	92,81
	280	80	2,1	259,34	5,0	690,0	1500,0	92,81
	310	150	2,1	288,00	9,0	1650,0	3050,0	185,31
220	270	50	1,5	256,50	4,0	340,0	860,0	52,88
	270	50	1,5	256,50	-	340,0	860,0	52,88
	270	50	1,5	256,50	4,0	340,0	860,0	52,88
	300	80	2,1	276,52	5,0	725,0	1600,0	96,65
	300	80	2,1	276,52	-	725,0	1600,0	96,65
	300	80	2,1	276,52	5,0	725,0	1600,0	96,65
	340	160	3,0	312,20	9,0	2000,0	3600,0	212,68



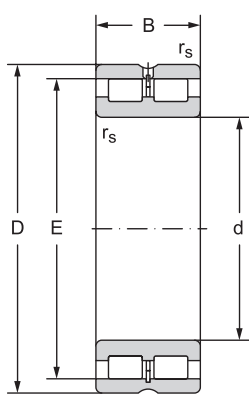
<sup>1)</sup> Admissible axial load

<sup>2)</sup> Recommended diameter of fitting for axially loaded bearings

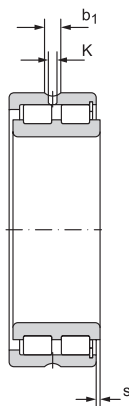
Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions					Lubrication slot and holes		Weight
grease	oil		d	d <sub>a</sub>	d <sub>as</sub> <sup>2)</sup>	D <sub>a</sub>	r <sub>a</sub>	a	b	
min <sup>-1</sup>			mm							kg
1120	1200	NNSF4834CV	170	176	184	209	1,0	4,0	7,0	4,00
1020	1200	NNS4834CV		176	184	209	1,0	4,0	7,0	4,10
1020	1200	NNSL4834CV		176	-	209	1,0	4,0	7,0	3,90
930	1100	NNSF4934CV		180	190	220	2,0	4,0	7,0	7,20
930	1100	NNS4934CV		180	190	220	2,0	4,0	7,0	7,35
930	1100	NNSL4934CV		180	-	220	2,0	4,0	7,0	7,10
850	1000	NNSF5034CV		181	181	249	2,0	4,0	7,0	23,0
930	1100	NNSF4836CV	180	186	197	219	1,0	4,0	7,0	4,20
930	1100	NNS4836CV		186	197	219	1,0	4,0	7,0	4,30
930	1100	NNSL4836CV		186	-	219	1,0	4,0	7,0	4,10
850	1000	NNSF4936CV		190	202	240	2,0	4,0	7,0	10,7
850	1000	NNS4936CV		190	202	240	2,0	4,0	7,0	10,8
850	1000	NNSL4936CV		190	-	240	2,0	4,0	7,0	10,5
850	1000	NNSF5036CV		191	206	269	2,0	4,0	8,0	30,5
850	1000	NNSF4838CV	190	197	206	233	1,5	4,0	7,0	5,50
850	1000	NNS4838CV		197	206	233	1,5	4,0	7,0	5,65
850	1000	NNSL4838CV		197	-	233	1,5	4,0	7,0	5,30
850	1000	NNSF4938CV		200	212	250	2,0	4,0	7,0	11,1
850	1000	NNS4938CV		200	212	250	2,0	4,0	7,0	11,2
850	1000	NNSL4938CV		200	-	250	2,0	4,0	7,0	10,9
800	950	NNSF5038CV		201	201	279	2,0	4,0	8,0	31,5
850	1000	NNSF4840CV	200	207	217	243	1,5	4,0	7,0	5,80
850	1000	NNS4840CV		207	217	243	1,5	4,0	7,0	5,90
850	1000	NNSL4840CV		207	-	243	1,5	4,0	7,0	5,70
800	950	NNSF4940CV		211	227	269	2,0	4,0	8,0	15,6
800	950	NNS4940CV		211	227	269	2,0	4,0	8,0	15,8
800	950	NNSL4940CV		211	-	269	2,0	4,0	8,0	15,3
800	950	NNSF5040CV		211	230	299	2,0	4,0	8,0	41,0
800	950	NNSF4844CV	220	227	238	263	1,5	4,0	7,0	6,30
800	950	NNS4844CV		227	238	263	1,5	4,0	7,0	6,40
800	950	NNSL4844CV		227	-	263	1,5	4,0	7,0	6,20
800	950	NNSF4944CV		231	244	289	2,0	4,0	8,0	17,0
800	950	NNS4944CV		231	244	289	2,0	4,0	8,0	17,2
800	950	NNSL4944CV		231	-	289	2,0	4,0	8,0	16,8
720	850	NNSF5044CV		235	248	325	2,5	6,0	8,0	52,5

Double row full complement cylindrical roller bearings

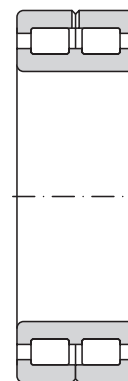
d = 240 to 320 mm



NNSL



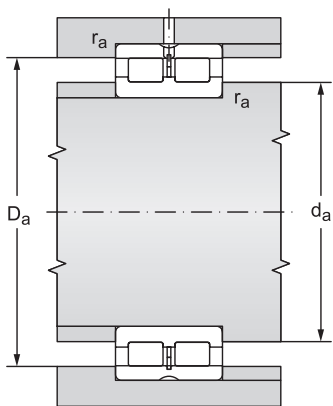
NNSF



NNS

12.4.4

Main dimensions						Basic load rating		Fatigue load limit
d	D	B	r <sub>s</sub>	E	s <sup>1)</sup>	dynamic C <sub>r</sub>	static C <sub>or</sub>	P <sub>u</sub>
			min					
mm						kN		kN
240	300	60	2,0	281,90	4,0	530,0	1290,0	77,05
	300	60	2,0	281,90	-	530,0	1290,0	77,05
	300	60	2,0	281,90	4,0	530,0	1290,0	77,05
	320	80	2,1	299,46	5,0	770,0	1750,0	103,39
	320	80	2,1	299,46	-	770,0	1750,0	103,39
	320	80	2,1	299,46	5,0	770,0	1750,0	103,39
	360	160	3,0	335,60	9,0	2100,0	3900,0	225,68
260	320	60	2,0	304,20	4,0	550,0	1400,0	81,84
	320	60	2,0	304,20	-	550,0	1400,0	81,84
	320	60	2,0	304,20	4,0	550,0	1400,0	81,84
	360	100	2,1	331,33	6,0	1150,0	2550,0	146,12
	360	100	2,1	331,33	-	1150,0	2550,0	146,12
	360	100	2,1	331,33	6,0	1150,0	2550,0	146,12
	400	190	4,0	373,50	10,0	2850,0	5100,0	286,80
280	350	69	2,0	332,40	4,0	720,0	1850,0	105,50
	350	69	2,0	332,40	-	720,0	1850,0	105,50
	350	69	2,0	332,40	4,0	720,0	1850,0	105,50
	380	100	2,1	353,34	6,0	1200,0	2700,0	151,84
	380	100	2,1	353,34	-	1200,0	2700,0	151,84
	380	100	2,1	353,34	6,0	1200,0	2700,0	151,84
	420	190	4,0	389,00	10,0	2900,0	5300,0	292,84
300	380	80	2,1	356,70	6,0	850,0	2100,0	117,04
	380	80	2,1	356,70	-	850,0	2100,0	117,04
	380	80	2,1	356,70	6,0	850,0	2100,0	117,04
	420	118	3,0	385,51	6,0	1650,0	3750,0	205,45
	420	118	3,0	385,51	-	1650,0	3750,0	205,45
	420	118	3,0	385,51	6,0	1650,0	3750,0	205,45
	460	218	4,0	433,00	9,0	3250,0	6550,0	353,08
320	400	80	2,1	379,70	6,0	890,0	2280,0	124,91
	400	80	2,1	379,70	-	890,0	2280,0	124,91
	400	80	2,1	379,70	6,0	890,0	2280,0	124,91
	440	118	3,0	412,27	6,0	1750,0	4050,0	218,32
	440	118	3,0	412,27	-	1750,0	4050,0	218,32
	440	118	3,0	412,27	6,0	1750,0	4050,0	218,32
	480	218	4,0	449,00	9,0	3650,0	6950,0	368,92



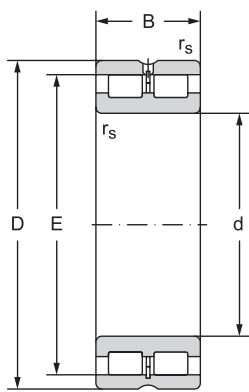
<sup>1)</sup> Admissible axial load

<sup>2)</sup> Recommended diameter of fitting for axially loaded bearings

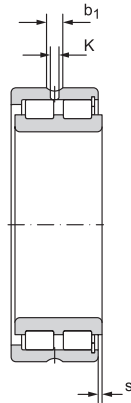
Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions					Lubrication slot and holes		Weight
grease	oil		d	d <sub>a</sub>	d <sub>as</sub> <sup>2)</sup>	D <sub>a</sub>	r <sub>a</sub>	a	b	
min <sup>-1</sup>				min	max	max	max			kg
			mm							
760	900	NNSF4848CV	240	250	257	290	2,0	4,0	8,0	9,90
760	900	NNS4848CV		250	257	290	2,0	4,0	8,0	10,00
760	900	NNSL4848CV		250	-	290	2,0	4,0	8,0	9,80
720	850	NNSF4948CV		251	267	309	2,0	4,0	8,0	18,3
720	850	NNS4948CV		251	267	309	2,0	4,0	8,0	18,5
720	850	NNSL4948CV		251	-	309	2,0	4,0	8,0	17,9
680	800	NNSF5048CV		255	271	345	2,5	5,0	9,4	56,0
680	800	NNSF4852CV	260	270	280	310	2,0	4,0	8,0	10,8
680	800	NNS4852CV		270	280	310	2,0	4,0	8,0	11,0
680	800	NNSL4852CV		270	-	310	2,0	4,0	8,0	10,6
630	750	NNSF4952CV		271	290	349	2,0	5,0	9,4	31,6
630	750	NNS4952CV		271	290	349	2,0	5,0	9,4	32,0
630	750	NNSL4952CV		271	-	349	2,0	5,0	9,4	31,2
590	700	NNSF5052CV		278	297	382	3,0	5,0	9,4	85,5
630	750	NNSF4856CV	280	290	305	340	2,0	4,0	8,0	15,8
630	750	NNS4856CV		290	305	340	2,0	4,0	8,0	16,0
630	750	NNSL4856CV		290	-	340	2,0	4,0	8,0	15,6
590	700	NNSF4956CV		291	312	369	2,0	5,0	9,4	33,5
590	700	NNS4956CV		291	312	369	2,0	5,0	9,4	34,0
590	700	NNSL4956CV		291	-	369	2,0	5,0	9,4	33,0
570	670	NNSF5056CV		298	314	402	3,0	5,0	9,4	90,5
590	700	NNSF4860CV	300	311	325	369	2,0	5,0	9,4	22,5
590	700	NNS4860CV		311	325	369	2,0	5,0	9,4	23,0
590	700	NNSL4860CV		311	-	369	2,0	5,0	9,4	22,0
570	670	NNSF4960CV		315	335	405	2,5	5,0	9,4	52,5
570	670	NNS4960CV		315	335	405	2,5	5,0	9,4	53,0
570	670	NNSL4960CV		315	-	405	2,5	5,0	9,4	52,0
510	600	NNSF5060CV		318	343	442	3,0	5,0	9,4	130
530	630	NNSF4864CV	320	331	348	389	2,0	5,0	9,4	23,5
530	630	NNS4864CV		331	348	389	2,0	5,0	9,4	24,0
530	630	NNSL4864CV		331	-	389	2,0	5,0	9,4	23,0
510	600	NNSF4964CV		335	362	425	2,5	5,0	9,4	55,5
510	600	NNS4964CV		335	362	425	2,5	5,0	9,4	56,0
510	600	NNSL4964CV		335	-	425	2,5	5,0	9,4	55,0
470	560	NNSF5064CV		338	360	462	3,0	5,0	9,4	135

Double row full complement cylindrical roller bearings

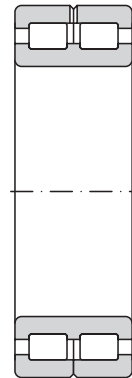
d = 340 to 400 mm



NNSL



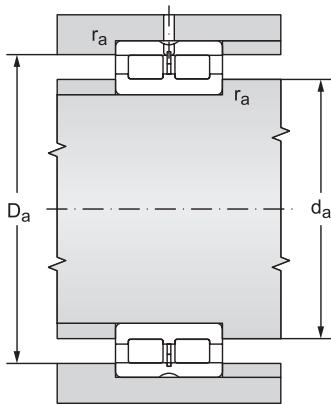
NNSF



NNS

12.4.4

Main dimensions						Basic load rating		Fatigue load limit
d	D	B	r <sub>s</sub>	E	s <sup>1)</sup>	dynamic C <sub>r</sub>	static C <sub>or</sub>	P <sub>u</sub>
			min					
mm						kN		kN
340	420	80	2,1	396,90	6,0	900,0	2400,0	129,37
	420	80	2,1	396,90	-	900,0	2400,0	129,37
	420	80	2,1	396,90	6,0	900,0	2400,0	129,37
	460	118	3,0	430,11	6,0	1780,0	4250,0	225,60
	460	118	3,0	430,11	-	1780,0	4250,0	225,60
	460	118	3,0	430,11	6,0	1780,0	4250,0	225,60
	520	243	5,0	485,00	11,0	4350,0	8300,0	431,13
360	440	80	2,1	419,80	6,0	925,0	2550,0	135,36
	440	80	2,1	419,80	-	925,0	2550,0	135,36
	440	80	2,1	419,80	6,0	925,0	2550,0	135,36
	480	118	3,0	448,00	6,0	1820,0	4500,0	235,40
	480	118	3,0	448,00	-	1820,0	4500,0	235,40
	480	118	3,0	448,00	6,0	1820,0	4500,0	235,40
	540	243	5,0	503,00	11,0	4450,0	8650,0	443,22
380	480	100	2,1	455,80	6,0	1400,0	3650,0	189,59
	480	100	2,1	455,80	-	1400,0	3650,0	189,59
	480	100	2,1	455,80	6,0	1400,0	3650,0	189,59
	520	140	4,0	481,35	7,0	2350,0	5700,0	292,06
	520	140	4,0	481,35	-	2350,0	5700,0	292,06
	520	140	4,0	481,35	7,0	2350,0	5700,0	292,06
	560	243	5,0	521,00	11,0	4650,0	9150,0	462,76
400	500	100	2,1	470,59	6,0	1420,0	3750,0	192,15
	500	100	2,1	470,59	-	1420,0	3750,0	192,15
	500	100	2,1	470,59	6,0	1420,0	3750,0	192,15
	540	140	4,0	501,74	7,0	2400,0	6000,0	303,45
	540	140	4,0	501,74	-	2400,0	6000,0	303,45
	540	140	4,0	501,74	7,0	2400,0	6000,0	303,45
	600	272	5,0	558,00	11,0	5500,0	11000,0	546,10



<sup>1)</sup> Admissible axial load

<sup>2)</sup> Recommended diameter of fitting for axially loaded bearings

Limiting speed for lubrication with		Bearing designation	Abutment and fillet dimensions					Lubrication slot and holes		Weight
grease	oil		d	d <sub>a</sub>	d <sub>as</sub> <sup>2)</sup>	D <sub>a</sub>	r <sub>a</sub>	a	b	
min <sup>-1</sup>			mm							kg
510	600	NNSF4868CV	340	351	365	409	2,0	5,0	9,4	25,0
510	600	NNS4868CV		351	365	409	2,0	5,0	9,4	25,5
510	600	NNSL4868CV		351	-	409	2,0	5,0	9,4	24,5
470	560	NNSF4968CV		355	380	445	2,5	5,0	9,4	58,5
470	560	NNS4968CV		355	380	445	2,5	5,0	9,4	59,0
470	560	NNSL4968CV		355	-	445	2,5	5,0	9,4	57,8
450	530	NNSF5068CV		361	384	497	4,0	5,0	9,4	185
470	560	NNSF4872CV	360	371	388	429	2,0	5,0	9,4	26,5
470	560	NNS4872CV		371	388	429	2,0	5,0	9,4	27,0
470	560	NNSL4872CV		371	-	429	2,0	5,0	9,4	26,0
450	530	NNSF4972CV		375	398	465	2,5	5,0	9,4	61,5
450	530	NNS4972CV		375	398	465	2,5	5,0	9,4	62,0
450	530	NNSL4972CV		375	-	465	2,5	5,0	9,4	60,8
420	500	NNSF5072CV		383	402	517	4,0	5,0	9,4	195
450	530	NNSF4876CV	380	391	415	469	2,0	5,0	9,4	44,8
450	530	NNS4876CV		391	415	469	2,0	5,0	9,4	45,5
450	530	NNSL4876CV		391	-	469	2,0	5,0	9,4	44,0
420	500	NNSF4976CV		398	424	502	3,0	5,0	9,4	91,5
420	500	NNS4976CV		398	424	502	3,0	5,0	9,4	92,5
420	500	NNSL4976CV		398	-	502	3,0	5,0	9,4	90,5
400	480	NNSF5076CV		403	420	537	4,0	5,0	9,4	200
420	500	NNSF4880CV	400	411	430	489	2,0	5,0	9,4	46,2
420	500	NNS4880CV		411	430	489	2,0	5,0	9,4	46,5
420	500	NNSL4880CV		411	-	489	2,0	5,0	9,4	45,9
400	480	NNSF4980CV		418	444	522	3,0	5,0	9,4	95,5
400	480	NNS4980CV		418	444	522	3,0	5,0	9,4	96,5
400	480	NNSL4980CV		418	-	522	3,0	5,0	9,4	94,5
380	450	NNSF5080CV		423	449	577	4,0	5,0	9,4	270