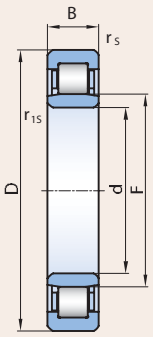
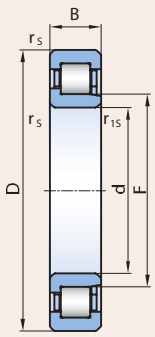
CYLINDRICAL ROLLER BEARINGS

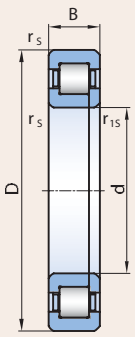
single row



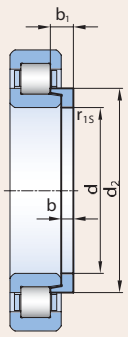
NU
NU+HJ=NUJ



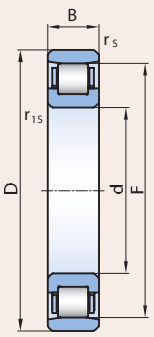
NJ
NJ+HJ=NH



NUP

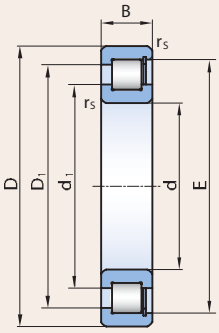


HJ



PSL

Pict. 1

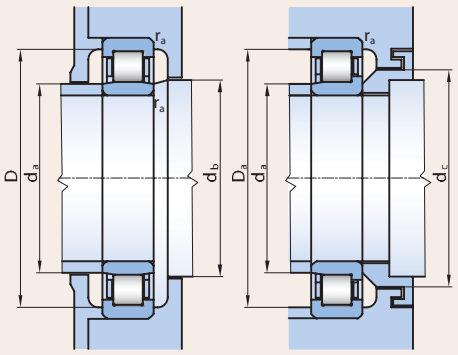


PSL

Pict. 2

Dimensions											Basic Load Ratings		Limited Speed for Lubrication		Bearing Designation
d	D	B	r_s min	r_{1s} max	F	E	S[1]	d_2 max	b	b_1	C_r dyn.	C_{or} stat.	with grease	with oil	PSL
					[mm]						[kN]		[min^{-1}]		
170	250	30	2.5	2	229		4.2				261	369	2400	2800	**PSL 410-27** Pict.1
200	310	51	2.1	2.1	229		4.1				383	531	1900	2200	**NU1040**
220	340	56	3	3	250		4.1				501	694	1700	2000	**NU1044**
240	360	56	3	3	270		4.0				531	764	1600	1900	**NU1048**
240	440	72	4	4	295		2.0	315	16	29.5	944	1280	1300	1600	**NU248 NUJ248 NJ248 NH248**
260	400	65	4	4	296		4.3				643	962	1400	1700	**NU1052 NUP1052**
260	480	130	5	5	320		5.0				1760	2900	1100	1400	**NU2252**
280	420	65	4	4	316		4.5				681	1020	1300	1600	**NU1056**
300	460	74	4	4	340			357.6	19	36	891	1310	1200	1400	**NU1060 NUJ1060 NJ1060 NH1060**
300	460	74	4	4	340		5.0				891	1310	1200	1400	**PSL 412-305 NU**
320	480	74	4	4	360		5.0				909	1390	1100	1300	**NU1064**
360	540	82	5	5	480		4.5[2]	423	21	39.5	1076	1753	950	1100	**NU1072 NH1072**
360	440	38	2.1	2.1		419	6.0				426	930	550	800	**PSL 412-301** Pict.2
380	560	82	5	5	425		6.0[2]				1166	1982	850	1000	**NU1076**
380	480	46	2.1	2.1		453	5.0				573	1228	300	600	**PSL 412-202** Pict.2
400	600	90	5	5	450		5.0	470	19.6	42.6	1470	2330	840	1000	**NU1080 NU1080 K NUJ1080**
400	600	148	5	5	450		16.0				2255	4900	760	910	**NU3080**
400	720	185	6	6	480		6.0[2]				3410	5960	710	840	**NU2280**
400	500	46	2.1	2.1		476					590	1298	290	580	**PSL 412-203** Pict.2
440	540	46	2.1	2.1	468		12.0				535	1240	790	920	**NJ1888MA**
600	800	118	5	5	650						2230	4853	560	700	**NU29/600 NUP29/600**
647.7	774.7	101.6	4	4		746.2					2020	5340	495	580	**PSL 412-307 NP**
670	900	103	6	6	728						2352	4965	440	590	**NU19/670 MA**
704	864	60	3	3	760						544	1384	410	490	**PSL 412-200 NU**
710	870	95	4	4		830	15.0				2240	6000	220	260	**PSL 412-304** Pict.2
850	1120	155	8	8	925						3760	8740	380	450	**NU29/850 NUP29/850**
850	1050	125	5	5	894		17.0				3314	8264	380	450	**PSL 412-303 NJ**
900	1180	165	8	8	982						4220	9810	300	400	**NU29/900 NUP29/900**
940	1120	65	4	4	1003		17.0				945	2532	300	360	**PSL 412-201 NU**
950	1250	175	10	10	1032		17.0				4577	11452	300	370	**NU29/950 NUP29/950**
1000	1320	185	10	10	1090		20.0				4920	11600	300	350	**NU29/1000 NUP29/1000**
1060	1400	195	10	10	1155		21.0				5410	12800	280	330	**NU29/1060 NUP29/1060**
1180	1540	206	10	10	1280		21.0				6310	15300	250	300	**NU29/1180 NUP29/1180**
1320	1600	165	6	6	1400						5100	14430	120	160	**PSL 412-300 NU**
1700	2140	320	7.5	7.5	1805						14920	42050	168	196	**PSL 412-308** [3]

1) Permissible axial displacement from the central position
2) Permissible axial displacement in axially free direction
3) Contact PSL for information on bearing design



Weight		Abutment and Fillet Dimensions						
Bearing	loose rib/ring	d	d_a min	d_a max	d_b min	d_c min	D_a max	r_a max
[kg]		[mm]						
5.41								
14		200	212	220	233	-	298	2
18.5		220	234	240	254	-	326	2.5
20		240	254	260	275	-	346	2.5
50.5	4.68	240	258	293	298	346	422	3
29		260	278	280	300	-	382	3
90		260	280	309	324	-	460	4
32.5		280	296	311	320	-	404	3
44	5.63	300	318	325	344	360	442	3
43.6								
48.5		320	336	355	364	-	464	3
67.5	10	360	382	390	410	-	518	4
12								
71		380	400	420	430	-	540	4
19.2								
89	10.5	400	422	435	455	-	578	4
150.5		400	422	435	455	-	578	4
350		400	426	460	485	-	694	5
20								
22		440	455	465	473	-	512	2
173		600	614	644	654	675	750	4
98.4								
195		670	696	723	734		874	5
79.2								
116								
430		850	878	920	930	952	1092	5
249								
500		900	928	977	987	1011	1152	5
126								
597		950	978	1027	1041	1066	1220	5
720		1000	1036	1085	1095	1122	1284	6
850		1060	1096	1150	1160	1189	1364	6
1050		1180	1216	1275	1285	1316	1504	6
730								
2730								

The single row cylindrical roller bearings are suitable for accommodation of heavy radial loads operating under high rotational speed.The single row cylindrical roller bearings are separable. They are manufactured in several basic designs: axially firm which (NUP, NH) can carry a certain axial load in both directions, axially loose (NU) which allows the mutual displacement of the rings in both directions and in the design (NJ, NUJ) which carries the axial load in one direction.

Suffixes

C3,C4,C5 – Radial clearance greater than normal
R... – Radial clearance in non-standard range
K – Tapered bore, taper 1:12
F – Machined steel cage, rolling elements centred
M – Machined brass cage, rolling elements centred
.A – Cage centred on the outer ring (it is connected with the designation of the cage material)
..P – Machined window-type cage
..S – Cage with lubricating grooves
P6 – Higher tolerance class than standard
S0 – Stabilization of dimensions for operating temperature up to 150 °C

Cages

The single row cylindrical roller bearings usually have in the basic design cages as indicated in the table (the symbol for material and cage design are not indicated):

Bearing type	Cage type
NU,NUJ,NJ,NH10..	F,M,MA,MAPS
NU,NUJ,NJ,NH2..	F,M,MA
NU22..	MA
NU,NUP29..	F,M
NU30..	M

Radial equivalent load:

- dynamic: $P_r = F_r$ [kN]
- static: $P_{ro} = F_{ro}$ [kN]

Permissible axial load:

As the axial load capacity is dependent on many factors it is not possible to express it by means of a simple calculation. Under the presumption of standard operation conditions it is possible to calculate the maximum permissible axial load ($F_{a\,max}$) with sufficient accuracy. In an opposite case the relations are only informative.

$$F_{a\,max} = \frac{0{,}5C_{or}\cdot 10^4}{n(d+D)} - 0{,}05\,Fr \quad \text{for oil lubrication} \qquad [kN]$$

$$F_{a\,max} = \frac{0{,}35C_{or}\cdot 10^4}{n(d+D)} - 0{,}03\,F_r \quad \text{for grease lubrication} \qquad [kN]$$

$F_{a\,max}$ - Maximum permissible axial load [kN]
C_{or} - Radial basic static load rating [kN]
F_r - Radial bearing load [kN]
n - Rotational speed [min^{-1}]
d - Bearing bore diameter [mm]
D - Bearing outside diameter [mm]

The simultaneous acting of the radial force with the axial load on the bearing is necessary for reliable function of the bearing. The ratio of these loads F_a/F_r cannot be greater than 0.4.