

## Single-row cylindrical roller bearings

Single-row cylindrical roller bearings usually carry radial loads, their rollers and raceways are line contact. To compare with radial ball bearings having the same dimensions, their radial loading capacity is 1.5–3 times higher. They can't carry axial loads, but they have impact resistance and better stiffness.

Single-row cylindrical roller bearings are separable bearings, the rollers are guided by the two ribs of bearing rings. The cage, rollers and guide ring are assembled to a unit, and can be separated from the other ring. These bearings are easy to be mounted and dismounted, especially inner and outer rings interference fit with shafts and housings.

The structures of cylindrical roller bearings are distinguished by ribs. Type N has inner ring with two ribs and outer ring without rib; type NU has outer ring with two ribs and inner ring without rib; type NJ has inner ring with one rib and outer ring with two ribs, and can carry certain axial loads in one direction; type NF has inner ring with two ribs and outer ring with one rib.

The machining accuracy of shafts and housings which is fitted with single-row cylindrical bearings is high, the obliquity is forbidden between inner and outer ring axes. If the inner and outer ring axes were oblique, the contact between rollers and rings will be asymmetric, and the stress will be intensive, then it will have serious effects on bearing loading capacity and life. The edge effect between rollers and raceways will be down, and bearing life will be prolonged if there was some convexity on inner and outer raceways or roller generatrix.

The axial displacement of shafts or housings can't be limited by cylindrical roller bearings. If it was needed, they are often used with other bearings, such as deep groove ball bearings.

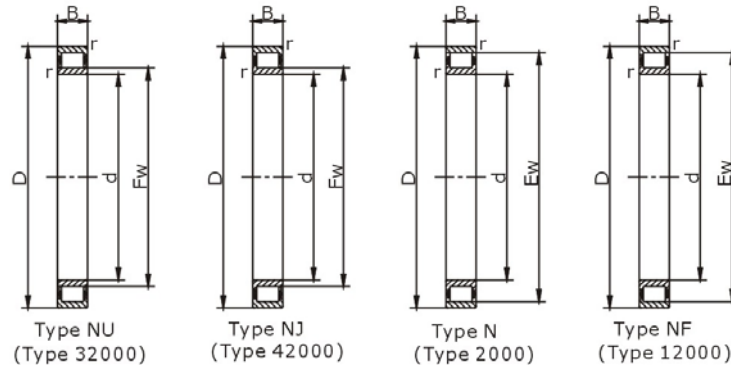
This type of bearings generally carry radial loads, but bearings with ribs on inner and outer rings can carry certain axial loads.

It is not permitted that the obliquity between shafts and housings, but  $2'$  angular misalignment between inner and outer ring axes is permitted under lower loads. If the loads were higher, the more angular misalignment will be permitted, but the upper limit is  $4'$ .

When  $D \leq 400\text{mm}$ , steel pressed cages are commonly used, and steel or brass solid cages are adopted for  $D > 400\text{mm}$ .

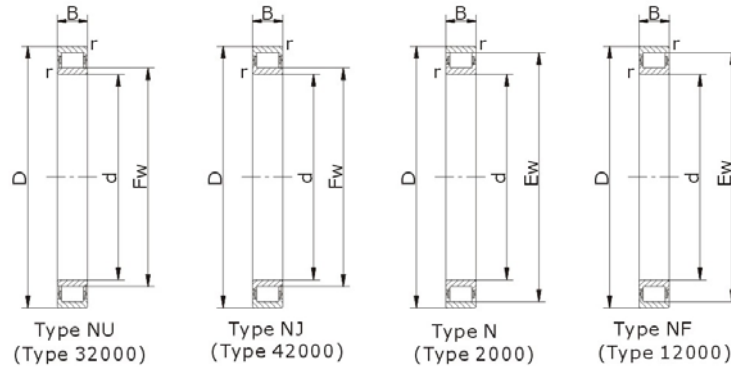
Single-row cylindrical roller bearings are mainly used in large-size generators, machine tool spindles, axle boxes, bent axles of diesel engines, gearboxes of automotives and tractors, and so on.

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Boundary dimensions						Basic load ratings		Designations		Mass	Limiting speeds	
mm						kN		Current	Original		kg	r/min
d	D	B	Fw	Ew	r <sub>min</sub>	Cr	Cor					
120	180	28	135	-	2	130	168	NU1024M	32124H	2.96	3400	4000
	180	28	135	-	2	130	168	NJ1024	42124	3.09	3400	4000
	215	40	-	191.5	2.1	250	211	N224E	2224H	6.2	2400	3000
	215	40	143.5	-	2.1	322	422	NU224E	32224H	6.2	2400	3000
	215	40	143.5	-	2.1	322	422	NJ224E	42224H	6.2	2400	3000
	240	80	150	-	3	477	408	NJ624	42724	17.8	2400	3200
	260	86	154	-	3	632	868	NU2324E	32624	23.8	1900	2400
	310	72	-	260	5	660	530	N424	2424	29	1900	2400
	310	72	170	-	5	642	772	NU424	32424	29.1	1900	2400
	310	72	170	-	5	642	772	NJ424	42424	29.1	1900	2400
130	200	33	148	-	2	152	212	NU1026	32126	3.84	3200	3800
	250	80	158	-	3	547	473	NJ626	42726	18.7	2200	3000
	280	58	-	243	4	515	410	N326E	2326	17.8	1800	2200
	280	58	167	-	4	492	620	NU326E	32326	17.9	1800	2200
	280	58	167	-	4	492	620	NJ326E	42326	18.2	1800	2200
	280	93	-	243	4	770	1060	N2326	2626	29	1800	2200
	280	93	167	-	4	748	1060	NU2326	32626	28.7	1800	2200
	280	93	167	-	4	748	1060	NJ2326	42626	29	1800	2200
	340	78	185	-	5	782	942	NU426	32426	41.5	1500	1900
	340	78	185	-	5	782	942	NJ426	42426	41.7	1500	1900
140	190	24	-	178	1.5	126	190	N1928	-	2	3200	3800
	190	24	154	-	1.5	126	190	NU1928	-	1.98	3200	3800
	210	33	158	-	1.1	190	270	NU1028	32128	3.87	2400	3000
	250	68	169	-	3	500	730	NU2228	32528	14.7	2000	2600
	250	68	169	-	3	438	700	NJ2228	42528	17	2000	2600
	300	62	-	260	4	545	690	NF328	12328	21.8	1800	2200
	300	62	-	260	4	545	690	N328	2328	21.9	1800	2200
	300	62	180	-	4	545	690	NU328	32328	22.2	1800	2200
	300	62	180	-	4	545	690	NJ328	42328	22.6	1800	2200
	300	102	-	260	4	825	1180	N2328	2628	34.6	1800	2200
	300	102	180	-	4	825	1180	NU2328E	32628	36	1800	2200
	360	82	-	304	5	845	1020	N428	2428	47	1400	1800
	360	82	196	-	5	845	1020	NU428	32428	48	1400	1800
	360	82	196	-	5	845	1020	NJ428	42428	48.8	1400	1800
150	210	28	-	195	2.1	135	205	N1930	-	2.88	2400	3200
	210	28	165	-	2.1	135	205	NU1930	-	2.96	2400	3200
	270	45	-	238	3	360	490	N230	2230	11.6	1900	2400
	270	45	182	-	3	360	490	NU230	32230	11.8	1900	2400
	270	45	182	-	3	360	490	NJ230	42230	12	1900	2400
	270	73	182	-	3	530	772	NJ2230	42530	18.1	1900	2400
	320	65	-	277	4	595	765	N330	2330	26.5	1700	2000
	320	65	193	-	4	595	765	NU330	32330	26.7	1700	2000
	320	65	193	-	4	595	765	NJ330	42330	26.9	1700	2000

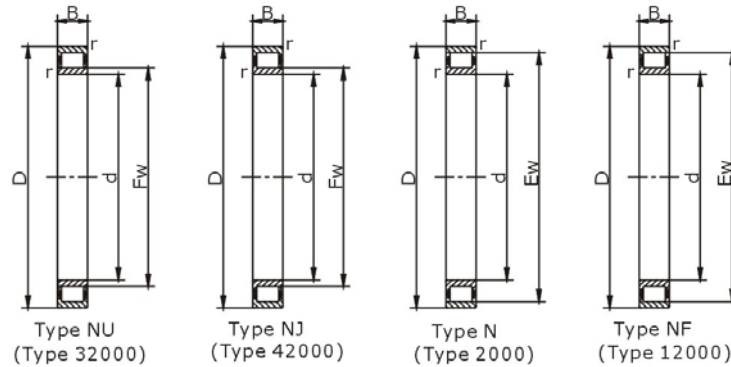
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Boundary dimensions						Basic load ratings		Designations		Mass kg	Limiting speeds r/min		
mm						kN		Current	Original		Grease	Oil	
d	D	B	Fw	Ew	r <sub>min</sub>	Cr	Cor						
150	320	108	–	277	4	930	1340	NF2330	12630	43.6	1700	2000	
	320	108	193	–	4	930	1340	NU2330	32630	45.7	1700	2000	
	320	108	193	–	4	930	1340	NJ2330	42630	45.7	1700	2000	
160	240	38	180	–	1.5	260	390	NU1032	32132	5.98	1900	2400	
	290	48	–	255	3	405	552	N232	2232	14.3	1800	2200	
	290	48	195	–	3	405	552	NU232	32232	14.4	1800	2200	
	290	48	195	–	3	405	552	NJ232	42232	14.2	1800	2200	
	290	80	193	–	3	590	898	NU2232	32532	24.5	1800	2200	
	340	68	–	292	4	628	825	N332	2332	30.8	1500	1800	
	340	68	208	–	4	628	825	NU332	32332	31	1500	1800	
	340	68	208	–	4	628	825	NJ332	42332	31.5	1500	1800	
	340	114	208	–	4	972	1430	NU2332	32632	54.5	1500	1800	
170	260	42	193	–	2.1	255	365	NU1034	32134	8.3	2200	2800	
	260	54	191	–	2.1	455	690	NU2034	–	10.4	2200	2800	
	310	52	–	272	4	425	650	N234	2234	18.2	1800	2200	
	310	52	208	–	4	425	650	NU234	32234	17.9	1800	2200	
	310	52	208	–	4	425	650	NJ234	42234	19.2	1800	2200	
	310	86	208	–	4	715	1080	NU2234	32534	30	1800	2200	
	310	86	208	–	4	715	1080	NJ2234	42534	29.3	1800	2200	
	360	72	–	310	4	715	952	N334	2334	38.1	1600	1900	
	360	72	220	–	4	715	952	NU334	32334	37.7	1600	1900	
	360	72	220	–	4	715	912	NJ334	42334	38.4	1600	1900	
	360	120	220	–	4	1110	1650	NU2334	32634	62.3	1400	1700	
	360	120	220	–	4	1110	1650	NJ2334	42634	63.6	1400	1700	
	180	280	46	205	–	2.1	385	560	NU1036	32136	10.5	1800	2200
320		52	–	282	4	425	650	N236	2236	19.7	1700	2000	
320		52	217	–	4	425	650	NU236	32236	19.2	1700	2000	
320		52	218	–	4	425	650	NJ236	42236	19.3	1700	2000	
320		86	215	–	4	745	1140	NU2236	32536	30.8	1700	2000	
320		86	215	–	4	745	1140	NJ2236	42536	31.9	1700	2000	
380		75	–	328	4	860	710	N336	2336	39.6	1500	1800	
380		75	232	–	4	835	1100	NU336	32336	42.8	1500	1800	
380		75	232	–	4	835	1100	NJ336	42336	42.7	1500	1800	
380		126	232	–	4	1200	1780	NU2336	32636	77.9	1300	1600	
380		126	232	–	4	1200	1780	NJ2336	42636	77.9	1300	1600	
190		260	42	208	–	2	239	216	NU2938	2032938	6.45	2000	2800
		290	46	215	–	2.1	395	595	NU1038	32138	11	2000	2800
	340	55	–	302	4	630	830	N238	2238	22.9	1600	1900	
	340	55	231	–	4	512	745	NU238	32238	21.6	1600	1900	
	340	55	231	–	4	512	745	NJ238	42238	22	1600	1900	
	340	92	–	299	4	910	1400	N2238	2538	38.6	1600	1900	
	340	92	231	–	4	975	1570	NU2238	32538	38.6	1600	1900	
	400	78	–	345	5	882	1190	N338	2338	50.2	1200	1500	
	400	78	245	–	5	882	1190	NU338	32338	48.5	1200	1500	

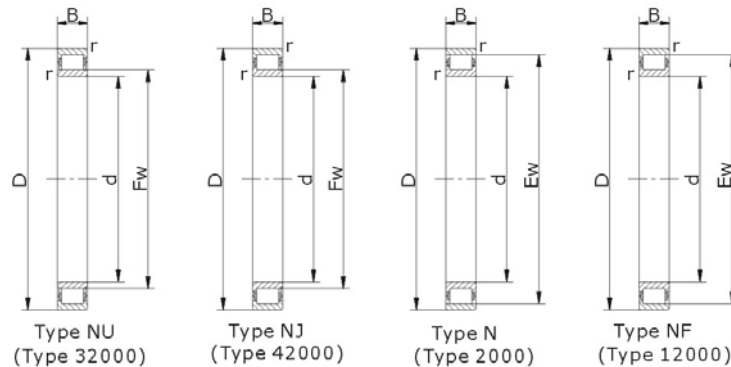


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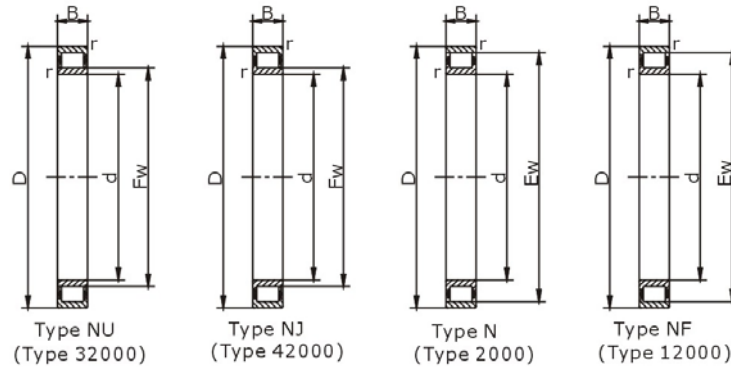
Boundary dimensions						Basic load ratings		Designations		Mass	Limiting speeds	
mm						kN		Current	Original		kg	r/min
d	D	B	Fw	Ew	r <sub>min</sub>	Cr	Cor					
200	310	51	-	281	2.1	408	408	N1040	42140	10.2	1900	2400
	310	51	229	-	2.1	408	615	NU1040	32140	14.3	1900	2400
	310	51	229	-	2.1	408	615	NJ1040	42140	14.7	1900	2400
	310	66	229	-	3	560	925	NU2040	-	18.5	1900	2400
	360	58	-	316	4	570	842	N240	2240	26.8	1500	1800
	360	58	244	-	4	570	842	NU240	32240	26.5	1500	1800
	360	58	244	-	4	570	842	NJ240	42240	27.1	1500	1800
	420	138	-	360	4	1510	2240	N2340	2640	94.5	1200	1500
	420	165	260	-	5	1730	2660	NU3340	3032340	118	1200	1500
220	340	56	250	-	3	448	685	NU1044	32144	19.3	1800	2200
	340	56	250	-	3	448	685	NJ1044	42144	19.6	1800	2200
	400	65	-	350	4	702	1050	N244	2244	36.7	1500	1800
	400	65	270	-	4	702	1050	NU244	32244	35	1500	1800
	400	65	270	-	4	702	1050	NJ244	42244	35.4	1500	1800
	400	108	259	-	4	1360	2330	NU2244	32544	62.2	1300	1600
	400	108	270	-	4	1360	2330	NJ2244	42544	62.2	1300	1600
	460	88	284	-	5	1080	1465	NU344	32344	75.6	1200	1500
	460	145	284	-	5	1780	2620	NU2344	32644	114	1000	1300
230	350	70	-	316	2.1	856	610	NF646	402746	26	1500	1900
	370	80	-	334	3	826	795	N646	2746	37	1400	1800
240	360	37	-	325	2.1	388	392	N0048	7002148	14.7	1000	1400
	360	56	270	-	3	470	745	NU1048	32148	20.4	1700	2000
	360	56	270	-	3	470	745	NJ1048	42148	21	1700	2000
	360	92	274	-	3	855	938	NU3048	3032148	35.5	1000	1300
	400	74	282	-	4	975	1500	NU1148	-	39.1	1300	1600
	440	72	-	395	4	1100	1550	N248	2248	50.3	1300	1600
	440	72	295	-	4	880	1345	NU248	32248	46.9	1300	1600
	440	72	295	-	4	880	1345	NJ248	42248	49.6	1300	1600
	440	120	295	-	4	1700	2500	NU2248E	-	84.1	1200	1500
	500	95	310	-	5	1290	1810	NU348	32348	97.7	1000	1300
	500	155	310	-	5	2000	2900	NU2348	-	150	1000	1300
250	380	50	-	347	4	660	643	N650	2750	19.8	1300	1700
260	400	44	-	360	3	552	603	N0052	7002152	22.7	1500	1800
	400	65	-	364	4	621	630	N1052	2152	30.8	1500	1800
	400	65	296	-	4	592	932	NU1052	32152	29.5	1500	1800
	440	144	298.5	-	4	2300	3500	NU3152E	-	92.9	1200	1500
	480	80	320	-	5	1100	1580	NU252	32252	67.2	1100	1400
280	350	33	299	-	2.1	210	440	NJ1856	-	7.31	1500	1800
	360	30	-	339	4	325	605	N1856X3	-	7.76	1400	1700
	380	46	-	354	2.1	495	875	N1956	-	15.3	1400	1700
	380	46	306	-	3	450	785	NU1956	-	14.5	1400	1700
	420	65	-	384	4	840	1500	N1056	2156	33	1400	1700
	420	82	316	-	4	1050	1900	NU2056	-	41.8	1400	1700
	420	65	316	-	4	600	965	NU1056	32156	33.4	1400	1700

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Boundary dimensions						Basic load ratings		Designations		Mass	Limiting speeds	
mm						kN		Current	Original		kg	r/min
d	D	B	Fw	Ew	r <sub>min</sub>	Cr	Cor					Grease
300	420	56	332	-	3	500	850	NU1960MA	-	23.4	1200	1500
	460	74	340	-	4	880	1470	NU1060	32160	44.4	1200	1500
	460	74	340	-	4	880	1470	NJ1060	42160	45.1	1200	1500
	460	118	340	-	4	1690	1340	NU3060	3032160	72	1060	1340
	500	160	358	-	5	2000	4000	NU3160	-	135	1000	1300
	540	85	364	-	5	1350	1290	NU260	32260	87.2	1000	1300
	620	109	385	-	7.5	2010	1840	NU360	32360	166	900	1100
320	400	38	-	380	2.1	340	680	N1864	-	10.7	1100	1400
	440	72	-	408	3	735	1520	N2964M	-	33.7	1200	1500
	480	74	360	-	4	890	1520	NU1064	32164	47	1100	1400
	480	74	360	-	4	890	1520	NJ1064	42164	47	1100	1400
	480	95	360	-	4	1540	2800	NU2064	-	61	1100	1400
340	520	57	-	470	4	810	1400	N0068	7002168	45.5	950	1200
	520	82	385	-	5	1200	2000	NU1068	32168	62.6	955	1200
	520	106	385	-	5	1950	3730	NU2068	-	84.6	955	1200
	530	133.5	-	476	4	1660	2600	N668	2768	117	880	1100
360	540	82	405	-	5	1200	2050	NU1072	32172	65.6	900	1100
	650	170	435	-	6	3500	6050	NU2272	32572	263	850	1000
	750	224	465	-	7.5	5010	8740	NU2372	32672	485	850	1000
380	480	60	-	455	2.1	800	1200	N2876	2002876	24.6	900	1100
	560	82	425	-	5	1250	2150	NU1076	32176	68.5	900	1100
	680	177	451	-	6	3860	6410	NU2276	-	282	700	900
400	540	65	438	-	4	785	988	NU1980	1032980	42.7	950	1150
	600	90	450	-	5	1420	2480	NU1080	32180	88.8	900	1100
	600	148	-	554	5	2400	4400	N3080	-	151	700	900
	600	148	458	-	5	2150	4450	NU3080	3032180	145	700	900
	650	145	-	585	6	2830	3030	N2180	2002780	190	700	900
420	620	90	470	-	5	1390	2380	NU1084	32184	91.7	700	900
440	546	46	468	-	2.5	413	760	NU688	32788	26.5	730	920
	650	94	493	-	6	1600	2850	NU1088	32188	106	700	900
	720	122	-	648	6	2320	2220	N1188	1002788	191	510	620
460	620	95	-	580	4	1340	2930	N2992	2002992	82.4	500	630
	620	95	504	-	4	1340	2060	NU2992	2032992	84	500	630
	760	240	529.3	-	7.5	5210	9690	NU3192	-	419	400	500
500	670	100	543	-	5	2000	2410	NU29/500	20329/500	99.5	560	710
	720	100	556	-	6	2050	3710	NU10/500	-	137	400	500
530	710	106	578	-	5	1770	3900	NU29/530	20329/530	123	400	500
560	820	115	625	-	6	2550	4700	NU10/560	-	205	380	460
600	730	60	635	-	3	830	1950	NU18/600	-	49.2	400	500
	800	90	-	750	5	1210	2140	N19/600	-	115	380	460
	800	90	649	-	5	1950	2650	NU19/600	-	122	380	460
	800	118	650	-	5	2430	5110	NUP29/600	-	173	380	460
630	850	100	688	-	6	1850	3900	NU19/630	10329/630	160	280	360
	850	128	685	-	6	3050	4260	NU29/630	20329/630	206	280	360

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mm						kN		Current	Original		r/min	
d	D	B	Fw	Ew	r <sub>min</sub>	Cr	Cor					kg
670	820	69	708	-	4	1230	2830	NJ18/670	-	78.4	280	360
700	930	160	760	-	6	3200	4580	NU6/700	327/700	295	310	390
710	870	74	750	-	4	1300	3000	NJ18/710	-	94.5	310	390
	950	106	-	890	6	2300	5000	N19/710	10023/710	205	220	300
	950	106	775	-	6	2300	5000	NU19/710	10329/710	207	220	300
800	1060	115	870	-	6	2760	6150	NU19/800	10329/800	280	200	240
840	1040	125	-	985	3	2530	5290	N6/840	27/840	240	200	240
850	1120	118	925	-	6	2780	6350	NU19/850	10329/850	320	170	220
	1120	118	-	1059	6	3318	7156	NF19/850	-	282	170	220
	1120	155	917	-	6	4450	10500	NU29/850	20329/850	425	170	220
870	1050	90	912	-	5	2140	5280	NJ18/870	-	152	170	220
880	950	60	898	-	2.5	775	2900	NU18/880	-	36.8	200	240
	950	60	898	-	2.5	800	3000	NUP18/880	-	39.4	200	240
950	1250	175	1024	-	7.5	5270	9120	NU29/950	20329/950	563	140	170
	1250	224	-	1170	7.5	6780	10500	N39/950	30029/950	745	140	170
1000	1210	92	-	1155	5	1350	2760	N18/1000	-	206	120	150
	1220	100	1053	-	6	2376	5895	NU18/1000	10328/1000	265	120	150
	1220	128	1058	-	6	3200	8850	NU28/1000	-	319	120	150
	1220	128	-	1165	6	3680	10020	NF28/1000	-	350	120	150
	1220	128	1053	-	6	2376	5896	NUP18/1000	10928/1000	287	120	150
	1320	185	1082	-	7.5	6336	15570	NU29/1000	20329/1000	700	110	140
1060	1280	165	1120	-	6	3750	11300	NU38/1060	-	427	120	150
	1280	128	-	1225	6	3222	9360	N28/1060	20028/1060	360	110	140
	1400	150	1162	-	7.5	4500	10000	NU19/1060	10329/1060	683	120	150
	1400	195	1142	-	7.5	6489	15570	NU29/1060	20329/1060	870	120	150
	1400	250	1146	-	7.5	8217	21600	NU39/1060	30329/1060	1070	120	150
	1500	325	-	1390	9.5	11700	29250	N30/1060	30021/1060	1900	-	-
1120	1360	106	1182	-	6	3069	7785	NJ18/1120	10428/1120	335	-	-
	1360	180	1180	-	6	5700	17300	NU38/1120	-	547	-	-
	1580	345	1231	-	9.5	14130	35100	NU30/1120	30321/1120	2150	-	-
1180	1420	106	1245	-	6	3250	8500	NU18/1180	-	328	-	-
	1420	106	1245	-	6	2727	7020	NJ18/1180	10428/1180	350	-	-
	1540	206	1258	-	7.5	8073	19440	NU29/1180	20329/1180	1050	-	-
	1540	272	-	1466	7.5	10080	26100	N39/1180	30029/1180	1400	-	-
1250	1750	290	-	1635	9.5	11520	27450	N20/1250	20021/1250	2320	-	-
	1630	170	1350	-	7.5	6300	15400	NU19/1250	-	952	-	-
1320	1600	122	1395	-	6	4200	9000	NU18/1320	10328/1320	530	-	-
	1600	122	1385	-	6	4000	9000	NJ18/1320	-	525	-	-
	1720	230	1420	-	7.5	10260	27450	NU29/1320	20329/1320	1500	-	-
	1720	175	1424	-	7.5	7000	17100	NU19/1320	-	1100	-	-
	1720	300	-	1640	7.5	11880	30600	N39/1320	30029/1320	1900	-	-
	1850	400	-	1737	12	19440	49500	N30/1320	30021/1320	3550	-	-
	1400	1700	175	-	1637	7.5	5940	16470	N28/1400	20028/1400	860	-
1900	2300	175	-	2204	9.5	7722	22500	N18/1900	10028/1900	1480	-	-