

URB GROUP

URB Railway Bearings

Double Row Cylindrical Roller Bearings

Ball Bearings

Double Row Cylindrical Roller Bearings with Ribs

Spherical Roller Bearings

Cylindrical Roller Bearing Specified By UIC

Double row Cylindrical Roller Bearings Standardized By UIC



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Technical Information

This publication is primarily geared towards manufacturers and operators of rail vehicles who use journal roller bearings, traction motor bearings and transmission bearings.

The following pages contain our product ranges for journal roller bearings, axle box bearings, transmissions and traction motors.

The quality demands we place on our products and services are the result of more than 56 years experience in the production of precision components for rail applications.

Through research and development, their performance has been adapted to meet the high requirements of modern rail vehicles.

We offer a large ranges of bearings (ball bearings and roller bearings) for rail application:

URB bearings for railway vehicles according UIC 510-1, EN 12080 and EN 12082:

Designation	Dimensions mm			Basic radial kN		Weight kg	Risk class
	d	D	B	dyn.	stat.		
Radial ball bearing							
6200 2RSRP6ELL	10	30	9	5.1	2.4	0.032	1B
6201 2RSRP6ELL	12	32	10	6.9	3.1	0.037	1B
6202 2RSRP6ELL	15	35	11	7.8	3.8	0.046	1B
6203 2RSRP6ELL	17	40	12	26	48	0.07	1B
6204 2RSRP6ELL	20	47	14	12.8	6.7	0.105	1B
6206 2ZRL	30	62	16	19.3	10.8	0.197	1B
6207 2ZL	35	72	17	25.7	15.6	0.29	1B
6304 P64L	20	52	15	15.9	7.9	0.158	1B
6308 C3L	40	90	23	40.8	24	0.641	1B
Cylindrical roller bearing							
NU204 EMA6C3L	20	47	14	25.7	22.2	0.132	1B
NU205 EMA6L	25	52	15	29.3	27.7	0.158	1B
NU207 EL	35	72	17	50.3	50.2	0.31	1B
NU207 EMAC4L	35	72	17	50.3	50.2	0.33	1B
NJ207 EMAC3L	35	72	17	50.3	50.2	0.33	1B
NJ208 EMAC4L	40	80	18	52.6	51.6	0.514	1B
NJ219 EMP63TR	95	170	32	210	249	3.24	1B
NJ220 EP62L	100	180	34	249	306	3.55	1B
NUP220 EMAP63L	100	180	34	249	306	3.88	1B
NU221 MAS0C3L	105	190	36	210	256	4.5	1B
NU222 EMP63L	110	200	38	279	343	5.29	1B
NU222 EMAP63L	110	200	38	279	343	5.69	1B
NUP222 EMC4TR	110	200	38	279	343	5.57	1B
NU224 EMC3L	120	215	40	329	412	6.46	1B
NU224 EMAP63L	120	215	40	329	412	6.43	1B
NU226 EMAP63L	130	230	40	356	443	7.45	1B
NU228 EMC3L	140	250	42	372	479	9.1	1B
NU228 EMAP63SOL	140	250	42	372	479	9.1	1B
NU230 EMAP63SOL	150	270	45	422	550	11.67	1B
NUP230 EMP63L	150	270	45	422	550	12.1	1B
NUP230 EMP63TR	150	270	45	422	550	12.1	1B
NUP230EMAP63TR	150	270	45	422	550	11.67	1B
NU232 EMAC3SOL	150	290	48	498	666	14.84	1B
NU2218 EMAC3L	90	160	40	242	314	3.58	1B
NU2219 EMP63TR	95	170	43	273	345	4.29	1B
NJ2219 EMP63TR	95	170	43	273	345	4.38	1B
NUP2219 EMP63TR	95	170	43	273	345	4.42	1B
NU2220 EMP63TR	100	180	46	319	418	5.15	1B
NJ2220 EMAP63L	100	180	46	319	418	5.22	1B
NJP2220 EMAP63L	100	180	46	319	418	4.77	1B
NU2222EMAP63SOL	110	200	53	383	516	7.22	1B
NUP2222 EMAP63L	110	200	53	383	516	7.86	1B
NU2224 EMAP63L	120	215	58	446	609	9.16	1B
NU2226 EMAP63L	130	230	64	523	726	11.6	1B
NU2226 EMC3L	130	230	64	523	726	11.6	1B
NU305 EMAC3L	25	62	17	41.2	37	0.296	1B
NJ305 EMAC3L	25	62	17	41.2	37	0.296	1B
NU306 EMAC3L	30	72	19	50.5	47	0.445	1B
NU307 EMAC3L	35	80	21	66.7	65.4	0.596	1B
NU307 EML	35	80	21	66.7	65.4	0.584	1B
NU308 EMAC3L	40	90	23	79.9	77.5	0.744	1B

NU308 EMC3L	40	90	23	79.9	77.5	0.745	1B
NU309 EP63L	45	100	25	97.4	98.3	0.897	1B
NU309 EMC3L	45	100	25	97.4	98.3	1.022	1B
NU309 EMAP63L	45	100	25	97.4	98.3	1.035	1B
NU310 EMAP63L	50	110	27	110	112	1.297	1B
NU312 EMAC3L	60	130	31	150	157	2.121	1B
NU314 EC4L	70	150	35	205	222	2.822	1B
NU314 EMA6P63L	70	150	35	205	222	3.208	1B
NU314 EM6P63L	70	150	35	205	222	3.213	1B
NU315 EMP63TR	75	160	37	240	263	3.84	1B
NUP315 EMP63TR	75	160	37	240	263	3.82	1B
NU316 EMAP63L	80	170	39	253	277	4.27	1B
NU317 EMAC3L	85	180	41	288	325	5.8	1B
NUP317 EMAP63L	85	180	41	288	325	5.4	1B
NU318 EMA P64L	90	190	43	311	349	6.44	1B
NJ318 EMC3L	90	190	43	311	349	6.14	1B
NJ318 EMAC3L	90	190	43	311	349	5.4	1B
NU320 EMP63L	100	215	47	381	427	8.53	1B
NU320 EMAP63L	100	215	47	381	427	8.6	1B
NJ320 EMC3L	100	215	47	381	427	8.6	1B
NJ320 EMAC3L	100	215	47	381	427	8.6	1B
NUP320 EMP63TR	100	215	47	381	427	8.23	1B
NU322EC3L	110	240	50	443	513	11.03	1B
NU322 EMAP63L	110	240	50	443	513	11.9	1B
NU322 EMP63L	110	240	50	443	513	11.66	1B
NU322 EMAP63SOL	110	240	50	443	513	11.03	1B
NJ324 EMC3L	120	260	55	543	644	14.99	1B
NU324 EMP63L	120	260	55	549	644	14.84	1B
NU326 EM6C3L	130	280	58	607	722	18.9	1B
NU326 EMAP63L	130	280	58	607	722	18.65	1B
NU1020 MAC3L	100	150	24	89	120	1.37	1B
NU1026 MC4L	130	200	33	163	221	3.76	1B
NU1026 MAC3L	130	200	33	163	221	3.76	1B
NU1026 MAC4SOL	130	200	33	163	221	3.76	1B
NU1032 MAP63L	160	240	38	230	328	6.04	1B
NU1034 MC3L	170	260	42	277	400	8.74	1B
NU1036 MC3L	180	280	46	336	479	10.52	1B
NU1036 MC3TR	180	280	46	336	479	10.52	1B
NU1040 MP63L	200	310	51	395	590	14.1	1B
NU1044 MAP63L	220	340	56	650	1047	18.7	1B
NU1044 MAP63SOL	220	340	56	650	1047	18.5	1B
NU2316 EMAP63L	80	170	39	353	425	6.6	1B
NU2317 EMA6P63L	85	180	60	368	446	7.6	1B
NU2319 MAP63L	95	200	67	390	491	9.3	1B
NU2322 EMAP63L	110	240	80	667	868	19.27	1B
NU2322 EMASOP63L	110	240	80	667	868	19.27	1B
NU2948 MAP63L	240	320	48	363	689	11.20	1B
NU407 MAP63L	35	100	25	75.7	69.4	1.17	1B
NU410 MAC3L	50	130	31	139	136	2.25	1B
NU410 MASOC3L	50	130	31	139	136	2.25	1B
NU414 MAP63L	70	180	42	240	253	5.9	1B
NU416 MAP63L	80	200	48	316	339	7.5	1B
NU424 MP64TR	120	310	72	677	776	29.92	1B
487632 MASC4	160	270	168	1000	1760	39.21	1B
WJ+WUJ110/215 MC3	110	215	73	773	1188	26.04	1A
WJ+WJP 110/215 MC3	110	215	73	773	1188	25.34	1A
WJ+WJP117/240 MC4	117	240	160	946	1464	34.7	1A
WJ+WJP118/240 MC4	118	240	160	946	1464	34.46	1A
WJ+WJP119/240 MC4	119	240	160	946	1484	34.22	1A
WJ+WJP120/240 MC3	120	240	160	946	1484	33.98	1A
WJ+WJP120/240 TNC3	120	240	160	946	1484	31.7	1A
WJ+WJP130/240 MC3	130	240	160	951	1620	32.74	1A
WJ+WJP130/240 TNC3	130	240	160	951	1620	30.08	1A
WJ+WJP130/250 MC4	130	250	160	1028	1660	37.7	1A
WJ130/250 F	130	250	80	609	816	18.874	1A
WJP130/250 F	130	250	80	609	816	18.874	1A
WJ+WJP130/250 F	130	250	160	1028	1660	37.75	1A
WJ+WJP130/260M6C4	130	260	172	1212	1932	37.7	1A
WJ+WJP140/300 MC4	140	300	102	1554	2460	71.62	1A
WJ+WJP160/320 MC4	160	320	102	1630	2676	81.57	1A
RWJ110/215 M	-	215	73	459	607	9.823	1A
RWJ120/240 M	-	240	80	560	755	12.780	1A
RWJ120/240 TN	-	240	80	560	755	11.636	1A
RWJ130/240 M	-	240	80	563	823	12.47	1A
RWJ130/240 TN	-	240	80	563	823	11.143	1A
RWJ130/250 M	-	250	80	626	885	14.249	1A
RWJ140/300 M	-	300	102	990	1250	27.476	1A

Spherical roller bearings

23040 MBW33P6L	230	310	82	760	1350	21.82	1B
23226 MBP63L	130	230	80	760	1170	14.97	1B
23234 CC3L	170	310	110	1460	2320	35.82	1A
23234 CC3W33L	170	310	110	1460	2320	35.67	1A
23234 CC3W33-168L	168	310	110	1460	2320	35.77	1A
23234 CC3W33-169L	169	310	110	1460	2320	35.77	1A
24132 CC3W33L	160	270	109	1250	2110	24.96	1A
24132 CC3W33-158L	158	270	109	1250	2110	25.040	1A
24132 CC3W33-159L	159	270	109	1250	2110	25.040	1A
24132 MBW33L	160	270	109	940	1558	25.38	1A
24136CC3L	180	300	118	1460	2590	33.52	1A
24136CC3-178L	178	300	118	1460	2590	33.52	1A
24136CC3-179L	179	300	118	1460	2590	33.52	1A
24136CC3W33L	180	300	118	1460	2590	33.42	1A
24136CC3W33-178L	178	300	118	1460	2590	33.42	1A
24136CC3W33-179L	179	300	118	1460	2590	33.42	1A
25126 MBKC3L	130	240	80	572	1104	15.314	1A
25128 MBKC4L	140	260	86	663	1288	19.960	1A
25129 CYC3L	144.475	250	80	728	1210	16.53	1A
25226 CC3L	131.796	220	73	561	934	11.192	1A
25226 CYC3W33L	131.796	220	73	561	934	11.172	1A
25326 CC3L	130	220	73	561	934	11.35	1A
22326 MBL	130	280	93	1080	1450	28.59	1A
23034 MBKC3L	170	260	67	680	1170	14.22	1A
23036 MBKC3L	180	280	74	800	1380	17.15	1A
23040 MBKC3L	200	310	82	760	1350	21.92	1A
23040 MBC3L	200	310	82	760	1350	22.02	1A
23956 MBC3W33L	180	250	52	454	830	7.79	1A

Internal Design

B - Asymmetrical rollers
C - Symmetrical rollers
E - Max. capacity symmetrical
R - Bearings without inner rings

Cage

M - Machined brass cage, roller centred
MA - Machined brass cage, outer ring centred
MB - Machined brass cage, inner ring centred
TN - Injection moulded cage of glass fibre reinforced polyamide 6.6

Bore Type

K - Tapered bore ratio 1:12
No code - Cylindrical

Radial Clearance

No code - Standard
C3 - Greater than Standard
C4 - Greater than C3

Running accuracy

P6 - Dimensional and running accuracy to ISO tolerance class 6
P63 - P6 +C3

Lubrication

W33 - Annular groove and three lubrication holes in the outer ring
2RSR - Bearing with 2 seals
2 ZR - Bearing with 2 shield
2 Z - Bearing with 2 shields and recess on the bearing

Destination

TR- traction motor bearings
L - Locomotive bearings
EL - Motors bearings
S0 - Bearing rings stabilized for use at operating temperature up to +150°

Calculation of rating life

Bearing life shall be calculated using ISO 281:2007.

For the calculation of roller bearing life the standard life equation is should be used according ISO 281:2007.

$$L_{10} = \left(\frac{C}{P} \right)^p$$

$$L_{10h} = \frac{1666}{n} \left(\frac{C}{P} \right)^p$$

where

L_{10} = basic rating life, millions of revolutions;
 L_{10h} = basic rating life, hours;
C = basic dynamic load rating according to ISO 281, kN;
P = dynamic equivalent bearing load, kN;
n = rotational speed, r/min;
p = life exponent (3 for ball bearings and 10/3 for roller bearings)

It is possible to convert the bearing life to vehicle running distance.

$$L_{10s} = L_{10} \frac{\pi \cdot D_w}{1000}$$

where
 D_w = wheel diameter, m;
 L_{10s} = bearing life expressed as vehicle running distance, millions of km;

For performing calculation modified life we developed a program for computer which consider the fatigue stress limit of the bearing steel and make it easy to estimate the influence of lubrication and contamination on bearing life.

Recommended life values for axleboxes bearings

Type of vehicle	L_{10s} mill.km	D_w m	C/P
Freight cars ¹⁾	1,7	0,9	6,8
Local traffic vehicles	1,5 to 2	0,7	7,1 to 7,7
Passenger coaches rail cars for district traffic ²⁾	2,0 to 4	0,9	7,2 to 8,8
Rail cars for long distance traffic	3,0 to 5	1,0	7,8 to 9,1
Locomotives	2,0 to 5	1,2	6,6 to 8,6

¹⁾ According to UIC: $L_{10s} = 0.8$ million km under constant full payload

²⁾ According to UIC: $L_{10s} = 3.0$ million km



Laboratory test

Our laboratory test types:

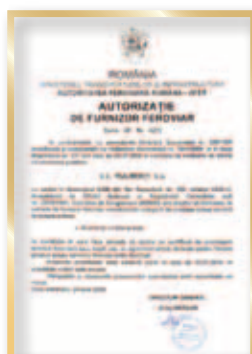
- tests for confirmation of basic dynamic load rating or rating life estimation for bearings from currently manufacture;
- tests of rating life, required by customers;
- tests on research problems (for verification of theoretical aspects regarding bearings design)

Guarantee

URB Group guaranty of good operating bearings for two years after delivery.

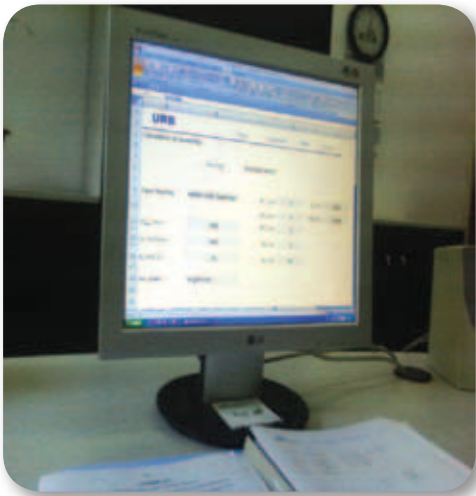
Certificates

The main target of our company is to meet our customers requirements, offering high quality products at competitive prices. We have a set of advanced scientific management system, advanced bearing production equipment, ISO 9001 and ISO 14001 certification with TÜV Thüringen Germany.



URB GROUP

The company was set-up on May 1953 and it has a long tradition in manufacturing of bearings over 56 years, being one of the important bearing manufacturers in the Central and South-East Europe. We manufactured and trade under URB, KRS brands or on customer request, a wide range of bearings utilized in automobiles, steel mills, electric motors, speed reducers, mining industry, construction machinery.



**Our company
manufacture the bearings for modern railway systems must offer excellent durability and
high-speed capability with minimal maintenance requirements.**



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