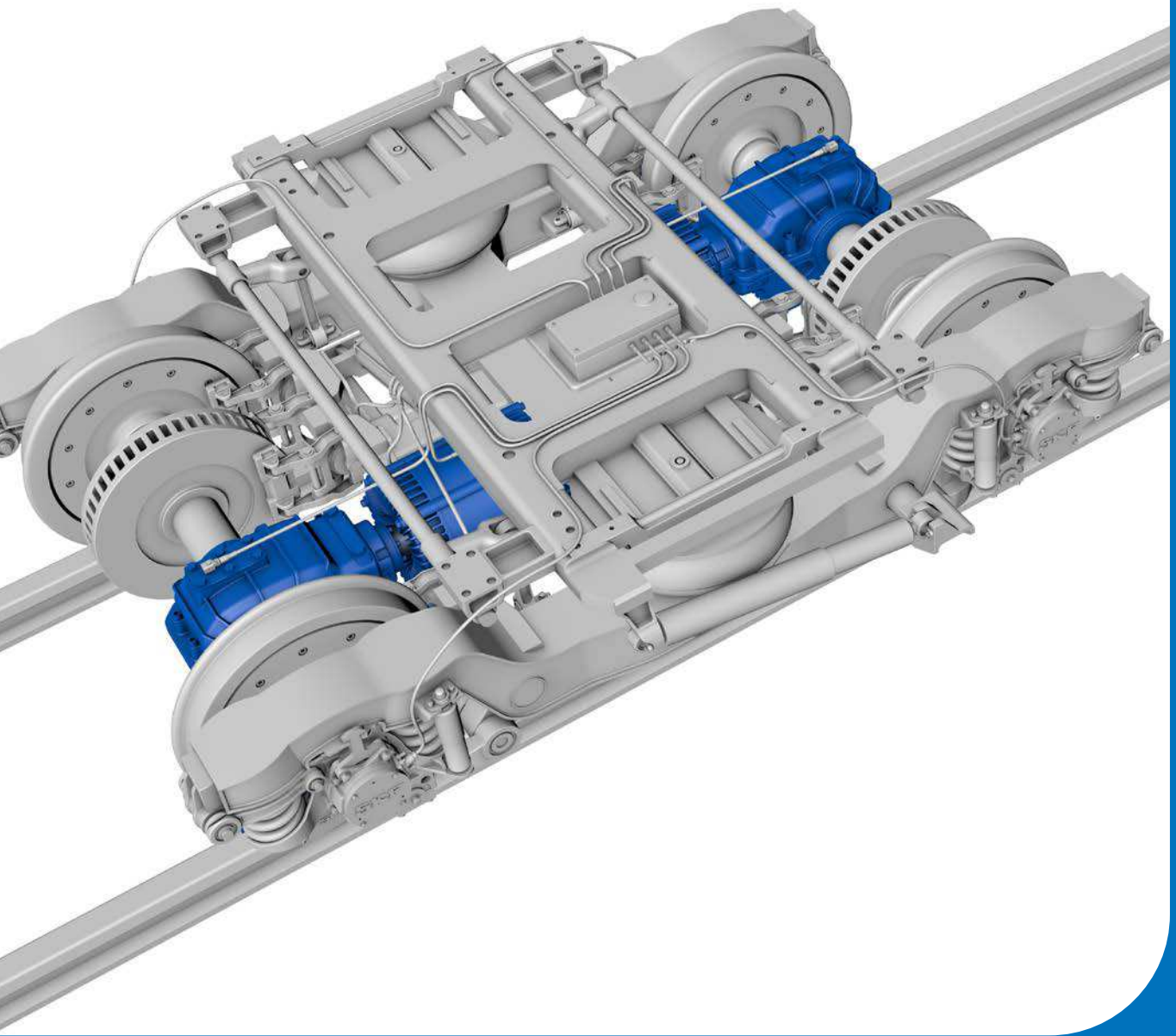
Drive system bearings

Preferred range – selected for application specific performance and availability

October 1, 2015



Drive system bearings

SKF, as a leading global supplier, offers the broadest range of products, services and customer solutions to the railway industry. SKF has developed a wide assortment of rolling bearings and services to meet the demanding needs for railway applications.

The railway industry never stands still and improvements and performance are developed daily. Together with our customers, we are always aware of the latest trends in the market place and we are committed to staying completely up-to-date to make sure that the very latest developments are integrated into new products.

Drive systems, such as gearboxes and traction motors for railway trains, have to be powerful, environmentally friendly, cost-effective and require very low needs for maintenance. These requirements are much more stringent than those in many other industries, because of the weight of railway vehicles and the long service intervals for high speed trains.

SKF has a broad and deep knowledge of the railway world and over the years we have developed a unique range of products and solutions for drive systems.

Preferred range

With worldwide presence, SKF is fully aware of customers' needs and strives to meet the latest market demand, combining innovative technology, high quality and value in terms of cost, performance and service.

A comprehensive assortment of drive system bearings is a base for our preferred product range for gearboxes and traction motors in railway applications. Proven products in drive system applications, based on field experience, are included in the list of preferred drive system bearings.

In addition, common bearing suffixes are listed in this brochure as well.

By fulfilling market demand for availability and adequate lead time we strive to meet the expectations of our customers and become the preferred choice supplier for drive system bearings.

Summary

- Proven products for drive system applications
- Based on field experience
- Combination of customer needs and new technology
- Good availability and adequate lead time
- The first choice for drive system applications

General annotations

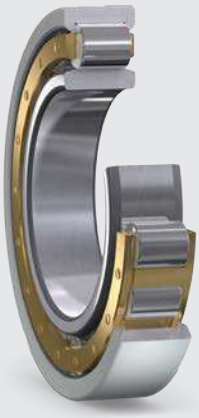
Other executions of bearings mentioned in the tables might be available on request. This might include different clearance classes, cage executions, notches and/or other design features. Please note that limiting speeds of bearings might vary with different cage types.

Judgement of bearing feasibility and selection of the optimal bearing execution is highly dependant on individual application conditions (such as temperatures, shock level, low load operation etc.). That's why it is highly recommended to always contact SKF Engineering Service when selecting bearings for new or existing applications.

Deep groove ball bearings

Cylindrical roller bearings

INSOCOAT Ball Bearings



INSOCOAT cylindrical roller bearing

Hybrid Ball Bearings

Hybrid cylindrical roller bearing

Traction motor ball bearing units

Traction motor cylindrical roller bearing units

Traction Motor Applications

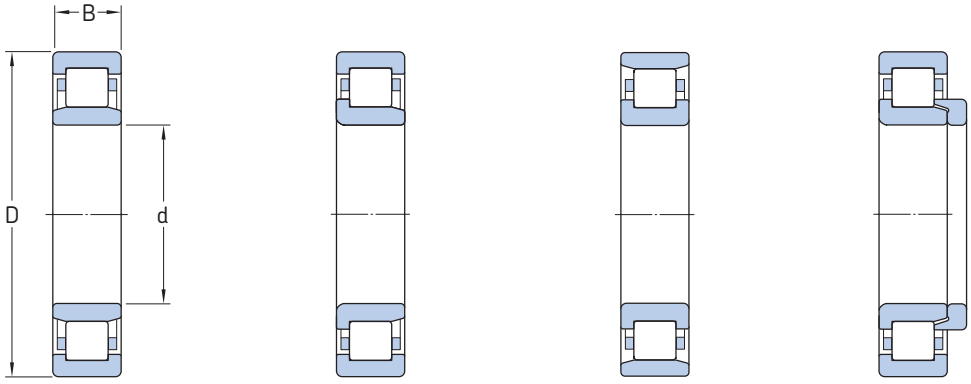
Modern traction motor bearings must deliver higher output shaft speeds, the ability to handle shock loads and resist smearing, while controlling component dead weight. In addition, sensitivity to electrical discharge contributes to the unique design challenges in traction motor design. Based on decades of design and application experience spanning all types of rolling stock, SKF has developed a range of bearings specifically optimised to meet these challenges. INSOCOAT and hybrid bearings featuring ceramic rolling elements offer solutions to electrical discharge challenges, while our comprehensive range of traction motor bearings provide a range of options to meet specific application challenges.

SKF is also well placed to meet the demands for increasing sophistication in traction motor design. Unique sensorised traction motor bearing units and retrofit sensor options offer the possibility to monitor speeds, temperatures, bearing condition and other important operational conditions.

The following pages present a comprehensive selection of bearings specifically selected and proven in traction motor applications. Other executions of bearings mentioned in the tables may be available on request and our experienced team will be delighted to discuss application requirements in detail.

Principle bearing types for traction motor applications

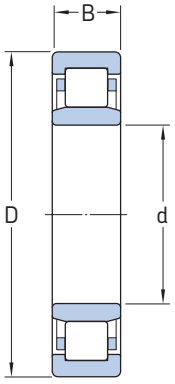
- cylindrical roller bearings
- electrically insulated INSOCOAT cylindrical roller bearings
- electrically insulated INSOCOAT deep groove ball bearings
- hybrid cylindrical roller bearings with ceramic rollers
- hybrid deep groove ball bearings with ceramic balls
- traction motor bearing units based on cylindrical roller bearings and deep groove ball bearings
- Sensorised traction motor bearing unit
- Regreasable traction motor bearing unit



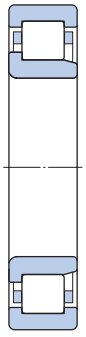
NU NJ N NJ+HJ

Principal dimensions			Dynamic load rating	Static load rating	Limiting speed	Mass	HJ available	Designation
d	D	B	C	C_0				
mm			kN		r/min	kg	–	–
50	80	16	30,8	34,5	10 000	0,31	–	**NU 1010 M/C3VA301**
	110	27	127	112	8 000	1,31	–	**NU 310 ECM/C3VA301**
60	130	31	173	160	6 700	2,18	*	**NJ 312 ECM/C4VA301**
65	120	23	122	118	6 700	1,20	–	**NU 213 ECM/C4VA301**
70	150	35	236	228	5 600	3,23	*	**NJ 314 ECM/C4VA301**
	150	35	236	228	5 600	3,17	*	**NU 314 ECM/C4VA301**
75	160	37	280	265	5 300	3,83	*	**NJ 315 ECM/C4VA301**
80	170	39	300	290	5 000	4,51	*	**NJ 316 ECM/C4VA301**
	140	26	160	166	5 600	1,60	*	**NU 216 ECM/P64VA301**
85	180	41	340	335	4 800	5,37	*	**NJ 317 ECM/C4VA301**
	150	28	190	200	5 300	2,16	–	**NU 217 ECM/C4VA301**
90	160	30	208	220	5 000	2,79	*	**NJ 218 ECM/C4VA301**
	160	40	280	315	5 000	3,64	*	**NJ 2218 ECM/C4VA301**
	190	43	365	360	4 500	6,39	*	**NJ 318 ECM/C4VA301**
	140	24	80,9	104	5 600	1,33	–	**NU 1018 M/C4VA301**
	190	43	365	360	4 500	6,28	*	**NU 318 ECM/C4VA301**
95	170	32	255	265	4 800	3,38	*	**NJ 219 ECM/C3VA301**
	200	45	390	390	4 300	7,11	*	**NU 319 ECM/C4VA301**
100	215	47	450	440	3 800	8,59	*	**NJ 320 ECM/C4VA301**
	215	47	450	440	3 800	8,50	*	**NU 320 ECM/C4VA301**
110	240	50	530	540	3 400	11,73	*	**NJ 322 ECM/C4VA301**
	170	28	128	166	4 500	2,31	–	**NU 1022 M/C4VA301**
	240	50	530	540	3 400	11,54	*	**NU 322 ECM/C4VA301**
120	260	55	610	620	3 200	14,93	*	**NJ 324 ECM/C4VA301**
	260	55	610	620	3 200	14,70	*	**NU 324 ECM/C4VA301**
130	200	33	165	224	3 800	3,75	–	**NJ 1026 M/C4VA301**
	280	58	720	750	3 000	18,26	*	**NJ 326 ECM/C4VA301**
	280	58	720	750	3 000	17,96	*	**NU 326 ECM/C4VA301**
140	210	33	172	245	3 600	3,92	–	**NU 1028 M/C4VA301**
	300	62	780	830	2 800	22,46	*	**NU 328 ECM/C4VA301**
150	320	65	900	965	2 600	26,25	*	**NU 330 ECM/C4VA301**
	320	65	900	965	2 600	26,68	*	**NU 330 ECMRD/C5VA301**
160	340	68	1 000	1 080	2 400	32,66	*	**NU 332 ECM/C4VA301**
170	260	42	275	400	2 800	8,17	–	**NU 1034 M/C4VA301**
180	280	46	336	475	2 600	10,22	–	**NU 1036 M/C4VA301**
	320	86	1 100	1 430	2 400	30,20	–	**NU 2236 ECMRD/C4VA301**
190	340	55	800	965	2 200	22,54	–	**NU 238 ECM/P64VA301**
	400	78	1 140	1 500	2 000	48,83	–	**NU 338 ECMRD/C5HVA301**

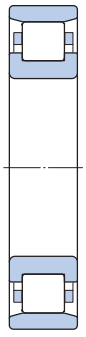
Traction motor – INSOCOAT cylindrical roller bearings



NU



NJ

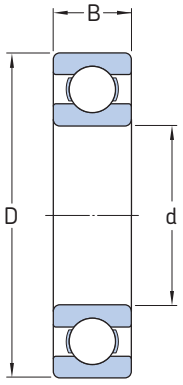


N

Principal dimensions			Dynamic load rating	Static load rating	Limiting speed	Mass	Designation
d	D	B	C	C_0			
mm			kN		r/min	kg	–
50	90	20	66	72	9 000	0,48	**NU 210 ECM/C3HVA3091**
	110	27	112	116	8 000	1,36	**NU 310 ECM/C4VA3091**
55	90	26	35,8	41,5	9 000	0,50	**BC1-7005 B**
	100	25	114	118	8 000	0,86	**NU 2211 ECML/C4VA3091**
60	95	18	37,4	44	13 000	0,46	**NU 1012 MR/C4VA3091**
	110	22	96,8	106	7 500	0,97	**NU 212 ECM/C4VA3091**
65	100	18	38	46,5	7 500	0,50	**NU 1013 M/C3VA3091**
	120	23	110	122	6 700	1,23	**NU 213 ECM/C4VA3091**
70	110	20	79,2	98	7 000	0,69	**NU 1014 ECM/C4VA3091**
	125	24	121	140	6 300	1,37	**NU 214 ECM/C4VA3091**
	150	35	209	228	5 600	3,12	**NU 314 ECM/C4VA3091**
75	115	20	58,3	71	6 700	0,75	**NU 1015 M/C4VA3091**
	130	25	132	160	6 000	1,48	**NU 215 ECM/C4HVA3091**
80	125	22	99	127	9 500	1,05	**NU 1016 MR/C4VA3091**
	140	26	142	173	5 600	1,84	**NU 216 ECM/C4VA3091**
	170	39	264	290	5 000	4,61	**NU 316 ECM/C4VA3091**
85	130	22	72,1	91,5	6 000	1,10	**NU 1017 M/C3VA3091**
90	140	24	85,8	110	5 600	1,35	**NU 1018 M/C4VA3091**
	160	30	187	224	5 000	2,75	**NU 218 ECM/C3VA3091**
	160	40	280	315	5 000	3,68	**NJ 2218 ECM/C4VA3091**
95	170	32	224	270	4 800	2,84	**NU 219 ECM/C4VA3091**
100	180	40	251	305	4 500	4,08	**BC1-7257**
	150	24	89,7	122	5 000	1,45	**NU 1020 M/C3VA3091**
	215	47	391	440	3 800	8,65	**NU 320 ECM/C4VA3091**
	215	47	391	440	3 800	8,74	**NJ 320 ECM/P64VA3091**
110	170	28	130	173	4 500	2,30	**NU 1022 M/C3VA3091**
	200	38	335	365	4 000	5,20	**NU 222 ECMR/P64VA3091**
	240	80	780	900	3 400	18,69	**NU 2322 ECML/C5HVA3091**
	240	50	468	540	3 400	11,99	**NU 322 ECM/C3VL0241**
120	260	55	539	620	3 200	14,94	**NU 324 ECM/C3VL0241**
130	230	40	415	155	3 400	7,01	**NU 226 ECML/C4HVR6081**
	280	58	627	750	3 000	18,30	**NU 326 ECM/P54VA3091**
150	320	65	900	965	4 000	27,02	**NU 330 ECMRD/C4VA3091**
160	340	68	880	1 080	2 400	31,90	**BC1-7088 A**
	290	48	501	680	2 600	14,57	**NU 232 ECM/C4HVA3091**
	340	68	880	1 080	3 600	31,75	**NU 332 ECM/C4VA3091**
320	480	74	880	1 430	2 200	46,20	**NU 1064 MP/C3VL0241**

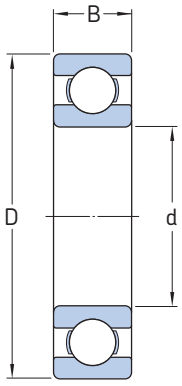
In addition to NJ series cylindrical roller bearings, appropriate HJ series angle rings with suffix VA301 can be supplied.

Traction motor – INSOCOAT deep groove ball bearings



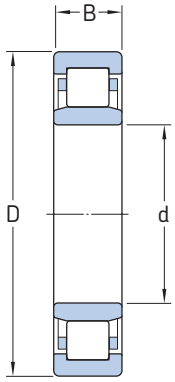
Principal dimensions			Dynamic load rating	Static load rating	Limiting speed	Mass	Designation
d	D	B	C	C_0			
mm			kN		r/min	kg	–
50	110	27	65	38	8 500	1,25	**6310 M/C4VL0241**
55	120	29	71,5	45	11 000	1,58	**6311 M/C3VL0241**
60	95	18	29,6	23,2	9 500	0,50	**6012 M/C4VL0241**
	110	22	553	36	8 000	0,88	**6212 M/C4VL0241**
	130	31	81,9	52	10 000	1,70	**6312 M/C4VL0241**
65	140	33	97,5	60	6 700	2,46	**6313 M/C5S0VL0241**
70	125	24	60,5	45	7 000	1,25	**6214 M/C4VL0241**
	150	35	111	68	6 300	2,94	**6314 M/C4VL0241**
75	130	25	68,9	49	6 700	1,35	**6215 M/C4VL0241**
	160	37	119	76,5	5 600	3,70	**6315 M/C4HVL0241**
80	125	22	49,4	40	7 000	1,02	**6016 M/P65HS0VL0241**
	140	26	72,8	55	6 000	1,69	**6216 M/P65HS0VL0241**
	170	39	130	86,5	5 300	4,17	**6316 M/C4VL0241**
	125	22	49,4	40	9 500	1,03	**BB1-7361 A**
	140	26	72,8	55	8 500	1,74	**BB1-7362**
85	180	41	140	96,5	5 000	4,79	**6317 M/C3VL0241**
90	190	43	151	108	4 800	5,76	**6318 M/P65HS0VL0241**
95	200	45	159	118	4 500	6,45	**6319 M/C4VL0241**
100	215	47	174	140	4 300	8,06	**6320 M/C3VL0241**
105	190	36	133	104	4 500	4,48	**6221 M/C4HVL0241**
	225	49	182	153	4 000	8,54	**6321 M/C3VL0241**
110	200	38	151	118	4 300	5,07	**6222 M/C4VL0241**
	240	50	203	180	3 800	10,99	**6322 M/C5HS0VL0241**
120	260	55	208	186	3 400	14,75	**6324 M/C3VL0241**
130	280	58	229	216	3 200	16,20	**6326 M/C3VL0241**
	280	58	225	212	4 500	17,85	**BB1-7009**
	280	58	225	212	3 200	17,85	**BB1-7009 BB**
	280	58	225	212	4 500	17,85	**BB1-7009 BD**
160	290	48	186	186	3 000	14,56	**6232 N1M/C5HS0VL2071**
180	320	52	229	240	3 800	18,48	**6236 M/C5HS0VL0241**
240	360	56	255	315	3 000	20,19	**6048 M/C4S0VL0241**
260	400	65	291	375	2 800	30,02	**6052 M/C4S0VL0241**

Traction motor – Hybrid ball bearings



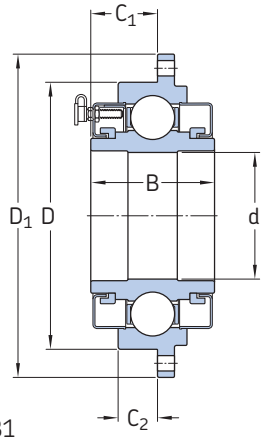
Principal dimensions			Dynamic load rating	Static load rating	Limiting speed	Mass	Designation
d	D	B	C	C_0			
mm			kN		r/min	kg	–
50	90	20	37,1	23,2	14 000	0,47	**6210 M/HC5C4S0**
60	95	18	30,7	23,2	13 000	0,51	**6012 M/HC5C4**
	110	22	55,3	36	11000	0,93	**6212 M/HC5C4S0**
65	100	18	31,9	25	12 000	0,44	**6013 M/HC5C4HS0**
	140	33	97,5	60	9 500	2,20	**6313 M/HC5C4HS0**
70	125	24	63,7	45	10 000	1,15	**6214 M/HC5C4S0**
75	160	37	119	76,5	8 000	3,30	**6315 M/HC5C3S0**
80	125	22	47,5	40	9 500	0,94	**6016 M/HC5P65HS0**
	140	26	72,8	55	8 500	1,55	**6216 M/HC5P65HS0**
85	150	28	87,1	64	8 000	1,85	**6217 M/HC5C5S0**
90	160	30	101	73,5	7 500	2,25	**6218 M/HC5C4S0**
100	180	34	127	93	7 000	3,40	**6220 M/HC5C4HS0**
	180	34	127	93	7 000	3,40	**6220 M/HC5C4S0**
130	230	40	156	132	5 300	5,05	**6226 M/HC5C5S0**

Traction motor – Hybrid cylindrical roller bearing

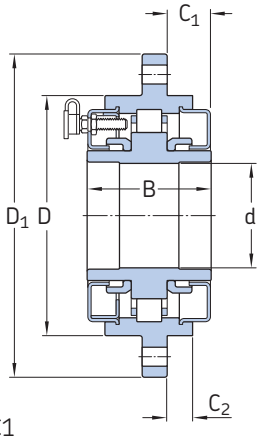


NU

Principal dimensions			Dynamic load rating	Static load rating	Limiting speed	Mass	Designation
d	D	B	C	C_0			
mm			kN		r/min	kg	–
50	90	20	66	72	9 000	0,49	**NU 210 ECM/HC5C3HVA301**
55	90	18	59,4	73,5	8 500	0,38	**NU 1011 ECMR/HC5C4**
60	95	18	37,4	44	8 000	0,42	**NU 1012 MR/HC5C4H**
70	110	20	79,2	98	7 000	0,53	**NU 1014 ECMR/HC5C4**
	125	24	121	140	6 300	1,11	**NU 214 ECM/HC5C3HVA301**
75	115	20	58,3	71	6 700	0,61	**NU 1015 M/HC5C4**
	130	25	132	160	6 000	1,21	**NU 215 ECM/HC5C3HVA301**
80	125	22	102	134	6 000	0,88	**NU 1016 MR/HC5C4H**
	140	26	142	173	5 600	1,50	**NU 216 ECM/HC5C3HVA301**



BB1

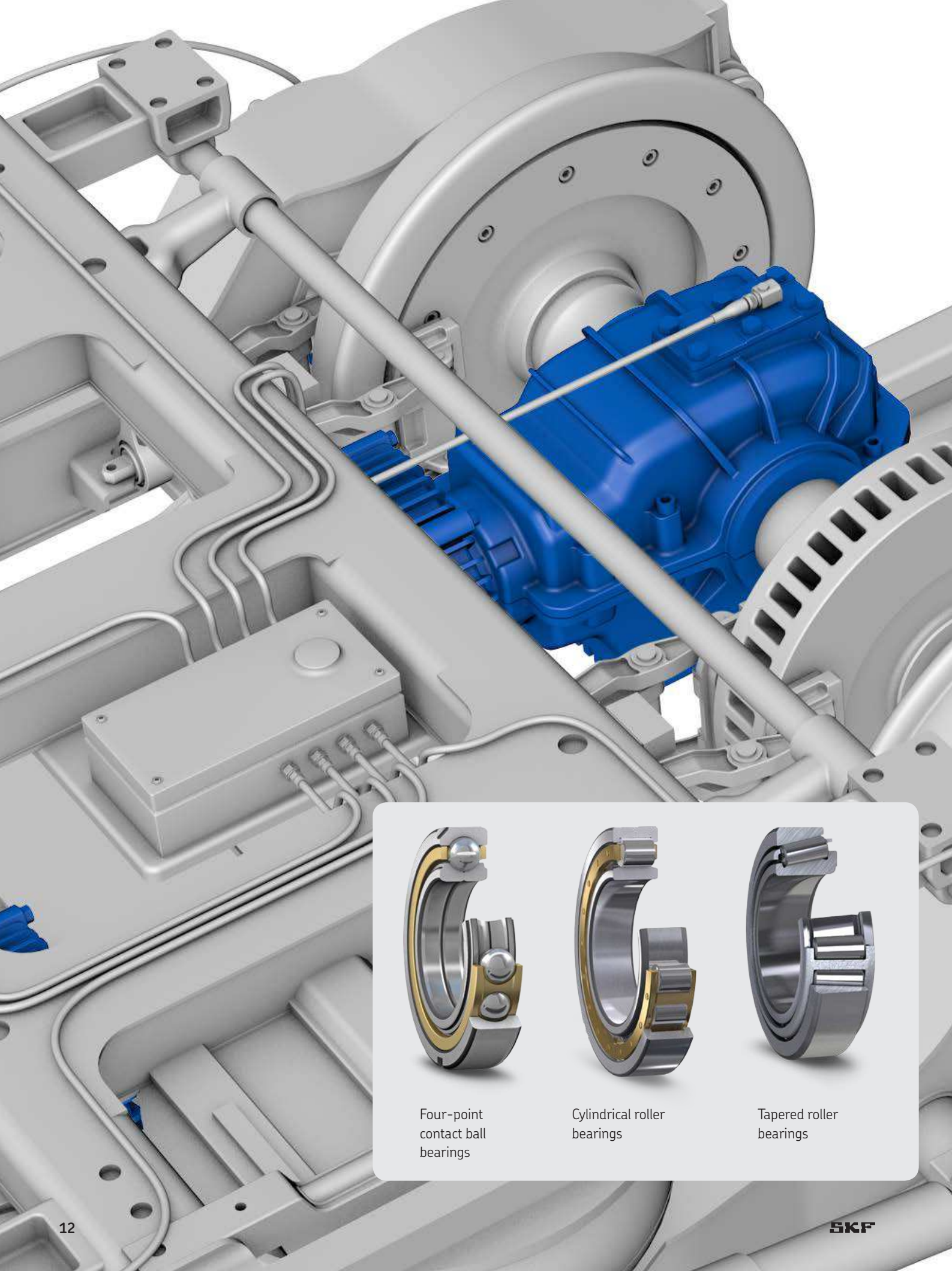


BC1

Principal dimensions							Designation
d	D	B	C_1	C_2	D_1	Re-greasable?	
mm						–	–
50	115	59	21	6	155		**BC1-7229 DF**
	115	59	21	12,5	155	X	**BC1-7229 DC**
	115	59	21	6	155		**BC1-7229 AA**
65	170	68	38,5	22	200		**BB1-7024 AB**
	170	68	38,5	22	200	X	**BB1-7024 DD**
	170	68	38,5	22	200		**BB1-7024 DC**
80	145	59	21	6	185		**BC1-7273**
	144	60	25	10	175		**BB1-7116**
90	190	88	47,5	28	230		**BB1-7141**
110	180	62	22	12,5	220		**BB1-7330**
120	220	56	30	30	268		**BC1-7292**
	220	74	54	54	262		**BC1-7293**
	182	48	17,5	7,5	230		**BB1-7348**

Design options for traction motor bearing units:

- INSOCOAT design – electrical insulation
- Hybrid design – equipped with ceramic rolling elements
- Integrated sensors - detection of direction of rotation, rotational speed, absolute positioning and bearing temperature
- Regreaseable design – TMBUs in operation can be retrofitted with a regreasing device



Four-point contact ball bearings

Cylindrical roller bearings

Tapered roller bearings

Gearbox Applications

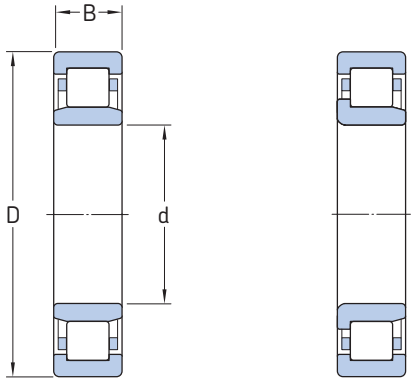
Modern gearbox requirements place high demands on gearbox bearing arrangements. Wide operating temperature ranges, high shock loads and increasing load carrying capacities, combined with the drive to reduce friction within the gearbox are some of the specific challenges of modern gearbox design.

The practicalities of modern train operation introduce further operational challenges; for example low load conditions in hybrid drives or when trains are operated without engagement of all drive units. SKF brings a combination of innovative products, sophisticated design tools and decades of design experience to bear on these challenges. By working together with SKF from the early stages of gearbox design our customers gain access to our extensive application expertise to meet the challenges of current and future gearbox designs head-on together.

The following pages present a comprehensive range of bearings specifically selected and proven in gearbox applications. Other executions of bearings mentioned in the tables may be available on request and our experienced team will be delighted to discuss application requirements in detail.

Principle bearing types for gearbox designs

- cylindrical roller bearings
- four-point contact ball bearings
- tapered roller bearings



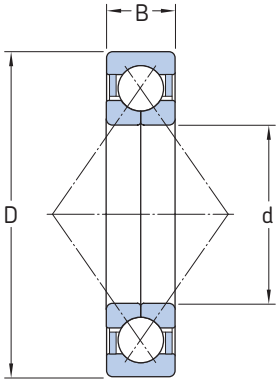
NU NJ

Principal dimensions			Dynamic load rating	Static load rating	Limiting speed	Mass	HJ angle ring available	Designation
d	D	B	C	C_0				
mm			kN		r/min	kg	–	–
50	110	40	186	186	12 000	1,94	–	**NJ 2310 ECML/C4H**
	110	27	127	112	8 000	1,30	–	**NJ 310 ECML/C4H**
	90	20	64,4	69,5	14 000	0,54	–	**NU 210 ECML/C3HS1**
55	100	25	114	118	13 000	0,90	–	**NJ 2211 ECML/C3**
	120	43	232	232	11 000	2,54	–	**NJ 2311 ECML/C4**
60	110	28	146	153	11 000	1,22	–	**NJ 2212 ECML/C3**
	110	22	108	102	11 000	0,91	*	**NU 212 ECML/C3**
	110	28	146	153	11 000	1,17	–	**NU 2212 ECML/C3**
65	140	48	285	290	9 500	3,80	–	**NJ 2313 ECML/C3**
	120	23	122	118	10 000	1,14	–	**NU 213 ECML/C3**
	140	48	285	290	9 500	3,63	–	**NU 2313 ECML/C3**
70	125	31	180	193	10 000	1,68	*	**NJ 2214 ECML/C3**
	150	51	315	325	8 500	4,49	–	**NJ 2314 ECML/C3H**
	150	35	236	228	8 500	3,15	*	**NJ 314 ECML/C4**
	125	24	137	137	10 000	1,26	–	**NU 214 ECML/C4H**
75	160	55	380	400	8 000	5,54	–	**NJ 2315 ECML/C3**
	130	25	150	156	9 500	1,40	–	**NU 215 ECML/C4**
	130	31	186	208	9 500	1,74	–	**NU 2215 ECML/C3**
80	125	22	99	127	9 500	1,04	–	**NJ 1016 ECML/C3**
	140	33	212	245	8 500	2,20	–	**NJ 2216 ECML/C5**
	140	26	160	166	8 500	1,68	*	**NU 216 ECML/C3H**
	140	33	212	245	8 500	2,16	–	**NU 2216 ECML/P63**
	170	39	300	290	7 500	4,35	*	**NU 316 ECML/C3**
85	150	36	250	280	8 000	2,83	–	**NJ 2217 ECML/C3**
	180	60	455	490	7 000	7,62	–	**NJ 2317 ECML/C4**
	150	28	190	200	8 000	2,16	–	**NU 217 ECML/C3**
90	190	64	500	540	6 700	8,94	–	**NJ 2318 ECML/C3**
	160	30	208	220	7 500	2,57	*	**NU 218 ECML/C3**
	160	40	280	315	7 500	3,45	*	**NU 2218 ECML/C3**
95	170	32	255	265	4 800	3,16	*	**NJ 219 ECML/C3**
	200	67	530	585	6 300	10,72	–	**NJ 2319 ECML/P64H**
	170	32	255	265	4 800	3,21	*	**NU 219 ECML/C3**
100	180	34	285	305	6 700	3,86	*	**NJ 220 ECML/C3**
	215	73	670	735	6 000	13,32	–	**NJ 2320 ECML/C4**
	215	47	450	440	6 000	8,69	*	**NJ 320 ECML/C3**
	180	46	380	450	6 700	5,12	–	**NU 2220 ECML/C4**

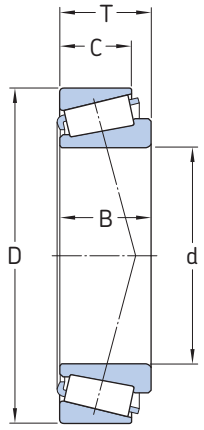
In addition to NJ series cylindrical roller bearings, appropriate HJ series angle rings with suffix VA301 can be supplied.

Principal dimensions			Dynamic load rating	Static load rating	Limiting speed	Mass	HJ angle ring available	Designation
d	D	B	C	C_0				
mm			kN		r/min	kg	–	–
110	200	38	335	365	6 000	5,36	–	**NJ 222 ECML/C4**
	200	38	335	365	6 000	5,27	–	**NU 222 ECML/C3**
	200	53	440	520	6 000	7,36	–	**NU 2222 ECML/C4**
	240	80	780	900	5 300	18,35	–	**NU 2322 ECML/C5H**
120	180	28	134	183	6 300	2,51	–	**NJ 1024 ML/C3**
	260	55	610	620	5 000	14,78	*	**NU 324 ECML/C5H**
130	200	33	165	224	5 600	3,84	–	**NU 1026 ML/C3**
	230	64	610	735	5 300	11,34	–	**NU 2226 ECML/C3**
	230	40	415	455	5 300	7,13	–	**NU 226 ECML/C3**
140	250	42	450	510	4 800	9,24	*	**NU 228 ECML/C3**
150	225	35	198	290	5 000	4,91	–	**NU 1030 ML/C4**
160	240	38	229	325	4 800	5,98	*	**NU 1032 ML/C3**
170	260	42	275	400	4 300	8,18	–	**NJ 1034 ML/C3**
	310	52	695	815	3 800	17,64	–	**NU 234 ECML/C3**
180	320	52	720	850	3 600	18,16	–	**NU 236 ECML/C3**
190	290	46	347	500	3 800	10,85	–	**NU 1038 ML/C3**
	340	55	800	965	3 400	21,81	–	**NU 238 ECML/C3**
200	310	51	380	570	3 600	14,05	–	**NU 1040 ML/C3**
220	340	56	495	735	3 200	18,45	*	**NJ 1044 ML/C4VA327**
	300	38	330	550	3 600	8,23	*	**NJ 1944 ECMP/C4L**
240	360	56	523	800	3 000	19,30	–	**NU 1048 ML/C3**
260	400	65	627	965	2 800	29,30	*	**NU 1052 ML/C3**
280	420	65	660	1 060	2 600	31,00	–	**NU 1056 ML**
	420	65	660	1 060	2 600	31,00	–	**NU 1056 ML/C3**
320	400	38	369	710	2 400	10,86	–	**NU 1864 ECMP/C3**
380	480	46	561	1 120	2 000	20,00	–	**NU 1876 ECMP/P63H**

In addition to NJ series cylindrical roller bearings, appropriate HJ series angle rings with suffix VA301 can be supplied.



Principal dimensions			Dynamic load rating	Static load rating	Limiting speed	Mass	Designation
d	D	B	C	C_0			
mm			kN		r/min	kg	–
60	110	22	96,5	93	10 000	0,99	**QJ 212 N2MA/C4B20**
65	120	23	110	112	9 500	1,20	**QJ 213 N2MA/C4**
	140	33	176	156	8 500	2,70	**QJ 313 N2MA/C3**
70	125	24	90,4	88	5 600	1,30	**BAQ-7134**
	125	24	90,4	88	5 600	1,30	**BAQ-7134 A**
	125	24	120	122	9 000	1,30	**QJ 214 N2MA/C4B20**
	150	35	186	166	8 000	3,15	**QJ 314 N2MA/C3**
75	130	25	125	132	8 500	1,45	**QJ 215 N2MA/C4B20**
80	140	26	146	156	8 000	1,85	**QJ 216 N2MA/C4B20**
85	149	28	148	160	7 500	2,19	**BAQ-7028 B**
	130	22	99,5	114	8 000	1,10	**QJ 1017 N2MA/C4B20**
	150	28	156	173	7 500	2,25	**QJ 217 N2MA/C3**
90	160	30	186	200	7 000	2,75	**QJ 218 N2MA/C3B20**
95	170	32	212	232	6 700	3,35	**QJ 219 N2MA/C3B20**
100	180	34	236	265	6 300	4,05	**QJ 220 N2MA/C4B20**
105	160	26	135	170	6 700	2,00	**QJ 1021 N2MA/C4B20**
110	200	38	280	325	5 600	5,60	**QJ 222 N2MA/C4B20**
120	215	40	300	365	5 000	6,95	**QJ 224 N2MA/C4B20**
130	230	40	310	400	4 800	7,75	**QJ 226 N2MA/C4B20**
140	250	42	345	475	4 300	9,85	**QJ 228 N2MA/C4B20**
	300	62	500	695	3 800	24,00	**QJ 328 N2MA/C4**
150	225	35	242	335	4 500	5,25	**QJ 1030 N2MA/C4B20**
160	290	48	450	670	3 800	15,50	**QJ 232 N2MA**
180	320	52	475	765	3 400	20,50	**QJ 236 N2MA/C3**



Principal dimensions					Dynamic load rating	Static load rating	Limiting speed	Mass	Calculation factor			Designation
d	D	T	B	C	C	C_0			e	Y	Y_0	
mm					kN		r/min	kg	–	–	–	–
55	115	34	31	23,5	125	163	5 600	1,58	0,88	0,68	0,40	**T7FC 055/QS0CL7CVE141**
69,85	146,05	41,275	41,275	31,75	224	275	4 800	3,25	0,40	1,50	0,80	**BT1-1101/PEX**
75	160	40	37	26	209	245	4 300	3,40	0,83	0,72	0,40	**31315 J2/QS1CL7C**
75	150	42	38	29	201	280	4 300	3,24	0,88	0,68	0,40	**T7FC 075/QS0CL7C**
75	130	41	41	31	209	300	4 800	2,19	0,43	1,40	0,80	**33215/QS0CL7C**
80	125	29	29	22	138	216	5 000	1,29	0,43	1,40	0,80	**BT1-1153/S0Q**
130	200	45	45	34	314	540	3 000	4,93	0,43	1,40	0,80	**32026 X/VE141**
140	190	32	32	25	205	390	3 000	2,53	0,35	1,70	0,90	**32928/N1S0VG237**
146,05	193,675	28,575	28,575	23,02	176	360	3 200	2,29	0,37	1,60	0,90	**BT1-1127**
150	210	32	30	23	233	390	3 000	3,08	0,46	1,30	0,70	**T4DB 150 N1/VG237**
152,4	203,2	41,275	41,275	34,925	205	480	3 000	3,71	0,35	1,70	0,90	**LM 330448/410/VE679**
170	230	32	30	23	229	390	2 800	3,33	0,46	1,30	0,70	**T4DB170/VA812**
177,8	227,012	30,162	30,162	23,02	172	375	2 800	2,87	0,44	1,35	0,80	**36990/920 N1/VA833**
177,8	227,012	30,162	33,274	23,02	172	375	2 800	2,95	0,44	1,35	0,80	**BT1-0410/VA833**
180	250	45	50,5	34	330	655	2 600	6,71	0,48	1,25	0,70	**BT1-0005/VE141**
180	250	45	45	34	352	735	2 600	6,63	0,48	1,25	0,70	**32936/VE141**
189,738	282,575	50,8	47,7	36,56	402	695	2 200	9,66	0,43	1,40	0,80	**BT1-0729**
190	260	46	44	36,5	358	765	2 400	7,07	0,48	1,25	0,70	**JM 738249/210/VE141**
195	250	34	33	26,5	251	540	2 400	4,00	0,35	1,70	0,90	**BT1-0705/Q**
196,85	254	28,575	27,783	21,433	198	390	2 400	3,38	0,40	1,50	0,80	**BT1-1156**
199,949	282,575	46,038	49,212	36,512	330	695	2 200	9,11	0,50	1,20	0,70	**BT1-0704 A/S1**
200,025	276,225	42,862	46,038	34,133	391	780	2 200	7,68	0,31	1,90	1,10	**LM 241147/110/VE679**
203,987	276,225	42,862	46,038	34,133	391	780	2 200	7,22	0,31	1,90	1,10	**LM 241148/110/VE679**
206,375	282,575	46,038	46,038	36,512	358	780	2 200	8,34	0,50	1,20	0,70	**67985/67920/4/HA4VA812**
210	285	41	40	33	396	830	2 200	7,50	0,31	1,90	1,10	**T2DC 220/210/VE679**
213	285	41	40	33	396	830	2 200	7,19	0,31	1,90	1,10	**T2DC 220/213/VE679**
215,9	285,75	46,038	46,038	34,925	380	850	2 000	7,84	0,48	1,25	0,70	**BT1-0007/VE679**
215,9	285,75	46,038	46,038	34,925	380	850	2 200	7,85	0,48	1,25	0,70	**LM 742749/710/VE141**
216,5	285	41	40	33	396	830	2 200	6,82	0,31	1,90	1,10	**BT1-0667/VE679**
219,969	290,01	31,75	31,75	22,225	229	450	2 200	5,04	0,37	1,60	0,90	**543086/114/VA812**
220	285	41	40	33	396	830	2 200	6,43	0,31	1,90	1,10	**T2DC 220/VE679**
225	295	46	49	34,925	358	815	1 900	8,17	0,50	1,20	0,70	**BT1-0054/VE679**
231,775	317,5	47,625	52,388	36,512	473	865	2 000	10,30	0,31	1,90	1,10	**LM 245848/810/VA812**
231,775	300,038	33,338	31,75	23,812	201	390	2 000	5,11	0,40	1,50	0,80	**544091/544118/VA812**
231,775	300,038	33,338	31,75	23,812	201	390	2 000	5,11	0,40	1,50	0,80	**BT1-1180/VA812**
240	320	51	51	39	512	1 080	1 900	11,00	0,46	1,30	0,70	**32948/VE141**
240	320	42	39	30	429	815	1 900	8,48	0,46	1,30	0,70	**T4EB240/VE679**
255,6	342,9	57,15	63,5	44,45	660	1 400	1 800	14,75	0,35	1,70	0,90	**BT1-1044**
255,6	342,9	57,15	63,5	44,45	660	1 400	1 800	14,75	0,35	1,70	0,90	**M 349547/510/VG237**
257,175	358,775	71,438	76,2	53,975	842	1 760	1 700	21,63	0,33	1,80	1,00	**BT1-1045**
257,175	342,928	57,15	57,15	44,45	660	1 400	1 800	14,09	0,35	1,70	0,90	**BT1-1135**
257,175	342,9	57,15	57,15	44,45	660	1 400	1 800	14,08	0,35	1,70	0,90	**M 349549/510/VE679**
263,525	325,438	28,575	28,575	25,4	220	550	1 700	5,28	0,37	1,60	0,90	**38880/38820/VE141**
266,56	325,438	29,5	33,47	25,4	220	550	1 800	5,29	0,37	1,60	0,90	**BT1-1128**
292,1	374,65	47,625	47,625	34,925	468	1 020	1 500	12,06	0,40	1,50	0,80	**L 555249/210/VA812**

Designation suffixes

In this list, the most current suffixes used in the product range are explained. For further information, contact the nearest SKF office.

B20 Reduced width tolerance
BB1 Single row ball bearing, customized design
BC1 Single row cylindrical roller bearing, customized design
BT1 Single row tapered roller bearing, customized design
C3 Bearing internal clearance greater than Normal (CN)
C4 Bearing internal clearance greater than C3
C4H Bearing internal clearance greater than C3 (upper half of C4 tolerance)
C5 Bearing internal clearance greater than C4
C5H Bearing internal clearance greater than C4 (upper half of C5 tolerance)
EC Optimized internal design incorporating more and/or larger rollers and with modified roller end/flange contact
HC5 Rolling elements made of silicon nitride
J, J1, J2 Pressed window-type steel cage
M Machined brass cage, rolling element centred
MA Machined brass cage, outer ring centred, used for oil lubrication
ML, MP Machined one-piece window-type brass cage, outer ring centred, used for oil lubrication
MR Machined one-piece window-type brass cage, rolling element centred
MR3D Machined one-piece window-type brass cage, special design
N Snap ring groove in the outer ring
N1 One locating slot (notch) in one outer ring side face
N2 Two locating slots (notches) 180° apart in one outer ring side face
N3 Snap ring groove in the outer ring, one locating slot (notch) in one outer ring side face
P4 Dimensional and running accuracy to ISO tolerance class 4
P5 Dimensional and running accuracy to ISO tolerance class 5
P54 P5 + C4
P6 Dimensional and running accuracy to ISO tolerance class 6
P63 P6 + C3
P64 P6 + C4
P65H P6 + C5H
Q Optimized internal geometry and surface finish
S0 Bearing rings or washers dimensionally stabilized up to +150 °C
S1 Bearing rings or washers dimensionally stabilized up to +200 °C
S2 Bearing rings or washers dimensionally stabilized up to +250 °C
VA, VE, VG and VL These suffixes followed by three or four digit numbers refer to special executions.
Examples:
VA301 Bearing for traction motors
VL0241 Aluminium oxide coated outside surface of outer ring for electrical resistance up to 1 000 V DC

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PUB 42/P2 10406/2 EN · September 2015

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