

BEARING CATALOGUE



RKB
BEARING INDUSTRIES
SWITZERLAND

BB

ACBB

CRB

TRB

SRB

TORB

TBB

CRTB

TRTB

SRTB



Toroidal roller bearings

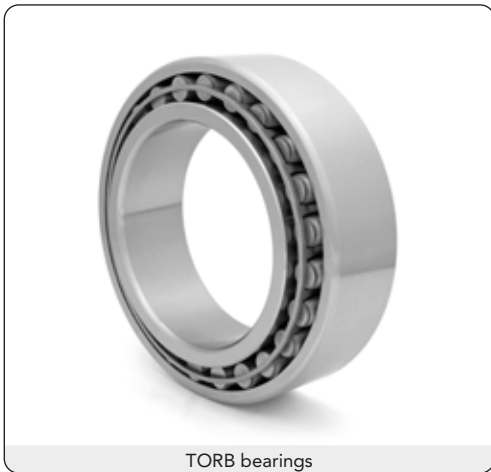
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Toroidal roller bearings

The RKB toroidal roller bearings (TORB) are single row pure radial roller bearings featuring slim symmetrical barrel rollers, properly profiled to grant an uniform stress distribution, as well as a proper roller/raceway contact.

This proper pressure distribution along all the roller profile allow to control rolling friction and working temperature, keeping them at their minimum values. Consequently the lube film gap remains stable and the lubricant ageing process is reduced also, improving the application reliability.

According to the internal design RKB TORB bearings are conceived to be mounted as non-locating bearings, since they can face the thermal expansion along the shaft. RKB TORB bearings are manufactured offering the highest load rating capacities, improved internal geometry, high quality materials and special heat treatments for superior performance.



TORB bearings

Internal clearance

TORB bearings are produced as standard with Normal radial internal clearance CN, but they are also available with C2, C3, C4 and C5 radial internal clearance.

The radial internal clearance are reported for bearing with:

- cylindrical bore in the **Tab. 5 page 527**;
- tapered bore in the **Tab. 6 page 528**;

and they are valid only for bearing unmounted, unloaded and without any axial displacement of one ring in respect to the other one.

Axial displacement of one ring in respect to the other one reduces gradually the radial internal clearance, but if the axial displacement is not generated by the shaft thermal expansion, the radial internal clearance will be lightly affected (see the following paragraph "Axial displacement").

TORB bearings are often used together with the spherical roller bearings and their radial internal clearance is slightly larger than the spherical roller bearings of the same size. In order to achieve approximatively the same operational clearance value of spherical roller bearing of the same size, it is required only an axial displacement between one ring in respect to the other one of 6 - 8 % of TORB bearing width.

Misalignment

The internal design of the TORB bearings can accommodate a misalignment of approximatively 0.5° between inner ring and outer ring without affects negatively the bearing life. Greater misalignments increase the friction inside, so the bearing life will be negatively influenced. For additional information, please consult the RKB application engineering service.

In case of TORB bearing with brass cage guided on the inner ring, a misalignment value of 0.5° must not be exceeded. Also in application considered stationary, the value of the misalignment has to be reduced. Considering also that the axial displacement leads the rollers head to approach the ring faces, its reduction is suggested (please see the following axial displacement paragraph).

d [mm]		Radial internal clearance [µm]									
		C2		CN		C3		C4		C5	
over	incl.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
24	30	15	35	30	50	45	60	60	80	75	95
30	40	20	40	35	55	55	75	70	95	90	120
40	50	25	45	45	65	65	85	85	110	105	140
50	65	30	55	50	80	75	105	100	140	135	175
65	80	40	70	65	100	95	125	120	165	160	210
80	100	50	85	80	120	120	160	155	210	205	260
100	120	60	100	100	145	140	190	185	245	240	310
120	140	75	120	115	170	165	215	215	280	280	350
140	160	85	140	135	195	195	250	250	325	320	400
160	180	95	155	150	220	215	280	280	365	360	450
180	200	105	175	170	240	235	310	305	395	390	495
200	225	115	190	185	265	260	340	335	435	430	545
225	250	125	205	200	285	280	370	365	480	475	605
250	280	135	225	220	310	305	410	405	520	515	655
280	315	150	240	235	330	330	435	430	570	570	715
315	355	160	260	255	360	360	485	480	620	620	790
355	400	175	280	280	395	395	530	525	675	675	850
400	450	190	310	305	435	435	580	575	745	745	930
450	500	205	335	335	475	475	635	630	815	810	1 015
500	560	220	360	360	520	510	690	680	890	890	1 110
560	630	240	400	390	570	560	760	750	980	970	1 220
630	710	260	440	430	620	610	840	830	1 080	1 070	1 340
710	800	300	500	490	680	680	920	920	1 200	1 200	1 480
800	900	320	540	530	760	750	1 020	1 010	1 330	1 320	1 660
900	1 000	370	600	590	830	830	1 120	1 120	1 460	1 460	1 830
1 000	1 120	410	660	660	930	930	1 260	1 260	1 640	1 640	2 040
1 120	1 250	450	720	720	1 020	1 020	1 380	1 380	1 800	1 800	2 240
1 250	1 400	490	800	800	1 130	1 130	1 510	1 510	1 970	1 970	2 460
1 400	1 600	570	890	890	1 250	1 250	1 680	1 680	2 200	2 200	2 740
1 600	1 800	650	1 010	1 010	1 390	1 390	1 870	1 870	2 430	2 430	3 000

Tab. 5 - Radial internal clearance of TORB bearings with cylindrical bore

d [mm]		Radial internal clearance [μm]									
		C2		CN		C3		C4		C5	
over	incl.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
24	30	20	40	35	55	50	65	65	85	80	100
30	40	25	50	45	65	60	80	80	100	100	125
40	50	30	55	50	75	70	95	90	120	115	145
50	65	40	65	60	90	85	115	110	150	145	185
65	80	50	80	75	110	105	140	135	180	175	220
80	100	60	100	95	135	130	175	170	220	215	275
100	120	75	115	115	155	155	205	200	255	255	325
120	140	90	135	135	180	180	235	230	295	290	365
140	160	100	155	155	215	210	270	265	340	335	415
160	180	115	175	170	240	235	305	300	385	380	470
180	200	130	195	190	260	260	330	325	420	415	520
200	225	140	215	210	290	285	365	360	460	460	575
225	250	160	235	235	315	315	405	400	515	510	635
250	280	170	260	255	345	340	445	440	560	555	695
280	315	195	285	280	380	375	485	480	620	615	765
315	355	220	320	315	420	415	545	540	680	675	850
355	400	250	350	350	475	470	600	595	755	755	920
400	450	280	385	380	525	525	655	650	835	835	1 005
450	500	305	435	435	575	575	735	730	915	910	1 115
500	560	330	480	470	640	630	810	800	1 010	1 000	1 230
560	630	380	530	530	710	700	890	880	1 110	1 110	1 350
630	710	420	590	590	780	770	990	980	1 230	1 230	1 490
710	800	480	680	670	860	860	1 100	1 100	1 380	1 380	1 660
800	900	520	740	730	960	950	1 220	1 210	1 530	1 520	1 860
900	1 000	580	820	810	1 040	1 040	1 340	1 340	1 670	1 670	2 050
1 000	1 120	640	900	890	1 170	1 160	1 500	1 490	1 880	1 870	2 280
1 120	1 250	700	980	970	1 280	1 270	1 640	1 630	2 060	2 050	2 500
1 250	1 400	770	1 080	1 080	1 410	1 410	1 790	1 780	2 250	2 250	2 740
1 400	1 600	870	1 200	1 200	1 550	1 550	1 990	1 990	2 500	2 500	3 050
1 600	1 800	950	1 320	1 320	1 690	1 690	2 180	2 180	2 730	2 730	3 310

Tab. 6 - Radial internal clearance of TORB bearings with tapered bore

Axial displacement

The internal design of the TORB bearings can accommodate axial displacements between inner rings and outer rings, which can be generated by a thermal expansion or its deviation from a determinate position. Any misalignment or axial displacement reduces the bearing radial internal clearance. In order to accommodate the axial displacement it is necessary a defined space on both bearing sides and that the rollers must remaining inside the bearing raceways without touching eventual seals or locking rings.

With this axial displacement the bearing radial internal clearance decreases and it is important that it remains acceptable for the application. The maximum value of the axial displacement from the normal position of one ring relative to the other one has to be the lower among:

- the clearance reduction,
- the axial displacement of the rollers.

For additional information, please consult the RKB application engineering service.

Minimum load

A minimum radial load is requested for a TORB bearing, like for all ball and roller bearings, in order to guarantee the correct functioning condition, especially in particularly difficult working conditions: high speed, high acceleration and sudden changes of direction. In these operating conditions a sliding movement between the rollers and raceways can be generated by the inertial forces, influencing negatively the bearing life. Minimum radial load for TORB bearing with/without cage can be theoretically estimated using this formula:

$$\frac{F_{rm}}{C_0} > 0,023$$

Where:

- F_{rm} minimum radial load, [kN];
- C_0 basic static radial load, [kN].

Usually, the minimum radial load is reached or surpassed by the weight of the components supported by the bearing and the loads acting on it, otherwise supplementary radial load must be applied on the TORB bearing.

Mounting prescription

Since the RKB toroidal roller bearings are pure radial, both inner and outer rings have to be axially located on both sides. On the other hand during handling of toroidal roller bearings the rings and the rollers can be displaced from their nominal position, thus it is highly suggested to mount the bearings featuring housing and shaft in horizontal position, rotating one of the rings to rearrange the roller elements in their nominal position.

Internal clearance and axial drive-up for TORB bearings with tapered bore

Specific and recommended values for radial internal clearance reduction and axial drive-up can be provided upon request. However, in the following table (**Tab. 7 page 530**) is reported radial internal clearance reduction for general application, featuring solid steel shaft or hallow shaft with internal bore diameter lower than shaft diameter.

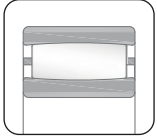
For additional information please consult the RKB application engineering services.

Bore diameter d [mm]		Radial internal clearance reduction [mm]		Minimum radial internal clearance after mounting		
				CN	C3	C4
over	incl.	min.	max.	min. [mm]	min. [mm]	min. [mm]
24	30	0,010	0,017	0,025	0,035	0,048
30	40	0,014	0,021	0,031	0,041	0,059
40	50	0,018	0,028	0,033	0,046	0,062
50	65	0,024	0,035	0,036	0,054	0,075
65	80	0,030	0,046	0,045	0,065	0,090
80	100	0,040	0,056	0,056	0,080	0,114
100	120	0,049	0,069	0,066	0,093	0,131
120	140	0,060	0,083	0,075	0,105	0,147
140	160	0,072	0,095	0,083	0,123	0,170
160	180	0,081	0,107	0,089	0,137	0,193
180	200	0,090	0,121	0,100	0,150	0,204
200	225	0,101	0,134	0,109	0,162	0,226
225	250	0,113	0,151	0,123	0,177	0,249
250	280	0,126	0,168	0,129	0,186	0,273
280	315	0,142	0,188	0,138	0,203	0,292
315	355	0,160	0,211	0,155	0,221	0,329
355	400	0,180	0,238	0,170	0,251	0,357
400	450	0,203	0,268	0,178	0,279	0,382
450	500	0,225	0,300	0,210	0,300	0,430
500	560	0,250	0,335	0,220	0,325	0,465
560	630	0,285	0,375	0,245	0,355	0,505
630	710	0,320	0,420	0,270	0,380	0,560
710	800	0,360	0,475	0,310	0,425	0,625
800	900	0,405	0,535	0,325	0,460	0,675
900	1000	0,450	0,605	0,360	0,490	0,735
1000	1120	0,505	0,670	0,385	0,545	0,820
1120	1250	0,565	0,750	0,410	0,580	0,880
1250	1400	0,630	0,840	0,450	0,640	0,940
1400	1600	0,720	0,940	0,480	0,685	1,050
1600	1800	0,810	1,070	0,510	0,705	1,110

Tab. 7 - Radial internal clearance reduction of toroidal roller bearings with tapered bore

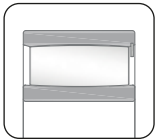
Designs and variants

Type J



- Non-separable compact design
- Can be used only in a non-locating position
- Available with tapered and cylindrical bore
- Very high self-aligning and axial displacement properties
- The radial internal clearance depends on the rings axial relative position

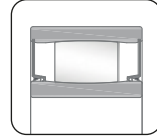
Type V



- Non-separable compact design
- Can be used only in a non-locating position
- Available with tapered and cylindrical bore
- Very high self-aligning and axial displacement properties
- Full complement (cageless) design for increased load carrying capacities
- Reduced maximum rotational speed compared to caged design
- Asymmetrical permissible axial displacement (limited in snap ring side)

Special designs and variants

Sealed type



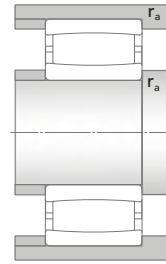
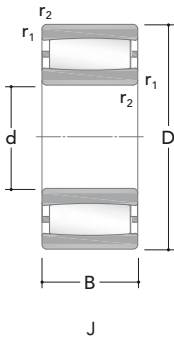
- Non-separable compact design
- Can be used only in a non-locating position
- High self-aligning and axial displacement properties
- Full complement (cageless) design
- Integral rubber seals on both bearing sides for harsh working conditions
- Supplied already filled with grease for maintenance free operations

Prefixes	Basic designation
TORB	Toroidal roller bearing followed by size indication or drawing number
SB	Toroidal roller bearing followed by size indication or drawing number

Suffixes	Cage
V	Full complement of rolling elements (without cage)
J	Pressed steel cage

Suffixes	External design
2CS	NBR seal on both sides
FF	FKM seal on both sides
K	Tapered bore, taper 1:12
K30	Tapered bore, taper 1:30

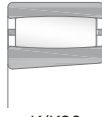




Main dimensions			Basic load ratings		Fatigue load limit C_u	Speed ratings		Designation
d	D	B	Dynamic C	Static C_0		Reference	Limiting	
[mm]			[kN]			[rpm]		
25	52	18	42,6	39,5	4,6	13300	16200	TORB 2205
	52	18	48,2	48,2	5,6	-	6200	TORB 2205
30	55	45	129	178	20,8	-	2800	TORB 6006
	62	20	67,4	60,8	7,1	11100	13500	TORB 2206
	62	20	74,7	70	8,3	-	5300	TORB 2206
35	72	23	81,3	79,2	9,4	9200	11600	TORB 2207
	72	23	92,8	94,7	11,2	-	4800	TORB 2207
40	62	22	73,6	99,2	11,9	-	3800	TORB 4908
	62	30	102	142	16,1	-	3100	TORB 5908
	62	40	118	180	21,2	-	2500	TORB 6908
	80	23	86,7	85,9	10,3	7900	9700	TORB 2208
	80	23	98,2	103	12,3	-	4000	TORB 2208
45	68	22	79	111	13,3	-	3400	TORB 4909
	68	30	106	162	18,4	-	2800	TORB 5909
	68	40	127	197	23,6	-	2300	TORB 6909
	85	23	89,5	91,4	10,8	7400	9800	TORB 2209
	85	23	102	109	13,0	-	3800	TORB 2209
50	72	22	83,6	125	14,6	-	3200	TORB 4910
	72	30	110	173	20,8	-	2500	TORB 5910
	72	40	135	220	25,7	-	2100	TORB 6910
	80	30	112	138	16,1	5700	6600	TORB 4010
	80	30	133	174	21,0	-	2700	TORB 4010
	90	23	95,1	99,1	11,9	7100	8500	TORB 2210
	90	23	111	122	14,3	-	3400	TORB 2210
55	80	25	103	151	17,8	-	2800	TORB 4911
	80	34	138	221	25,3	-	2300	TORB 5911
	80	45	173	295	35,5	-	1900	TORB 6911

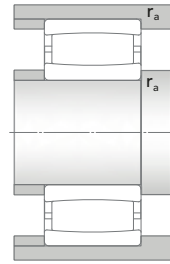
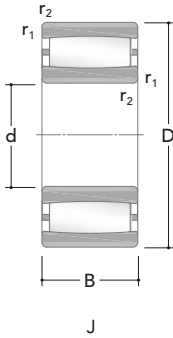


V



K/K30

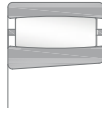
Dimensions			Mass	Designation	
d	r _{1,2min}	r _{amax}		Cylindrical bore	Tapered bore
[mm]			[kg]		
25	1	1	0,17	TORB 2205	TORB 2205 K
	1	1	0,18	TORB 2205 V	TORB 2205 KV
30	1	1	0,49	TORB 6006 V	-
	1	1	0,28	TORB 2206	TORB 2206 K
	1	1	0,29	TORB 2206 V	TORB 2206 KV
35	1,1	1	0,44	TORB 2207	TORB 2207 K
	1,1	1	0,46	TORB 2207 V	TORB 2207 KV
40	0,6	0,6	0,25	TORB 4908 V	TORB 4908 K30V
	0,6	0,6	0,35	TORB 5908 V	-
	0,6	0,6	0,45	TORB 6908 V	-
	1,1	1	0,51	TORB 2208	TORB 2208 K
	1,1	1	0,53	TORB 2208 V	TORB 2208 KV
45	0,6	0,6	0,29	TORB 4909 V	TORB 4909 K30V
	0,6	0,6	0,41	TORB 5909 V	-
	0,6	0,6	0,53	TORB 6909 V	-
	1,1	1	0,56	TORB 2209	TORB 2209 K
	1,1	1	0,58	TORB 2209 V	TORB 2209 KV
50	0,6	0,6	0,29	TORB 4910 V	TORB 4910 K30V
	0,6	0,6	0,41	TORB 5910 V	-
	0,6	0,6	0,54	TORB 6910 V	-
	1	1	0,55	TORB 4010	TORB 4010 K30
	1	1	0,58	TORB 4010 V	TORB 4010 K30V
	1,1	1	0,6	TORB 2210	TORB 2210 K
	1,1	1	0,63	TORB 2210 V	TORB 2210 KV
55	1,5	1,5	0,42	TORB 4911 V	TORB 4911 K30V
	1	1	0,6	TORB 5911 V	-
	1	1	0,78	TORB 6911 V	-



Main dimensions			Basic load ratings		Fatigue	Speed ratings		Designation
d	D	B	Dynamic C	Static C ₀	load limit C _u	Reference	Limiting	Standard design
[mm]			[kN]			[rpm]		
55	100	25	112	112	13,3	6400	8100	TORB 2211
(cont.)	100	25	128	132	15,8	-	3000	TORB 2211
60	85	25	109	169	19,7	-	2700	TORB 4912
	85	34	144	236	26,2	-	2100	TORB 5912
	110	28	140	154	17,9	5800	6800	TORB 2212
	110	28	160	188	22,6	-	2500	TORB 2212
65	90	25	113	179	20,9	-	2500	TORB 4913
	90	34	150	258	30,7	-	1900	TORB 5913
	90	45	191	352	41,9	-	1600	TORB 6913
	100	35	187	297	32,8	-	2200	TORB 4013
	120	31	173	179	21,3	5400	6800	TORB 2213
	120	31	197	215	25,6	-	2100	TORB 2213
70	100	30	157	160	28,0	-	2300	TORB 4914
	100	40	192	307	36,9	-	1800	TORB 5914
	100	54	259	449	48,0	-	1500	TORB 6914
	125	31	181	193	22,8	4900	6200	TORB 2214
	125	31	204	226	26,7	-	2200	TORB 2214
	150	51	395	428	49,2	3800	4500	TORB 2314
75	105	30	160	253	30,2	-	2100	TORB 4915
	105	40	200	321	38,0	-	1700	TORB 5915
	105	54	199	321	37,9	-	1700	TORB 6915
	115	40	201	340	40,5	-	1800	TORB 4015
	130	31	190	208	24,0	4900	5900	TORB 2215
	130	31	215	237	28,3	-	2000	TORB 2215
	160	55	416	464	52,1	3500	4200	TORB 2315
80	110	30	169	274	32,1	-	2000	TORB 4916
	110	40	204	341	39,7	-	1600	TORB 5916

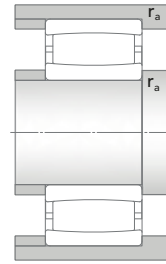
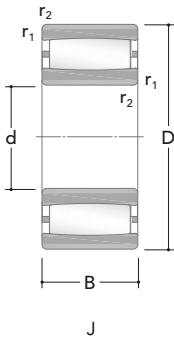


V

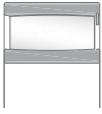


K/K30

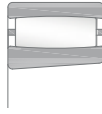
Dimensions			Mass	Designation	
d	r _{1,2min}	r _{amax}		Cylindrical bore	Tapered bore
[mm]			[kg]		
55	1,5	1,5	0,8	TORB 2211	TORB 2211 K
(cont.)	1,5	1,5	0,82	TORB 2211 V	TORB 2211 KV
60	1	1	0,46	TORB 4912 V	TORB 4912 K30V
	1	1	0,64	TORB 5912 V	-
	1,5	1,5	1,1	TORB 2212	TORB 2212 K
	1,5	1,5	1,15	TORB 2212 V	TORB 2212 KV
65	1	1	0,5	TORB 4913 V	TORB 4913 K30V
	1	1	0,68	TORB 5913 V	-
	1	1	0,9	TORB 6913 V	-
	1,1	1	1,05	TORB 4013 V	TORB 4013 K30V
	1,5	1,5	1,45	TORB 2213	TORB 2213 K
	1,5	1,5	1,5	TORB 2213 V	TORB 2213 KV
70	1	1	0,78	TORB 4914 V	TORB 4914 K30V
	1	1	1	TORB 5914 V	-
	1	1	1,4	TORB 6914 V	-
	1,5	1,5	1,5	TORB 2214	TORB 2214 K
	1,5	1,5	1,55	TORB 2214 V	TORB 2214 KV
	2,1	2	4,3	TORB 2314	TORB 2314 K
75	1	1	0,82	TORB 4915 V	TORB 4915 K30V
	1	1	1,1	TORB 5915 V	-
	1	1	1,4	TORB 6915 V	-
	1,1	1	1,6	TORB 4015 V	TORB 4015 K30V
	1,5	1,5	1,6	TORB 2215	TORB 2215 K
	1,5	1,5	1,65	TORB 2215 V	TORB 2215 KV
	2,1	2	5,3	TORB 2315	TORB 2315 K
80	1	1	0,86	TORB 4916 V	TORB 4916 K30V
	1	1	1,15	TORB 5916 V	-



Main dimensions			Basic load ratings		Fatigue load limit C_u	Speed ratings		Designation Standard design
d	D	B	Dynamic C	Static C_0		Reference	Limiting	
[mm]			[kN]			[rpm]		
80	140	33	212	246	28,8	4200	5300	TORB 2216
(cont.)	140	33	246	300	33,8	-	1800	TORB 2216
	170	58	495	550	60,0	3500	4100	TORB 2316
85	120	35	217	351	39,7	-	1800	TORB 4917
	120	46	265	463	52,2	-	1500	TORB 5917
	150	36	264	314	35,9	3900	5000	TORB 2217
	150	36	307	388	43,2	-	1600	TORB 2217
	180	60	523	599	64,1	3200	3800	TORB 2317
90	125	35	181	313	35,7	-	1800	TORB 4918
	125	46	187	324	37,6	2700	3500	TORB 5918
	125	46	217	399	45,6	-	1400	TORB 5918
	160	40	312	373	41,9	3800	4700	TORB 2218
	160	40	352	433	47,5	-	1400	TORB 2218
	190	64	588	690	74,0	2900	3500	TORB 2318
95	170	43	316	373	41,1	3900	4800	TORB 2219
	200	67	587	683	73,5	2900	3600	TORB 2319
100	140	40	233	447	50,5	-	1600	TORB 4920
	140	54	362	636	68,4	-	1200	TORB 5920
	150	50	345	520	58,5	-	1300	TORB 4020
	150	67	492	860	95,6	-	1000	TORB 5020
	165	52	462	651	71,4	-	1200	TORB 3120
	165	65	460	653	71,2	-	1200	TORB 4120
	180	46	406	464	69,6	3500	4300	TORB 2220
	215	73	774	869	26,2	2600	3200	TORB 2320
110	170	45	341	471	51,0	3200	4000	TORB 3022
	170	60	416	653	69,7	2500	3100	TORB 4022
	170	60	490	800	85,0	-	1100	TORB 4022

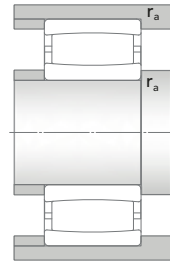
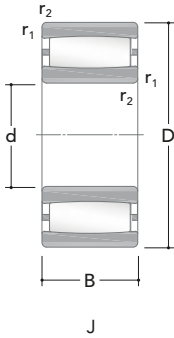


V



K/K30

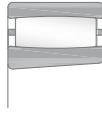
Dimensions			Mass	Designation	
d	r _{1,2min}	r _{amax}		Cylindrical bore	Tapered bore
[mm]			[kg]		
80	2	2	2,05	TORB 2216	TORB 2216 K
(cont.)	2	2	2,15	TORB 2216 V	TORB 2216 KV
	2,1	2	6,3	TORB 2316	TORB 2316 K
85	1,1	1	1,3	TORB 4917 V	TORB 4917 K30V
	1,1	1	1,7	TORB 5917 V	-
	2	2	2,65	TORB 2217	TORB 2217 K
	2	2	2,8	TORB 2217 V	TORB 2217 KV
	3	2,5	7,4	TORB 2317	TORB 2317 K
90	1,1	1	1,3	TORB 4918 V	TORB 4918 K30V
	1,1	1	1,75	TORB 5918	-
	1,1	1	1,75	TORB 5918 V	-
	2	2	3,3	TORB 2218	TORB 2218 K
	2	2	3,45	TORB 2218 V	TORB 2218 KV
	3	2,5	8,65	TORB 2318	TORB 2318 K
95	2,1	2	4,1	TORB 2219	TORB 2219 K
	3	2,5	10	TORB 2319	TORB 2319 K
100	1,1	1	2,05	TORB 4920 V	TORB 4920 K30V
	1,1	1	2,7	TORB 5920 V	-
	1,5	1,5	3,05	TORB 4020 V	TORB 4020 K30V
	1,5	1,5	4,3	TORB 5020 V	-
	2	2	4,45	TORB 3120 V	TORB 3120 KV
	2	2	5,3	TORB 4120 V	TORB 4120 K30V
	2,1	2	4,95	TORB 2220	TORB 2220 K
	3	2,5	12,5	TORB 2320	TORB 2320 K
110	2	2	3,6	TORB 3022	TORB 3022 K
	2	2	5,3	TORB 4022	TORB 4022 K30
	2	2	5,2	TORB 4022 V	TORB 4022 K30V



Main dimensions			Basic load ratings		Fatigue load limit C_u	Speed ratings		Designation Standard design
d	D	B	Dynamic C	Static C_0		Reference	Limiting	
[mm]			[kN]			[rpm]		
110	180	69	652	984	102	-	800	TORB 4122
(cont.)	200	53	510	609	64,6	3300	3900	TORB 2222
120	180	46	364	520	53,9	3000	3800	TORB 3024
	180	46	418	628	66,2	-	1200	TORB 3024
	180	60	419	630	92,4	-	1200	TORB 4024
	180	60	514	870	48,2	-	1200	TORB 4024
	200	80	758	1090	112	-	700	TORB 4124
	215	58	591	702	69,6	2800	3600	TORB 2224
	215	76	734	968	99,0	2400	2800	TORB 3224
130	200	52	381	577	58,5	2800	3400	TORB 3026
	200	69	603	913	92,1	2200	2500	TORB 4026
	200	69	702	1110	113	-	800	TORB 4026
	210	80	727	1090	111	-	700	TORB 4126
	230	64	707	922	92,3	2700	3300	TORB 2226
140	210	53	480	727	72,7	2700	3000	TORB 3028
	210	69	723	1210	121	-	700	TORB 4028
	225	85	762	1180	115	-	700	TORB 4128
	250	68	801	1040	101	2300	2900	TORB 2228
150	225	56	519	833	79,9	2300	2800	TORB 3030
	225	56	564	955	93,5	-	900	TORB 3030
	225	75	751	1310	128	-	700	TORB 4030
150	250	80	860	1270	122	2000	2500	TORB 3130
	250	100	1180	1840	176	-	400	TORB 4130
	270	73	949	1200	115	2400	2800	TORB 2230
160	240	60	587	978	93,2	2200	2600	TORB 3032
	240	80	736	1130	109	1600	2200	TORB 4032

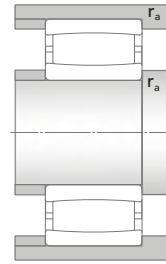
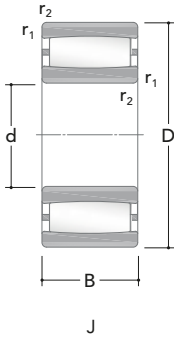


V



K/K30

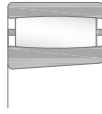
Dimensions			Mass	Designation	
d	r _{1,2min}	r _{amax}		Cylindrical bore	Tapered bore
[mm]			[kg]		
110	2	2	7,1	TORB 4122 V	TORB 4122 K30V
(cont.)	2,1	2	7	TORB 2222	TORB 2222 K
120	2	2	3,95	TORB 3024	TORB 3024 K
	2	2	4,1	TORB 3024 V	TORB 3024 KV
	2	2	5,05	TORB 4024	TORB 4024 K30
	2	2	5,55	TORB 4024 V	TORB 4024 K30V
	2	2	10	TORB 4124 V	TORB 4124 K30V
	2,1	2	8,65	TORB 2224	TORB 2224 K
	2,1	2	12	TORB 3224	TORB 3224 K
130	2	2	5,9	TORB 3026	TORB 3026 K
	2	2	7,85	TORB 4026	TORB 4026 K30
	2	2	8,15	TORB 4026 V	TORB 4026 K30V
	2	2	10,5	TORB 4126 V	TORB 4126 K30V
	3	2,5	11,5	TORB 2226	TORB 2226 K
140	2	2	6,3	TORB 3028	TORB 3028 K
	2	2	8,6	TORB 4028 V	TORB 4028 K30V
	2,1	2	12,5	TORB 4128 V	TORB 4128 K30V
	3	2,5	14	TORB 2228	TORB 2228 K
150	2,1	2	8,45	TORB 3030	TORB 3030 K
	2,1	2	8	TORB 3030 V	TORB 3030 KV
	2,1	2	10,5	TORB 4030 V	TORB 4030 K30V
150	2,1	2	15,5	TORB 3130	TORB 3130 K
	2,1	2	20	TORB 4130 V	TORB 4130 K30V
	3	2,5	18	TORB 2230	TORB 2230 K
160	2,1	2	9,6	TORB 3032	TORB 3032 K
	2,1	2	12,5	TORB 4032	TORB 4032 K30



Main dimensions			Basic load ratings		Fatigue load limit C_u	Speed ratings		Designation Standard design
d	D	B	Dynamic C	Static C_0		Reference	Limiting	
[mm]			[kN]			[rpm]		
160 (cont.)	240	80	895	1440	137	-	500	TORB 4032
	270	86	967	1380	130	1900	2300	TORB 3132
	270	109	1410	2150	201	-	300	TORB 4132
	290	104	1330	1790	172	1800	2100	TORB 3232
170	260	67	727	1140	99	2100	2500	TORB 3034
	260	90	1110	1850	174	-	500	TORB 4034
	280	88	1010	1450	138	1800	2300	TORB 3134
	280	109	1490	2270	209	-	300	TORB 4134
	310	86	1240	1610	145	1900	2300	TORB 2234
180	280	74	846	1310	120	1900	2300	TORB 3036
	280	100	1290	2110	197	-	400	TORB 4036
	300	96	1200	1720	157	1700	2200	TORB 3136
	300	118	1700	2660	238	-	200	TORB 4136
	320	112	1480	2190	194	1500	1800	TORB 3236
190	290	75	899	1450	133	1700	2200	TORB 3038
	290	100	1310	2300	210	-	300	TORB 4038
	320	104	1630	2500	192	-	200	TORB 3138
	320	128	1970	3130	277	-	100	TORB 4138
	340	92	1310	1700	155	1700	2100	TORB 2238
200	310	82	1080	1700	153	1700	2100	TORB 3040
	310	109	1560	2600	231	-	200	TORB 4040
	340	112	1560	2290	196	1500	1800	TORB 3140
	340	140	2260	3610	318	-	100	TORB 4140
220	340	90	1280	2020	178	1600	1900	TORB 3044
	340	118	1860	3230	277	-	200	TORB 4044
	370	120	1820	2840	245	1400	1600	TORB 3144
	400	108	1930	2490	209	1500	1800	TORB 2244

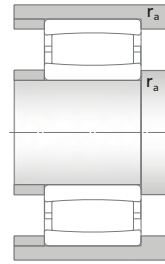
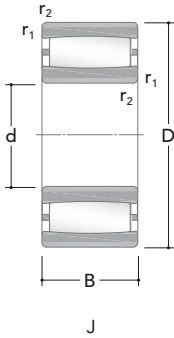


V



K/K30

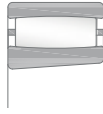
Dimensions			Mass	Designation	
d	r _{1,2min}	r _{amax}		Cylindrical bore	Tapered bore
[mm]			[kg]		
160	2,1	2	13	TORB 4032 V	TORB 4032 K30V
(cont.)	2,1	2	21,5	TORB 3132	TORB 3132 K
	2,1	2	26	TORB 4132 V	TORB 4132 K30V
	3	2,5	29,5	TORB 3232	TORB 3232 K
170	2,1	2	12,5	TORB 3034	TORB 3034 K
	2,1	2	17,5	TORB 4034 V	TORB 4034 K30V
	2,1	2	21	TORB 3134	TORB 3134 K
	2,1	2	27	TORB 4134 V	TORB 4134 K30V
	4	3	28	TORB 2234	TORB 2234 K
180	2,1	2	17	TORB 3036	TORB 3036 K
	2,1	2	23,5	TORB 4036 V	TORB 4036 K30
	3	2,5	26,5	TORB 3136	TORB 3136 K
	3	2,5	34,5	TORB 4136 V	TORB 4136 K30
	4	3	38	TORB 3236	TORB 3236 K
190	2,1	2	17,5	TORB 3038	TORB 3038 K
	2,1	2	24	TORB 4038 V	TORB 4038 K30V
	3	2,5	34,5	TORB 3138 V	TORB 3138 KV
	3	2,5	43	TORB 4138 V	TORB 4138 K30V
	4	3	34,5	TORB 2238	TORB 2238 K
200	2,1	2	22,5	TORB 3040	TORB 3040 K
	2,1	2	30,5	TORB 4040 V	TORB 4040 K30V
	3	2,5	41	TORB 3140	TORB 3140 K
	3	2,5	54	TORB 4140 V	-
220	3	2,5	29,5	TORB 3044	TORB 3044 K
	3	2,5	40	TORB 4044 V	TORB 4044 K30V
	4	3	52	TORB 3144	TORB 3144 K
	4	3	57,5	TORB 2244	TORB 2244 K



Main dimensions			Basic load ratings		Fatigue load limit C_u	Speed ratings		Designation
d	D	B	Dynamic C	Static C_0		Reference	Limiting	Standard design
[mm]			[kN]			[rpm]		
240	360	92	1280	2110	183	1500	1800	TORB 3048
240	400	128	2240	3400	282	1300	1500	TORB 3148
260	400	104	1700	2810	227	1200	1600	TORB 3052
	440	144	2540	4010	328	1100	1300	TORB 3152
280	420	106	1790	3080	252	1200	1400	TORB 3056
	460	146	2790	4490	356	1100	1200	TORB 3156
300	460	118	2110	3740	291	1100	1300	TORB 3060
	460	160	2830	4830	394	900	1060	TORB 4060
	500	160	3120	5100	400	910	1140	TORB 3160
320	480	121	2210	3960	299	970	1250	TORB 3064
	540	176	4000	6190	480	900	1160	TORB 3164
340	520	133	2820	4970	377	910	1170	TORB 3068
	580	190	4770	7390	549	820	990	TORB 3168
360	480	90	1690	3220	247	1020	1260	TORB 3972
	540	134	2780	4900	368	920	1140	TORB 3072
	600	192	4820	7950	589	780	980	TORB 3172
380	520	106	2060	3940	300	940	1140	TORB 3976
	560	135	2880	5100	373	880	1080	TORB 3076
	620	194	4300	7110	510	760	880	TORB 3176
400	540	106	2040	3980	291	880	1160	TORB 3980
	600	148	3510	6160	453	820	970	TORB 3080
	650	200	4630	8260	588	680	860	TORB 3180

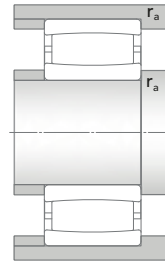
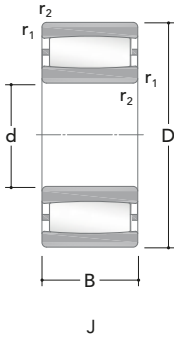


V

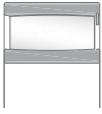


K/K30

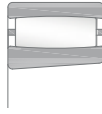
Dimensions			Mass	Designation	
d	r _{1,2min}	r _{amax}		Cylindrical bore	Tapered bore
[mm]			[kg]		
240	3	2,5	32	TORB 3048	TORB 3048 K
240	4	3	64	TORB 3148	TORB 3148 K
260	4	3	47	TORB 3052	TORB 3052 K
	4	3	88	TORB 3152	TORB 3152 K
280	4	3	50,5	TORB 3056	TORB 3056 K
	5	4	94,5	TORB 3156	TORB 3156 K
300	4	3	72	TORB 3060	TORB 3060 K
	4	3	95,5	TORB 4060	TORB 4060 K30
	5	4	125	TORB 3160	TORB 3160 K
320	4	3	78	TORB 3064	TORB 3064 K
	5	4	164	TORB 3164	TORB 3164 K
340	5	4	100	TORB 3068	TORB 3068 K
	5	4	205	TORB 3168	TORB 3168 K
360	3	2,5	45	TORB 3972	TORB 3972 K
	5	4	106	TORB 3072	TORB 3072 K
	5	4	220	TORB 3172	TORB 3172 K
380	4	3	66	TORB 3976	TORB 3976 K
	5	4	110	TORB 3076	TORB 3076 K
	5	4	243	TORB 3176	TORB 3176 K
400	4	3	68,5	TORB 3980	TORB 3980 K
	5	4	145	TORB 3080	TORB 3080 K
	6	5	258	TORB 3180	TORB 3180 K



Main dimensions			Basic load ratings		Fatigue load limit C_u	Speed ratings		Designation Standard design
d	D	B	Dynamic C	Static C_0		Reference	Limiting	
[mm]			[kN]		[rpm]			
420	560	106	2100	4220	312	820	1080	TORB 3984
	620	150	3650	6340	459	800	980	TORB 3084
	700	224	5780	10330	725	650	790	TORB 3184
440	600	118	2530	5270	377	810	980	TORB 3988
	650	157	3640	6350	454	770	880	TORB 3088
	720	226	6540	11360	783	620	750	TORB 3188
	720	280	7260	12740	900	490	590	TORB 4188
460	620	118	2610	5290	376	820	970	TORB 3992
	680	163	3890	7450	523	700	840	TORB 3092
460	760	240	6650	11870	807	610	710	TORB 3192
	760	300	8430	14760	1020	460	570	TORB 4192
480	650	128	3020	6010	425	730	880	TORB 3996
	700	165	3890	7730	535	650	800	TORB 3096
	790	248	6710	12440	834	580	660	TORB 3196
500	670	128	3070	6270	432	680	860	TORB 39/500
	720	167	4130	8160	566	640	790	TORB 30/500
	830	264	7260	12680	851	510	660	TORB 31/500
	830	325	9590	17410	1160	430	490	TORB 41/500
530	710	136	3410	7050	483	640	790	TORB 39/530
	780	185	4910	9330	636	610	700	TORB 30/530
	870	272	8610	15580	1021	490	600	TORB 31/530
560	750	140	3510	7320	492	590	750	TORB 39/560
	820	195	5460	10840	720	510	660	TORB 30/560
	920	280	8840	16240	1044	470	600	TORB 31/560
	920	355	10030	19500	1277	380	450	TORB 41/560

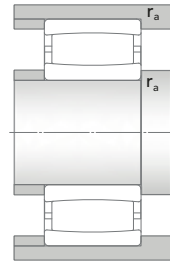
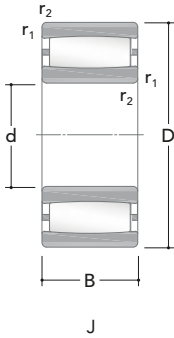


V



K/K30

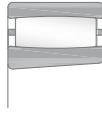
Dimensions			Mass	Designation	
d	r _{1,2min}	r _{amax}		Cylindrical bore	Tapered bore
[mm]			[kg]		
420	4	3	72	TORB 3984	TORB 3984 K
	5	4	150	TORB 3084	TORB 3084 K
	6	5	355	TORB 3184	TORB 3184 K
440	4	3	99	TORB 3988	TORB 3988 K
	6	5	190	TORB 3088	TORB 3088 K
	6	5	385	TORB 3188	TORB 3188 K
	6	5	471	TORB 4188	TORB 4188 K30
460	4	3	100	TORB 3992	TORB 3992 K
	6	5	205	TORB 3092	TORB 3092 K
460	7,5	6	435	TORB 3192	TORB 3192 K
	7,5	6	571	TORB 4192	TORB 4192 K30
480	5	4	120	TORB 3996	TORB 3996 K
	6	5	215	TORB 3096	TORB 3096 K
	7,5	6	523	TORB 3196	TORB 3196 K
500	5	4	125	TORB 39/500	TORB 39/500 K
	6	5	225	TORB 30/500	TORB 30/500 K
	7,5	6	560	TORB 31/500	TORB 31/500 K
	7,5	6	710	TORB 41/500	TORB 41/500 K30
530	5	4	150	TORB 39/530	TORB 39/530 K
	6	5	300	TORB 30/530	TORB 30/530 K
	7,5	6	636	TORB 31/530	TORB 31/530 K
560	5	4	175	TORB 39/560	TORB 39/560 K
	6	5	350	TORB 30/560	TORB 30/560 K
	7,5	6	789	TORB 31/560	TORB 31/560 K
	7,5	6	1010	TORB 41/560	TORB 41/560 K30



Main dimensions			Basic load ratings		Fatigue load limit C_u	Speed ratings		Designation Standard design
d	D	B	Dynamic C	Static C_0		Reference	Limiting	
[mm]			[kN]			[rpm]		
600	800	150	3860	8750	573	580	670	TORB 39/600
	870	200	6150	12040	772	480	620	TORB 30/600
	980	300	9860	17760	1152	440	530	TORB 31/600
	980	375	12460	22880	1431	330	400	TORB 41/600
630	850	165	4530	9860	627	540	620	TORB 39/630
	920	212	6580	12750	807	470	600	TORB 30/630
	1030	315	11480	20650	1299	390	500	TORB 31/630
670	900	170	4730	11040	695	480	550	TORB 39/670
	980	230	7930	16180	1007	440	530	TORB 30/670
	1090	336	11480	20850	1303	390	450	TORB 31/670
710	950	180	5840	12430	784	450	560	TORB 39/710
	1030	236	8450	16970	1071	410	500	TORB 30/710
	1030	315	10290	21410	1332	320	380	TORB 40/710
	1150	345	12930	25370	1538	340	430	TORB 31/710
750	1000	185	5880	13320	820	420	500	TORB 39/750
	1000	250	7580	17160	1069	330	430	TORB 49/750
750	1090	250	9190	19060	1137	380	480	TORB 30/750
	1220	365	15440	30040	1800	330	400	TORB 31/750
800	1060	195	6150	14320	880	370	470	TORB 39/800
	1150	258	8930	19120	1151	370	420	TORB 30/800
	1280	375	15140	26480	1529	290	350	TORB 31/800
850	1120	200	7200	16130	970	360	420	TORB 39/850
	1220	272	11150	24050	1444	320	410	TORB 30/850
	1360	400	16250	33460	1902	280	340	TORB 31/850
900	1180	206	8060	18240	1091	370	400	TORB 39/900

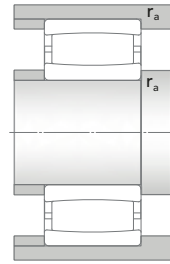
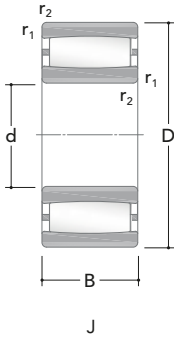


V



K/K30

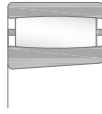
Dimensions			Mass	Designation	
d	r _{1,2min}	r _{amax}		Cylindrical bore	Tapered bore
[mm]			[kg]		
600	5	4	215	TORB 39/600	TORB 39/600 K
	6	5	395	TORB 30/600	TORB 30/600 K
	7,5	6	929	TORB 31/600	TORB 31/600 K
	7,5	6	1150	TORB 41/600	TORB 41/600 K30
630	6	5	275	TORB 39/630	TORB 39/630 K
	7,5	6	470	TORB 30/630	TORB 30/630 K
	7,5	6	1090	TORB 31/630	TORB 31/630 K
670	6	5	315	TORB 39/670	TORB 39/670 K
	7,5	6	590	TORB 30/670	TORB 30/670 K
	7,5	6	1300	TORB 31/670	TORB 31/670 K
710	6	5	360	TORB 39/710	TORB 39/710 K
	7,5	6	655	TORB 30/710	TORB 30/710 K
	7,5	6	865	TORB 40/710	TORB 40/710 K30
	9,5	8	1470	TORB 31/710	TORB 31/710 K
750	6	5	410	TORB 39/750	TORB 39/750 K
	6	5	604	TORB 49/750	TORB 49/750 K
750	7,5	6	838	TORB 30/750	TORB 30/750 K
	9,5	8	1810	TORB 31/750	TORB 31/750 K
800	6	5	480	TORB 39/800	TORB 39/800 K
	7,5	6	941	TORB 30/800	TORB 30/800 K
	9,5	8	2030	TORB 31/800	TORB 31/800 K
850	6	5	540	TORB 39/850	TORB 39/850 K
	7,5	6	1110	TORB 30/850	TORB 30/850 K
	12	10	2450	TORB 31/850	TORB 31/850 K
900	6	5	633	TORB 39/900	TORB 39/900 K



Main dimensions			Basic load ratings		Fatigue load limit C_u	Speed ratings		Designation
d	D	B	Dynamic C	Static C_0		Reference	Limiting	Standard design
[mm]			[kN]			[rpm]		
900	1280	280	12220	26310	1541	290	360	TORB 30/900
(cont.)								
950	1250	224	9100	21750	1263	290	390	TORB 39/950
	1360	300	12860	28070	1616	270	330	TORB 30/950
1000	1420	308	13200	30000	1683	270	320	TORB 30/1000
	1580	462	19590	45060	2524	220	260	TORB 31/1000
1060	1400	250	10690	25790	1442	250	320	TORB 39/1060
1180	1540	272	13020	33240	1814	230	260	TORB 39/1180
1250	1750	375	21540	48470	2525	180	210	TORB 30/1250
1320	1600	280	10310	30270	1612	200	230	TORB 48/1320
1500	1950	335	18900	47260	2353	130	180	TORB 39/1500

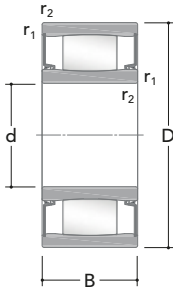


V

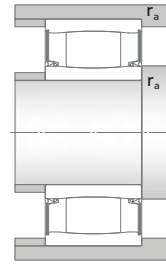


K/K30

Dimensions			Mass	Designation	
d	r _{1,2min}	r _{amax}		Cylindrical bore	Tapered bore
[mm]			[kg]		
900	7,5	6	1200	TORB 30/900	TORB 30/900 K
(cont.)					
950	7,5	6	784	TORB 39/950	TORB 39/950 K
	7,5	6	1480	TORB 30/950	TORB 30/950 K
1000	7,5	6	1680	TORB 30/1000	TORB 30/1000 K
	12	10	3800	TORB 31/1000	TORB 31/1000 K
1060	7,5	6	1120	TORB 39/1060	TORB 39/1060 K
1180	7,5	6	1400	TORB 39/1180	TORB 39/1180 K
1250	9,5	8	2980	TORB 30/1250	TORB 30/1250 K
1320	6	5	1250	TORB 48/1320	TORB 48/1320 K30
1500	9,5	8	2710	TORB 39/1500	TORB 39/1500 K

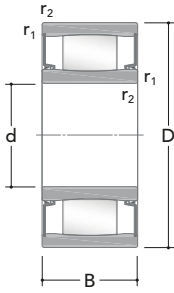


Sealed

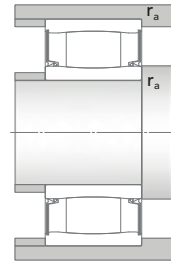


Main dimensions			Basic load ratings		Fatigue	Speed ratings	Designation
d	D	B	Dynamic C	Static C ₀	load limit C _u	Limiting	Standard design
[mm]			[kN]			[rpm]	
50	72	40	144	220	25	182	TORB 6910 V2CS
65	100	35	100	180	19,6	137	TORB 4013 V2CS
75	105	54	200	325	37,5	120	TORB 6915 V2CS
	115	40	147	192	23,3	117	TORB 4015 V2CS
90	125	46	222	399	44	100	TORB 5918 V2CS
100	150	50	313	450	50	81	TORB 4020 V2CS
	165	65	470	649	70	82	TORB 4120 V2CS
110	170	60	407	573	64	77	TORB 4022 V2CS
	180	69	515	738	72	72	TORB 4122 V2CS
120	180	60	426	634	68	72	TORB 4024 V2CS
	200	80	738	1010	99	65	TORB 4124 V2CS
130	200	69	550	825	86	64	TORB 4026 V2CS
	210	80	780	1098	108	64	TORB 4126 V2CS
140	210	69	576	900	88	60	TORB 4028 V2CS
	225	85	788	1200	116	58	TORB 4128 V2CS
150	225	75	597	984	91	58	TORB 4030 V2CS
	250	100	1257	1850	174	55	TORB 4130 V2CS
160	240	80	662	1144	100	55	TORB 4032 V2CS
	270	109	1475	2160	200	48	TORB 4132 V2CS
170	260	90	994	1614	152	49	TORB 4034 V2CS
	280	109	1499	2260	210	48	TORB 4134 V2CS

Dimensions			Mass	Designation
d	r _{1,2min}	r _{amax}		Standard design
[mm]			[kg]	
50	0,6	0,6	0,56	TORB 6910 V2CS
65	1,1	1	1,05	TORB 4013 V2CS
75	1	1	1,4	TORB 6915 V2CS
	1,1	1	1,4	TORB 4015 V2CS
90	1,1	1	1,75	TORB 5918 V2CS
100	1,5	1,5	2,9	TORB 4020 V2CS
	2	2	5,2	TORB 4120 V2CS
110	2	2	4,6	TORB 4022 V2CS
	2	2	6,6	TORB 4122 V2CS
120	2	2	5,1	TORB 4024 V2CS
	2	2	9,7	TORB 4124 V2CS
130	2	2	7,5	TORB 4026 V2CS
	2	2	10,5	TORB 4126 V2CS
140	2	2	7,9	TORB 4028 V2CS
	2,1	2	12,5	TORB 4128 V2CS
150	2,1	2	10	TORB 4030 V2CS
	2,1	2	20,5	TORB 4130 V2CS
160	2,1	2	12	TORB 4032 V2CS
	2,1	2	26	TORB 4132 V2CS
170	2,1	2	17	TORB 4034 V2CS
	2,1	2	27	TORB 4134 V2CS



Sealed



Main dimensions			Basic load ratings		Fatigue	Speed ratings	Designation
d	D	B	Dynamic C	Static C ₀	load limit C _u	Limiting	Standard design
[mm]			[kN]			[rpm]	
180	280	100	1320	2099	195	46	TORB 4036 V2CS
	300	118	1725	2808	231	41	TORB 4136 V2CS
190	290	100	1343	2413	196	43	TORB 4038 V2CS
	320	128	2122	3130	277	41	TORB 4138 V2CS
200	310	109	1597	2630	234	41	TORB 4040 V2CS
	340	140	2313	3723	309	39	TORB 4140 V2CS

Dimensions			Mass	Designation
d	r _{1,2min}	r _{amax}		Standard design
[mm]			[kg]	
180	2,1	2	23,5	TORB 4036 V2CS
	3	2,5	35	TORB 4136 V2CS
190	2,1	2	24,5	TORB 4038 V2CS
	3	2,5	43,5	TORB 4138 V2CS
200	2,1	2	31	TORB 4040 V2CS
	3	2,5	54,5	TORB 4140 V2CS