Super precision bearings



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1 Bearings for main spindles

1.1 General features

✎ *Design variants*

Bearings for main spindles are available as:

- super precision angular contact ball bearings ➤*1187*| *1*
  - single row, as single bearings or in sets
  - contact angle 15°, 25°
  - with large or small balls
  - rolling elements made from rolling bearing steel or ceramic
  - rings made from rolling bearing steel or Cronidur
  - Direct Lube bearings
- super precision cylindrical roller bearings ➤*1187*| *2*
  - single row
  - double row
  - rolling elements made from rolling bearing steel or ceramic
  - cages made from brass, polyamide or PEEK
- super precision axial bearings, i.e. super precision axial angular contact ball bearings 2344 ➤*1188*| *3*, super precision angular contact ball bearings BAX ➤*1189*| *4*
  - double direction
  - contact angle 30°, 40°, 60°
  - rolling elements made from rolling bearing steel
  - rings made from rolling bearing steel
  - cages made from brass, laminated fabric

Product catalogue

The standard range of these bearings is described in detail in Spindle Bearing Catalogue SP 1 and in our electronic product catalogue ***medias*** *professional*.

✎ *Printed catalogue*

The Spindle Bearing Catalogue SP 1 can be requested from Schaeffler. Download and ordering at *https://www.schaeffler.de/std/1D58*.

✎ ***medias***

The following link will take you to the Schaeffler electronic product selection and information system: *https://medias.schaeffler.com*.

✎ *App for services*

The app “PrecisionDesk” offers extensive services for rotary and linear bearings of a super precision design and assists fitters and engineers in the selection and mounting of bearings. Further information on PrecisionDesk ➤*1404*, download *https://www.schaeffler.de/std/1D59*.

1.2 Super precision angular contact ball bearings

FAG super precision angular contact ball bearings are single row angular contact ball bearings with solid outer and inner rings, and ball and cage assemblies with solid window cages ➤*1187*| *1*. The dimensions are standardised.

✎ *Suitable for applications with very high guidance accuracy*

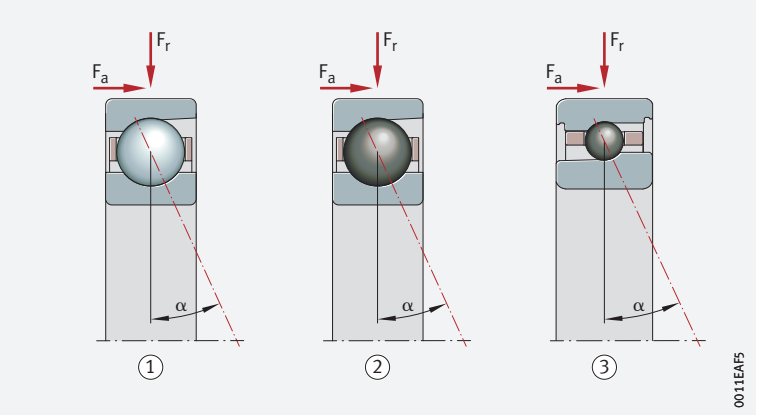
Due to their very narrow tolerances, the bearings are particularly suitable for applications involving the highest requirements for guidance accuracy, rigidity and speed suitability, such as bearing arrangements for main spindles in machine tools.

The product range of super precision angular contact ball bearings is presented in the product tables ➤*1190*|. In addition to the products listed therein, further designs are available by agreement.

1
Universal super precision angular contact ball bearings (universal spindle bearings)

α = *nominal contact angle*
F_a = *axial load*
F_r = *radial load*

① *Spindle bearing with balls made from rolling bearing steel*
② *Spindle bearing with balls made from ceramic, rings made from 100Cr6*
③ *Spindle bearing with balls made from ceramic, rings made from Vacrodur*



Extensive range for main spindle bearing arrangements, primarily in machine tools

This extensive product range gives the designer all possible scope for designing technically innovative, operationally secure and economical bearing arrangements. This results in significant performance improvements and cost savings as standard in machine tools. However, other machines, such as turbochargers for example, can benefit from these bearings.

Increased performance

In new designs, this can allow the machine manufacturer to achieve a unique position in the market. In existing designs too, refitting with FAG spindle bearings can still give further increases in the performance and profitability of machines.

1.3 Super precision cylindrical roller bearings

Features

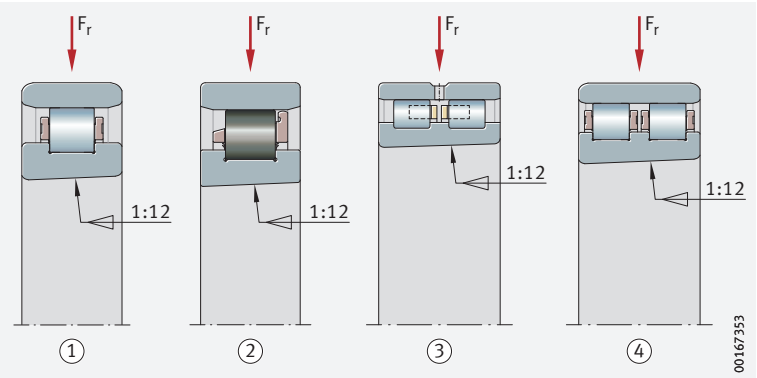
FAG super precision cylindrical roller bearings comprise solid outer rings, solid inner rings with a tapered bore (taper 1:12) and cylindrical roller and cage assemblies with cages made from polyamide, brass or PEEK (polyetheretherketone) ➤*1187*| *2*. The outer ring is removable and can thus be mounted separately from the rest of the bearing package. The inner ring is only removable in the case of series NNU49.

FAG super precision cylindrical roller bearings are also available by agreement with a cylindrical bore.

2
Super precision cylindrical roller bearings with tapered bore

F_r = *radial load*

① *Single row, N10*
② *Single row, ceramic rolling elements: HCN10*
③ *Double row, NN30, NNU49*
④ *Double row, NN30..-D*



Areas of application

The single and double row bearings are used when the very highest precision is required under very high radial load. Typical areas of application include machine tools and printing machinery. The bearings facilitate bearing arrangements with very high precision, high radial rigidity and very high load carrying capacity. In machine tool building, they provide radial support for the main spindle.

✎ *Ideal non-locating bearings*

Since variations in length during rotary motion can be compensated between the rollers and the ribless raceway without constraining forces, the cylindrical roller bearings are highly suitable as non-locating bearings. Axial forces are supported by axial bearings, such as double direction axial angular contact ball bearings or super precision angular contact ball bearings BAX. The standard series N10, HCN10 (single row) and NN30, NNU49 (double row) are an established part of the FAG super precision range ➤ *1272*.

Diameter ranges not shown in the catalogue are available by agreement.

X-life premium quality

The super precision cylindrical roller bearings N10 and NN30 in the X-life design have a higher load carrying capacity and thus a significantly increased bearing rating life. A newly developed plastic cage gives lower friction than the previous standard design with brass cage.

✎ *Increased customer benefits due to X-life*

The advantages of this bearing design include:

- limiting speeds up to 35% higher
- running temperatures up to 12 K lower
- lower noise level
- lower lubricant demand
- longer grease operating life
- higher basic load ratings
- longer operating life of the bearings

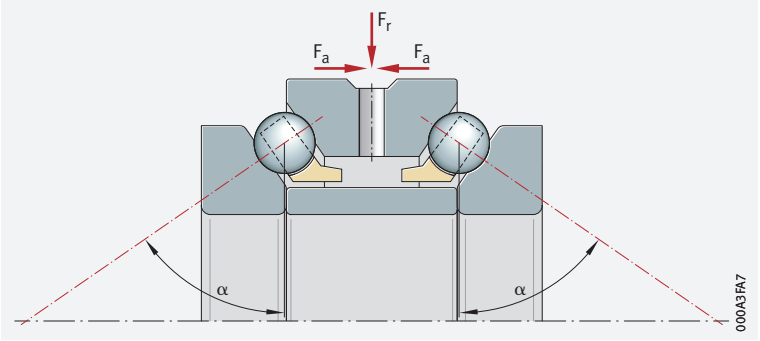
The basic dynamic load ratings C are up to approx. 20% higher than those of the previous bearing designs and the basic bearing rating life L_{10} is up to 65% longer than the previous standard. As a result of the increase in the basic bearing rating life L_{10}, this gives a longer operating life of the bearings under the same operating conditions. If the rating life values are maintained, alternatively, higher loads can be applied to the bearing arrangement.

1.4 Super precision axial bearings

Super precision axial angular contact ball bearings 2344

✎ *Suitable for applications with very high precision and high axial loads*

Double direction axial angular contact ball bearings of series 2344 in particular are very axially rigid super precision bearings preloaded clearance-free with restricted tolerances to class SP. The bearings are used when very high precision is required under high axial load.



3
Axial angular contact ball bearing 2344, double direction

α = *nominal contact angle*
F_r = *radial load*
F_a = *axial load*

✎ *Features*

These bearings without self-retention comprise solid shaft locating washers, a spacer ring, a housing locating washer and ball and cage assemblies with solid cages ➤ *1188* | 3. The bearing parts are matched to each other and can be fitted separately, but must not be interchanged with parts from other bearings. Available designs of series 2344 ➤ *1286*.

✎ *Contact angle*

Due to the contact angle of 60°, they can support high axial loads from both sides.

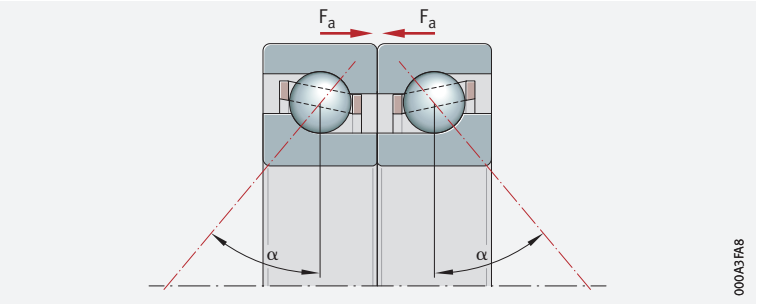
Super precision angular contact ball bearings BAX

Suitable for applications with high speeds and axial loads

Increased load carrying capacity normally brings with it a reduction in the maximum speed. Through the use of angular contact ball bearings BAX, it is possible to unify both requirements. Angular contact ball bearings BAX:

- can support high axial loads
- have similarly high limiting speeds to X-life cylindrical roller bearings
- have high rigidity
- can support axial loads only

The super precision angular contact ball bearings BAX conform to the accuracy class P4S and are generally supplied as ready-to-fit sets in the arrangement DB ➤*1189* 4. Available designs ➤*1288*.



4 *Angular contact ball bearing BAX, ready-to-fit set in O arrangement*

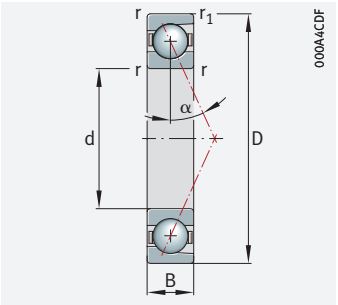
α = *nominal contact angle*
F_a = *axial load*

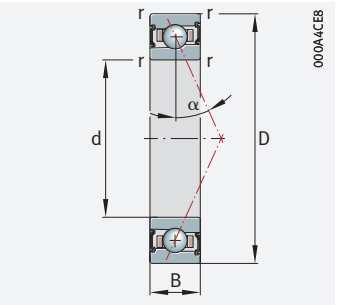
Contact angle

Super precision angular contact ball bearings BAX are available with a contact angle of 30° for high speed requirements or, for even higher rigidities, also with a contact angle of 40°. As a bearing set, they can support high axial loads from both sides.

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Cronidur rings
Open or sealed





d = 10 – 10 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
10	22	6	2,9	1,02	108	70 000	110 000	0,3	0,3	25	0,01	**B71900-E-T-P4S**
	22	6	3	1,07	113	75 000	120 000	0,3	0,3	15	0,01	**B71900-C-T-P4S**
	22	6	2,9	0,98	79	95 000	150 000	0,3	0,3	25	0,009	**HCB71900-E-T-P4S**
	22	6	1,7	0,62	66	95 000	140 000	0,3	0,3	25	0,01	**HS71900-E-T-P4S**
	22	6	1,79	0,65	69	100 000	160 000	0,3	0,3	15	0,01	**HS71900-C-T-P4S**
	22	6	3	1,02	82	110 000	160 000	0,3	0,3	15	0,009	**HCB71900-C-T-P4S**
	22	6	1,7	0,6	48	120 000	180 000	0,3	0,3	25	0,01	**HC71900-E-T-P4S**
	22	6	2,6	0,6	47	130 000	200 000	0,3	0,3	25	0,01	**XC71900-E-T-P4S**
	26	8	3,95	1,41	149	60 000	95 000	0,3	0,3	25	0,02	**B7000-E-T-P4S**
	26	8	4,1	1,47	155	67 000	100 000	0,3	0,3	15	0,02	**B7000-C-T-P4S**
	26	8	3,95	1,35	108	85 000	130 000	0,3	0,3	25	0,018	**HCB7000-E-T-P4S**
	26	8	2,35	0,89	95	85 000	130 000	0,3	0,3	25	0,021	**HS7000-E-T-P4S**
	26	8	2,47	0,94	99	90 000	140 000	0,3	0,3	15	0,021	**HS7000-C-T-P4S**
	26	8	4,15	1,4	113	95 000	140 000	0,3	0,3	15	0,018	**HCB7000-C-T-P4S**
	26	8	2,36	0,86	69	110 000	160 000	0,3	0,3	25	0,021	**HC7000-E-T-P4S**
	26	8	3,6	0,86	68	120 000	180 000	0,3	0,3	25	0,021	**XC7000-E-T-P4S**
	30	9	6,6	2,8	305	50 000	75 000	0,6	0,6	25	0,032	**B7200-E-T-P4S**
	30	9	6,9	2,95	315	56 000	85 000	0,6	0,6	15	0,032	**B7200-C-T-P4S**
	30	9	6,6	2,7	221	60 000	90 000	0,6	0,6	25	0,029	**HCB7200-E-T-P4S**
	30	9	7	2,8	229	67 000	100 000	0,6	0,6	15	0,029	**HCB7200-C-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

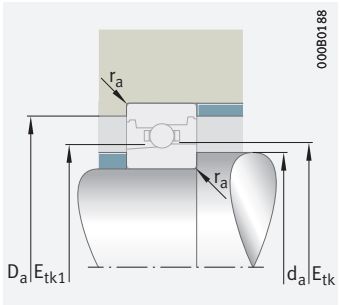
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

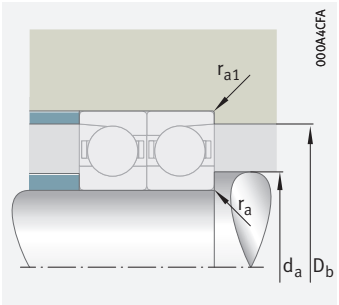
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

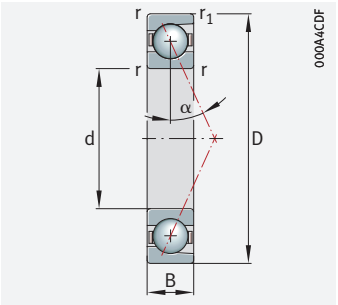


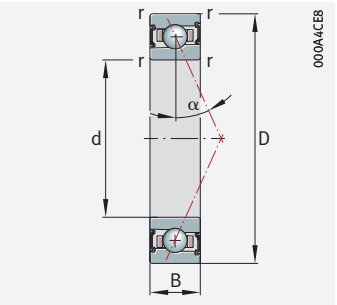
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a	r_{a1}	E_{tk}	E_{tk1}	E_{tk} E_{tk1}	L	M	H	L	M	H	L	M	H
			max.	max.	min.	min.	max.	N	N	N	N	N	N	N/µm	N/µm	N/µm
10	13	19,5	0,3	0,1	14,4	14,4	15	17	74	163	50	226	521	27,1	47,7	67
	13	19,5	0,3	0,1	14,4	14,4	15	10	41	87	31	141	320	11	21,1	31,2
	13	19,5	0,3	0,1	14,4	14,4	15	5	35	85	16	104	260	20,4	39,9	56,5
	13	19,5	0,3	0,1	14,6	13,7	15	11	32	64	31	96	196	21,7	32,7	43
	13	19,5	0,3	0,1	14,6	13,7	15	7	20	39	20	63	132	8,8	14,1	19,6
	13	19,5	0,3	0,1	14,4	14,4	15	6	25	54	17	79	185	9,8	18,2	26,5
	13	19,5	0,3	0,1	14,6	13,7	15	7	22	45	21	65	133	21,6	32	41,7
	13	19,5	0,3	0,1	14,6	13,7	15	7	22	45	21	65	133	21,6	32	41,7
	14	22	0,3	0,1	15,7	15,7	16,8	21	99	223	61	298	698	27,6	49,2	69,1
	14	22	0,3	0,1	15,7	15,7	16,8	18	65	136	54	220	490	12,7	23	33,5
	14	22	0,3	0,1	15,7	15,7	16,8	12	57	130	33	167	392	25,1	44,6	61,6
	14	22	0,3	0,1	16,4	15,3	16,9	15	45	90	43	133	273	26,8	40,3	53
	14	22	0,3	0,1	16,4	15,3	16,9	9	28	55	28	89	185	10,9	17,4	24,1
	14	22	0,3	0,1	15,7	15,7	16,8	7	33	74	21	104	248	9,9	18,5	26,9
	14	22	0,3	0,1	16,4	15,3	16,9	10	31	62	30	91	185	26,6	39,5	51,4
	14	22	0,3	0,1	16,4	15,3	16,9	10	31	62	30	91	185	26,6	39,5	51,4
	14,5	25,5	0,6	0,3	18	18	19,2	32	141	314	94	429	995	35,8	63,2	88,8
	14,5	25,5	0,6	0,3	18	18	19,2	25	91	185	79	311	684	16,4	29,8	43,5
	14,5	25,5	0,6	0,3	18	18	19,2	18	82	185	52	243	564	32,8	57,2	78,9
	14,5	25,5	0,6	0,3	18	18	19,2	11	47	103	32	150	352	12,9	23,9	34,9

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Cronidur rings
Open or sealed





d = 12 – 12 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
12	24	6	3,25	1,25	132	60 000	95 000	0,3	0,3	25	0,011	**B71901-E-T-P4S**
	24	6	3,4	1,31	139	67 000	100 000	0,3	0,3	15	0,011	**B71901-C-T-P4S**
	24	6	1,76	0,69	73	85 000	130 000	0,3	0,3	25	0,011	**HS71901-E-T-P4S**
	24	6	3,25	1,19	96	85 000	130 000	0,3	0,3	25	0,01	**HCB71901-E-T-P4S**
	24	6	1,85	0,72	76	90 000	140 000	0,3	0,3	15	0,011	**HS71901-C-T-P4S**
	24	6	3,4	1,25	101	95 000	140 000	0,3	0,3	15	0,01	**HCB71901-C-T-P4S**
	24	6	1,76	0,66	53	110 000	160 000	0,3	0,3	25	0,011	**HC71901-E-T-P4S**
	24	6	2,7	0,66	52	120 000	180 000	0,3	0,3	25	0,011	**XC71901-E-T-P4S**
	28	8	4,45	1,75	185	53 000	85 000	0,3	0,3	25	0,023	**B7001-E-T-P4S**
	28	8	4,65	1,83	194	60 000	90 000	0,3	0,3	15	0,023	**B7001-C-T-P4S**
	28	8	2,32	0,91	97	75 000	110 000	0,3	0,3	25	0,024	**HS7001-E-T-P4S**
	28	8	4,45	1,67	135	75 000	120 000	0,3	0,3	25	0,02	**HCB7001-E-T-P4S**
	28	8	2,45	0,96	102	80 000	130 000	0,3	0,3	15	0,024	**HS7001-C-T-P4S**
	28	8	4,7	1,75	141	85 000	130 000	0,3	0,3	15	0,02	**HCB7001-C-T-P4S**
	28	8	2,33	0,87	70	95 000	140 000	0,3	0,3	25	0,023	**HC7001-E-T-P4S**
	28	8	3,55	0,87	69	100 000	160 000	0,3	0,3	25	0,023	**XC7001-E-T-P4S**
	32	10	8,8	3,75	395	45 000	67 000	0,6	0,6	25	0,037	**B7201-E-T-P4S**
	32	10	9,1	3,9	410	50 000	75 000	0,6	0,6	15	0,037	**B7201-C-T-P4S**
	32	10	8,8	3,6	290	56 000	85 000	0,6	0,6	25	0,032	**HCB7201-E-T-P4S**
	32	10	9,1	3,7	300	63 000	95 000	0,6	0,6	15	0,032	**HCB7201-C-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

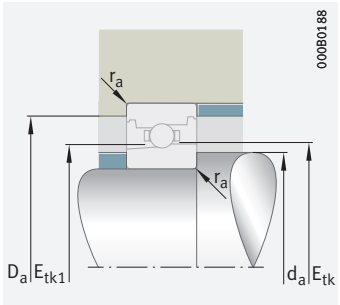
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

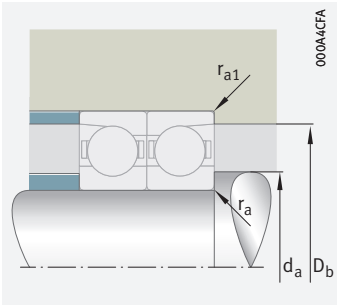
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

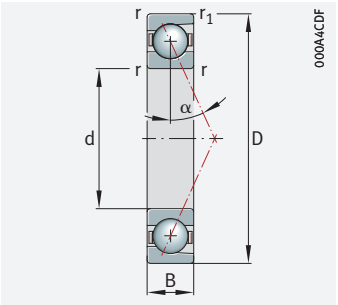


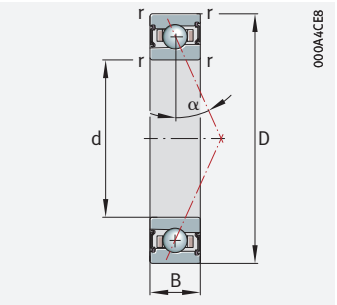
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
12	15	21,5	0,3	0,1	16,4	16,4	17,2	18	80	179	53	245	567	30,8	54,4	76,5
	15	21,5	0,3	0,1	16,4	16,4	17,2	11	46	97	34	155	355	12,6	24,1	35,7
	15	21,5	0,3	0,1	16,6	15,7	17	11	33	67	32	99	203	23,1	34,7	45,6
	15	21,5	0,3	0,1	16,4	16,4	17,2	5	38	92	16	111	281	22,7	45,5	64,5
	15	21,5	0,3	0,1	16,6	15,7	17	7	21	41	21	66	137	9,4	15	20,8
	15	21,5	0,3	0,1	16,4	16,4	17,2	6	27	60	18	87	205	11,2	20,8	30,3
	15	21,5	0,3	0,1	16,6	15,7	17	8	23	46	22	68	138	22,9	34,1	44,3
	15	21,5	0,3	0,1	16,6	15,7	17	8	23	46	22	68	138	22,9	34,1	44,3
	16,5	24,5	0,3	0,1	17,9	17,9	18,8	23	109	248	66	328	775	31,8	57,2	80,3
	16,5	24,5	0,3	0,1	17,9	17,9	18,8	19	73	152	59	242	543	14,6	26,5	38,7
	16,5	24,5	0,3	0,1	18,4	17,3	18,9	15	44	88	43	131	268	26,7	40	52,6
	16,5	24,5	0,3	0,1	17,9	17,9	18,8	12	63	145	35	184	436	29	51,9	71,7
	16,5	24,5	0,3	0,1	18,4	17,3	18,9	9	27	54	27	87	181	10,8	17,3	23,9
	16,5	24,5	0,3	0,1	17,9	17,9	18,8	8	36	82	22	114	274	11,3	21,4	31,1
	16,5	24,5	0,3	0,1	18,4	17,3	18,9	10	30	61	29	89	181	26,4	39,2	50,9
	16,5	24,5	0,3	0,1	18,4	17,3	18,9	10	30	61	29	89	181	26,4	39,2	50,9
	16,5	27,5	0,6	0,3	19,6	19,6	21,1	47	193	423	137	588	1 342	42,8	73,9	103
	16,5	27,5	0,6	0,3	19,6	19,6	21,1	35	123	248	109	420	916	19,3	34,6	50,3
	16,5	27,5	0,6	0,3	19,6	19,6	21,1	26	112	248	76	332	757	39,2	66,8	91,6
	16,5	27,5	0,6	0,3	19,6	19,6	21,1	16	65	142	47	210	483	15,6	28,2	40,9

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Cronidur rings
Open or sealed





d = 15 – 15 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
15	28	7	4,85	1,94	205	50 000	75 000	0,3	0,3	25	0,016	**B71902-E-T-P4S**
	28	7	5,1	2,03	215	56 000	85 000	0,3	0,3	15	0,016	**B71902-C-T-P4S**
	28	7	2,41	0,99	105	67 000	100 000	0,3	0,3	25	0,017	**HS71902-E-T-P4S**
	28	7	2,55	1,04	111	75 000	110 000	0,3	0,3	15	0,017	**HS71902-C-T-P4S**
	28	7	4,85	1,86	150	70 000	110 000	0,3	0,3	25	0,014	**HCB71902-E-T-P4S**
	28	7	5,1	1,94	157	75 000	120 000	0,3	0,3	15	0,014	**HCB71902-C-T-P4S**
	28	7	2,41	0,95	76	85 000	130 000	0,3	0,3	25	0,016	**HC71902-E-T-P4S**
	28	7	3,7	0,95	75	95 000	150 000	0,3	0,3	25	0,016	**XC71902-E-T-P4S**
	32	9	5,9	2,31	244	45 000	70 000	0,3	0,3	25	0,03	**B7002-E-T-P4S**
	32	9	6,1	2,41	255	53 000	80 000	0,3	0,3	15	0,03	**B7002-C-T-P4S**
	32	9	3,25	1,41	149	63 000	95 000	0,3	0,3	25	0,033	**HS7002-E-T-P4S**
	32	9	5,9	2,21	178	63 000	100 000	0,3	0,3	25	0,027	**HCB7002-E-T-P4S**
	32	9	3,45	1,48	157	70 000	110 000	0,3	0,3	15	0,033	**HS7002-C-T-P4S**
	32	9	6,2	2,31	186	70 000	110 000	0,3	0,3	15	0,027	**HCB7002-C-T-P4S**
	32	9	3,25	1,35	109	80 000	120 000	0,3	0,3	25	0,031	**HC7002-E-T-P4S**
	32	9	5	1,35	107	90 000	140 000	0,3	0,3	25	0,031	**XC7002-E-T-P4S**
	35	11	11,1	4,85	520	40 000	60 000	0,6	0,6	25	0,044	**B7202-E-T-P4S**
	35	11	11,6	5	540	45 000	67 000	0,6	0,6	15	0,044	**B7202-C-T-P4S**
	35	11	11,1	4,65	380	48 000	70 000	0,6	0,6	25	0,038	**HCB7202-E-T-P4S**
	35	11	11,6	4,8	395	56 000	85 000	0,6	0,6	15	0,038	**HCB7202-C-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

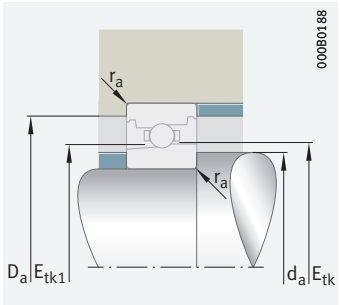
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

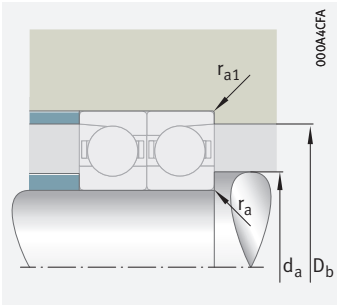
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

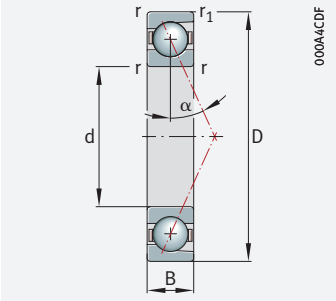


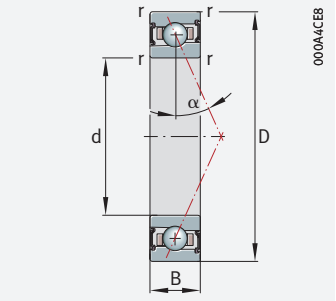
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
15	18	25,5	0,3	0,1	19,9	19,9	20,9	22	111	255	64	336	805	35	64,7	91,9
	18	25,5	0,3	0,1	19,9	19,9	20,9	19	73	153	59	249	559	16,4	30,5	44,9
	18	25,5	0,3	0,1	19,9	18,8	20,4	15	46	91	44	136	278	28,3	42,4	55,6
	18	25,5	0,3	0,1	19,9	18,8	20,4	9	28	56	28	90	188	11,4	18,2	25,2
	18	25,5	0,3	0,1	19,9	19,9	20,9	12	64	150	34	190	457	31,9	58,7	82
	18	25,5	0,3	0,1	19,9	19,9	20,9	7	37	84	21	117	285	12,5	24,4	35,9
	18	25,5	0,3	0,1	19,9	18,8	20,4	11	32	63	30	92	188	28	41,5	53,9
	18	25,5	0,3	0,1	19,9	18,8	20,4	11	32	63	30	92	188	28	41,5	53,9
	19	29	0,3	0,1	21,1	21,1	22,3	36	154	341	104	464	1 066	37,2	64,6	89,8
	19	29	0,3	0,1	21,1	21,1	22,3	27	99	204	84	332	733	16,6	29,7	43
	19	29	0,3	0,1	21,6	20,4	22,4	20	61	122	59	182	372	34	50,9	66,8
	19	29	0,3	0,1	21,1	21,1	22,3	20	88	199	57	260	600	34,1	58,6	80,2
	19	29	0,3	0,1	21,6	20,4	22,4	13	38	75	38	120	251	13,7	21,8	30,2
	19	29	0,3	0,1	21,1	21,1	22,3	12	52	114	35	164	381	13,4	24,3	35,1
	19	29	0,3	0,1	21,6	20,4	22,4	14	42	85	41	124	252	33,7	49,9	64,8
	19	29	0,3	0,1	21,6	20,4	22,4	14	42	85	41	124	252	33,7	49,9	64,8
	19,5	30,5	0,6	0,3	21,7	21,7	23,4	64	252	546	187	768	1 732	49,7	84,4	117
	19,5	30,5	0,6	0,3	21,7	21,7	23,4	46	158	319	144	543	1 177	22,1	39,3	57
	19,5	30,5	0,6	0,3	21,7	21,7	23,4	24	126	291	70	371	884	39,7	72	100
	19,5	30,5	0,6	0,3	21,7	21,7	23,4	22	86	183	65	275	626	18,1	32,3	46,5

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Cronidur rings
Open or sealed





d = 17 – 20 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
17	30	7	5,3	2,23	236	50 000	80 000	0,3	0,3	15	0,018	**B71903-C-T-P4S**
	30	7	5,1	2,12	225	45 000	70 000	0,3	0,3	25	0,018	**B71903-E-T-P4S**
	30	7	5,3	2,13	172	70 000	110 000	0,3	0,3	15	0,015	**HCB71903-C-T-P4S**
	30	7	5,1	2,03	164	63 000	100 000	0,3	0,3	25	0,015	**HCB71903-E-T-P4S**
	30	7	2,6	1,13	120	70 000	110 000	0,3	0,3	15	0,019	**HS71903-C-T-P4S**
	30	7	2,48	1,07	114	63 000	95 000	0,3	0,3	25	0,019	**HS71903-E-T-P4S**
	30	7	2,48	1,03	83	80 000	120 000	0,3	0,3	25	0,018	**HC71903-E-T-P4S**
	30	7	3,8	1,03	81	90 000	140 000	0,3	0,3	25	0,017	**XC71903-E-T-P4S**
	35	10	8,6	3,5	370	45 000	70 000	0,3	0,3	15	0,039	**B7003-C-T-P4S**
	35	10	8,2	3,35	355	43 000	63 000	0,3	0,3	25	0,039	**B7003-E-T-P4S**
	35	10	8,6	3,35	270	63 000	100 000	0,3	0,3	15	0,033	**HCB7003-C-T-P4S**
	35	10	8,2	3,25	260	56 000	90 000	0,3	0,3	25	0,033	**HCB7003-E-T-P4S**
	35	10	3,55	1,6	170	63 000	95 000	0,3	0,3	15	0,04	**HS7003-C-T-P4S**
	35	10	3,35	1,52	161	56 000	85 000	0,3	0,3	25	0,04	**HS7003-E-T-P4S**
	35	10	3,35	1,46	117	75 000	110 000	0,3	0,3	25	0,038	**HC7003-E-T-P4S**
	35	10	5,1	1,46	115	80 000	120 000	0,3	0,3	25	0,038	**XC7003-E-T-P4S**
	40	12	13	5,8	620	38 000	56 000	0,6	0,6	15	0,063	**B7203-C-T-P4S**
	40	12	12,4	5,6	590	36 000	53 000	0,6	0,6	25	0,062	**B7203-E-T-P4S**
	40	12	13	5,6	450	50 000	75 000	0,6	0,6	15	0,056	**HCB7203-C-T-P4S**
	40	12	12,5	5,4	435	43 000	63 000	0,6	0,6	25	0,055	**HCB7203-E-T-P4S**
20	37	9	7,4	3,2	340	43 000	63 000	0,3	0,3	15	0,037	**B71904-C-T-P4S**
	37	9	7	3,05	325	38 000	60 000	0,3	0,3	25	0,037	**B71904-E-T-P4S**
	37	9	7,4	3,1	248	60 000	90 000	0,3	0,3	15	0,033	**HCB71904-C-T-P4S**
	37	9	7	2,95	236	53 000	80 000	0,3	0,3	25	0,033	**HCB71904-E-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

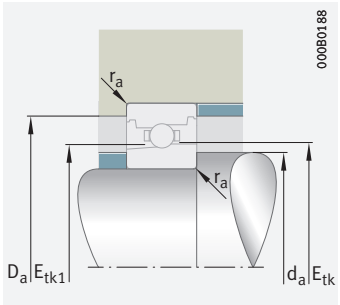
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

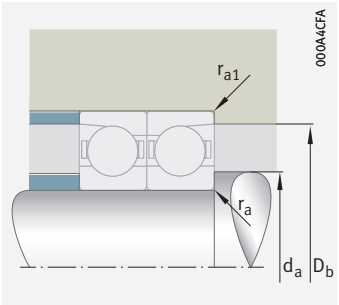
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

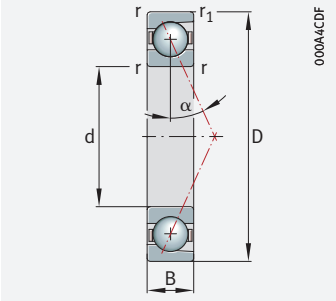


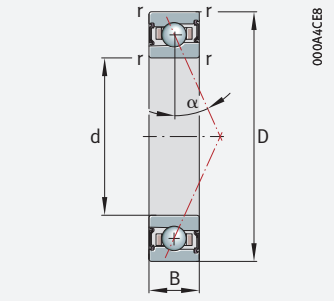
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
17	20	27,5	0,3	0,1	21,4	21,4	22,3	20	78	162	62	263	592	17,5	32,6	47,9
	20	27,5	0,3	0,1	21,4	21,4	22,3	22	115	265	65	346	833	36,9	68,5	97,3
	20	27,5	0,3	0,1	21,4	21,4	22,3	8	39	89	22	123	300	13,3	26	38,3
	20	27,5	0,3	0,1	21,4	21,4	22,3	12	65	154	34	193	466	33,4	61,9	86,4
	20	27,5	0,3	0,1	21,9	20,8	22,4	10	29	58	29	93	194	12	19,2	26,5
	20	27,5	0,3	0,1	21,9	20,8	22,4	16	47	93	45	138	283	29,6	44,4	58,3
	20	27,5	0,3	0,1	21,9	20,8	22,4	11	33	66	31	96	195	29,6	43,9	56,9
	20	27,5	0,3	0,1	21,9	20,8	22,4	11	33	66	31	96	195	29,6	43,9	56,9
	21	32	0,3	0,1	23,3	23,3	24,5	40	142	291	124	474	1 042	21,1	37,1	53,6
	21	32	0,3	0,1	23,3	23,3	24,5	54	220	483	156	663	1 504	47,6	81	112
	21	32	0,3	0,1	23,3	23,3	24,5	18	75	164	54	237	546	17,3	30,7	43,9
	21	32	0,3	0,1	23,3	23,3	24,5	30	126	279	85	370	840	43,5	73,4	99,7
	21	32	0,3	0,1	24,1	22,9	24,8	13	38	76	38	121	253	14,3	22,7	31,3
	21	32	0,3	0,1	24,1	22,9	24,8	21	63	126	61	187	382	35,7	53,4	70
	21	32	0,3	0,1	24,1	22,9	24,8	14	43	86	41	126	256	35,3	52,2	67,7
	21	32	0,3	0,1	24,1	22,9	24,8	14	43	86	41	126	256	35,3	52,2	67,7
	22,5	34,5	0,6	0,3	25	25	26,7	53	179	360	165	614	1 327	23,6	41,8	60,6
	22,5	34,5	0,6	0,3	25	25	26,7	74	286	616	216	871	1 954	53,3	89,9	125
	22,5	34,5	0,6	0,3	25	25	26,7	25	97	208	75	313	708	19,5	34,4	49,5
	22,5	34,5	0,6	0,3	25	25	26,7	29	145	332	84	428	1 011	43,2	77,2	107
20	24	33,5	0,3	0,15	26	26	27,1	31	113	233	95	384	851	21,6	39,3	57,4
	24	33,5	0,3	0,15	26	26	27,1	37	170	384	108	516	1 208	46,7	83,3	117
	24	33,5	0,3	0,15	26	26	27,1	12	57	128	37	182	431	16,8	31,5	46
	24	33,5	0,3	0,15	26	26	27,1	20	98	223	58	289	678	42,5	75,3	104

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Cronidur rings
Open or sealed





d = 20 – 25 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ 1188
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
20	37	9	3,6	1,73	183	56 000	90 000	0,3	0,3	15	0,04	**HS71904-C-T-P4S**
	37	9	3,4	1,63	173	53 000	80 000	0,3	0,3	25	0,04	**HS71904-E-T-P4S**
	37	9	3,4	1,56	126	67 000	100 000	0,3	0,3	25	0,039	**HC71904-E-T-P4S**
	37	9	5,2	1,56	124	75 000	110 000	0,3	0,3	25	0,038	**XC71904-E-T-P4S**
	42	12	10,3	4,25	450	38 000	60 000	0,6	0,6	15	0,067	**B7004-C-T-P4S**
	42	12	9,8	4,05	430	34 000	53 000	0,6	0,6	25	0,067	**B7004-E-T-P4S**
	42	12	10,3	4,05	325	53 000	80 000	0,6	0,6	15	0,061	**HCB7004-C-T-P4S**
	42	12	9,8	3,9	315	48 000	75 000	0,6	0,6	25	0,061	**HCB7004-E-T-P4S**
	42	12	5,7	2,7	290	53 000	80 000	0,6	0,6	15	0,077	**HS7004-C-T-P4S**
	42	12	5,4	2,6	275	48 000	75 000	0,6	0,6	25	0,077	**HS7004-E-T-P4S**
	42	12	5,4	2,47	199	60 000	95 000	0,6	0,6	25	0,073	**HC7004-E-T-P4S**
	42	12	8,3	2,47	196	67 000	100 000	0,6	0,6	25	0,073	**XC7004-E-T-P4S**
	47	14	17,2	8	850	32 000	48 000	1	1	15	0,103	**B7204-C-T-P4S**
	47	14	16,5	7,7	810	30 000	45 000	1	1	25	0,103	**B7204-E-T-P4S**
	47	14	17,3	7,6	620	40 000	60 000	1	1	15	0,092	**HCB7204-C-T-P4S**
	47	14	16,5	7,3	590	36 000	53 000	1	1	25	0,091	**HCB7204-E-T-P4S**
25	42	9	8	3,8	400	36 000	56 000	0,3	0,3	15	0,043	**B71905-C-T-P4S**
	42	9	7,6	3,6	380	32 000	50 000	0,3	0,3	25	0,043	**B71905-E-T-P4S**
	42	9	8	3,65	295	50 000	75 000	0,3	0,3	15	0,039	**HCB71905-C-T-P4S**
	42	9	7,6	3,45	280	45 000	67 000	0,3	0,3	25	0,039	**HCB71905-E-T-P4S**
	42	9	3,9	2,06	218	48 000	75 000	0,3	0,3	15	0,046	**HS71905-C-T-P4S**
	42	9	3,65	1,95	206	43 000	67 000	0,3	0,3	25	0,046	**HS71905-E-T-P4S**
	42	9	3,65	1,87	150	56 000	85 000	0,3	0,3	25	0,045	**HC71905-E-T-P4S**
	42	9	6,5	2,75	295	49 300	74 700	0,3	0,15	17	0,038	**M71905-C-T-P4S-XL**
	42	9	6,3	2,65	280	46 300	68 700	0,3	0,15	25	0,038	**M71905-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

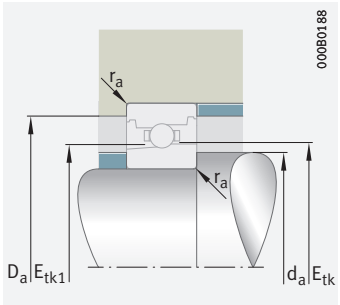
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

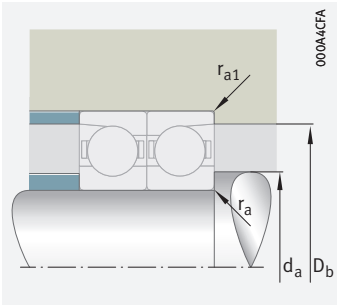
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

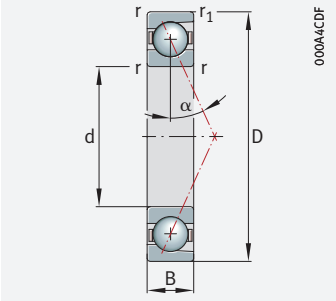


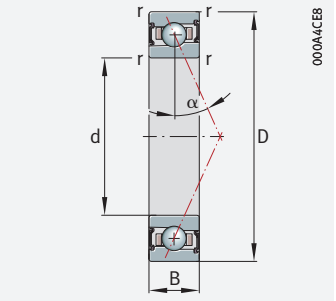
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
20	24	33,5	0,3	0,15	26,6	25,4	27,2	13	39	78	39	124	259	15	23,7	32,7
	24	33,5	0,3	0,15	26,6	25,4	27,2	22	65	129	62	191	392	37,4	55,9	73,2
	24	33,5	0,3	0,15	26,6	25,4	27,2	15	44	88	42	128	261	36,9	54,6	70,7
	24	33,5	0,3	0,15	26,6	25,4	27,2	15	44	88	42	128	261	36,9	54,6	70,7
	25	37	0,6	0,3	27,8	27,8	29,3	51	175	356	157	586	1 276	22,6	39,4	56,8
	25	37	0,6	0,3	27,8	27,8	29,3	71	275	595	205	829	1 857	51,6	86,3	119
	25	37	0,6	0,3	27,8	27,8	29,3	24	94	202	72	297	673	18,7	32,7	46,6
	25	37	0,6	0,3	27,8	27,8	29,3	28	140	321	80	410	966	42	74,7	103
	25	37	0,6	0,3	28,6	27,1	29,7	21	62	125	63	198	413	19,8	31,5	43,5
	25	37	0,6	0,3	28,6	27,1	29,7	34	101	202	97	299	611	49,1	73,6	96,4
	25	37	0,6	0,3	28,6	27,1	29,7	23	70	140	67	204	415	48,8	72,3	93,7
	25	37	0,6	0,3	28,6	27,1	29,7	23	70	140	67	204	415	48,8	72,3	93,7
	26,5	40,5	1	0,3	29,6	29,6	31,7	75	248	496	234	851	1 828	28,1	49,3	71,1
	26,5	40,5	1	0,3	29,6	29,6	31,7	107	398	848	313	1 212	2 686	63,7	106	146
	26,5	40,5	1	0,3	29,6	29,6	31,7	36	135	284	109	432	967	23,3	40,5	57,9
	26,5	40,5	1	0,3	29,6	29,6	31,7	46	205	460	131	606	1 400	53	91,6	126
25	29	38,5	0,3	0,15	31	31	32	34	127	265	102	418	934	24,9	45,4	66,3
	29	38,5	0,3	0,15	31	31	32	41	191	432	115	566	1 335	54,1	97,3	137
	29	38,5	0,3	0,15	31	31	32	14	65	145	39	199	475	19,4	36,6	53,4
	29	38,5	0,3	0,15	31	31	32	22	107	246	60	310	735	48,7	87,4	121
	29	38,5	0,3	0,15	31,6	30,4	32,2	14	43	85	43	135	282	17	26,8	36,9
	29	38,5	0,3	0,15	31,6	30,4	32,2	23	69	138	66	204	416	42,2	63,1	82,4
	29	38,5	0,3	0,15	31,6	30,4	32,2	16	47	95	45	138	281	41,8	61,9	80,1
	29	38,5	0,3	0,15	31	28,9	32	29	78	163	86	235	514	24	35	48
	29	38,5	0,3	0,15	31	28,9	32	42	110	229	121	321	682	48	68	89

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 25 – 30 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
25	42	9	6,6	2,65	214	61 200	89 600	0,3	0,15	17	0,034	**HCM71905-C-T-P4S-XL**
	42	9	6,3	2,55	205	58 300	83 600	0,3	0,15	25	0,034	**HCM71905-E-T-P4S-XL**
	42	9	15,7	3,7	189	62 700	98 600	0,3	0,15	17	0,034	**VCM71905-C-T-P4S-XL**
	42	9	15,1	3,55	181	59 800	89 600	0,3	0,15	25	0,034	**VCM71905-E-T-P4S-XL**
	47	12	13,7	5,9	620	34 000	50 000	0,6	0,6	15	0,077	**B7005-C-T-P4S**
	47	12	13,1	5,6	600	30 000	45 000	0,6	0,6	25	0,077	**B7005-E-T-P4S**
	47	12	13,7	5,6	455	45 000	70 000	0,6	0,6	15	0,065	**HCB7005-C-T-P4S**
	47	12	13,1	5,4	435	40 000	63 000	0,6	0,6	25	0,065	**HCB7005-E-T-P4S**
	47	12	5,8	2,95	310	45 000	70 000	0,6	0,6	15	0,087	**HS7005-C-T-P4S**
	47	12	5,5	2,8	295	40 000	63 000	0,6	0,6	25	0,087	**HS7005-E-T-P4S**
	47	12	5,5	2,65	215	53 000	80 000	0,6	0,6	25	0,084	**HC7005-E-T-P4S**
	47	12	8	3,25	345	45 900	69 500	0,6	0,3	17	0,076	**M7005-C-T-P4S-XL**
	47	12	7,7	3,15	330	43 100	63 900	0,6	0,3	25	0,076	**M7005-E-T-P4S-XL**
	47	12	8	3,15	250	57 000	83 400	0,6	0,3	17	0,069	**HCM7005-C-T-P4S-XL**
	47	12	7,7	3	242	54 200	77 800	0,6	0,3	25	0,069	**HCM7005-E-T-P4S-XL**
	47	12	19,2	4,4	223	58 400	91 700	0,6	0,3	17	0,069	**VCM7005-C-T-P4S-XL**
	47	12	18,4	4,2	214	55 600	83 400	0,6	0,3	25	0,069	**VCM7005-E-T-P4S-XL**
	52	15	14,8	6,1	650	28 000	43 000	1	1	15	0,127	**B7205-C-T-P4S**
	52	15	14,2	5,8	620	26 000	40 000	1	1	25	0,127	**B7205-E-T-P4S**
	52	15	14,8	5,8	470	36 000	53 000	1	1	15	0,114	**HCB7205-C-T-P4S**
	52	15	14,2	5,6	450	32 000	48 000	1	1	25	0,114	**HCB7205-E-T-P4S**
30	47	9	8,5	4,35	460	30 000	48 000	0,3	0,3	15	0,05	**B71906-C-T-P4S**
	47	9	8,1	4,15	440	28 000	43 000	0,3	0,3	25	0,05	**B71906-E-T-P4S**
	47	9	8,5	4,2	335	43 000	67 000	0,3	0,3	15	0,045	**HCB71906-C-T-P4S**
	47	9	8,1	3,95	320	38 000	60 000	0,3	0,3	25	0,045	**HCB71906-E-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

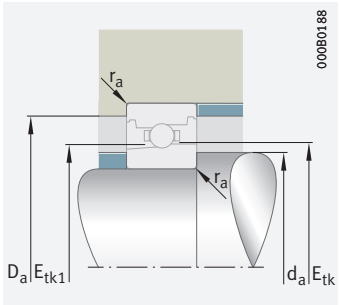
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

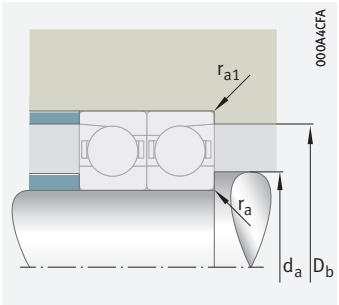
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

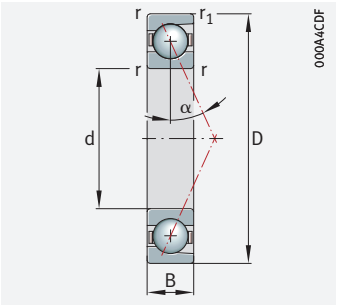


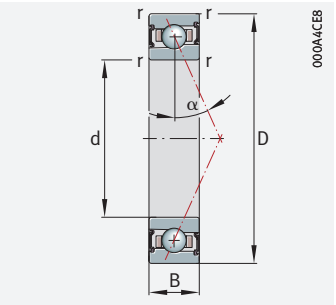
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
25	29	38,5	0,3	0,15	31	28,9	32	21	54	114	60	161	348	24	34	45
	29	38,5	0,3	0,15	31	28,9	32	30	77	161	85	224	472	48	67	88
	29	38,5	0,3	0,15	31	28,9	32	18	49	102	54	144	310	23	33	45
	29	38,5	0,3	0,15	31	28,9	32	27	70	145	76	201	422	48	67	87
	30	42	0,6	0,3	32,5	32,5	34,1	73	248	502	226	831	1 807	29,6	51,2	73,5
	30	42	0,6	0,3	32,5	32,5	34,1	99	381	820	290	1 150	2 560	67,2	112	153
	30	42	0,6	0,3	32,5	32,5	34,1	35	132	283	104	419	944	24,6	42,5	60,2
	30	42	0,6	0,3	32,5	32,5	34,1	40	194	443	117	573	1 338	55,4	96,9	133
	30	42	0,6	0,3	33,6	32,2	34,5	21	63	127	64	201	419	20,6	32,7	45
	30	42	0,6	0,3	33,6	32,2	34,5	35	104	207	100	306	626	51,2	76,7	100
	30	42	0,6	0,3	33,6	32,2	34,5	23	70	140	67	204	415	50,4	74,7	96,7
	30	42	0,6	0,3	32,7	30,6	34,4	34	91	191	101	275	601	24	35	48
	30	42	0,6	0,3	32,7	30,6	34,4	49	130	270	142	378	802	49	69	91
	30	42	0,6	0,3	32,7	30,6	34,4	24	64	133	70	189	407	24	34	46
	30	42	0,6	0,3	32,7	30,6	34,4	35	91	190	100	264	555	49	69	90
	30	42	0,6	0,3	32,7	30,6	34,4	22	57	119	63	169	362	24	34	46
	30	42	0,6	0,3	32,7	30,6	34,4	31	82	170	90	236	497	49	68	89
	31,5	45,5	1	0,3	34,4	34,4	36,5	81	269	542	248	906	1 949	30,4	53,4	77
	31,5	45,5	1	0,3	34,4	34,4	36,5	116	429	914	333	1 293	2 868	69,2	115	159
	31,5	45,5	1	0,3	34,4	34,4	36,5	40	147	311	117	465	1 042	25,3	44,1	63,1
	31,5	45,5	1	0,3	34,4	34,4	36,5	50	223	500	140	650	1 504	57,6	99,8	137
30	34	43,5	0,3	0,15	36	36	37	36	134	281	106	439	985	27	49,3	72,1
	34	43,5	0,3	0,15	36	36	37	41	197	448	114	580	1 377	58	105	148
	34	43,5	0,3	0,15	36	36	37	14	68	155	40	210	504	21,1	40	58,3
	34	43,5	0,3	0,15	36	36	37	22	112	258	60	322	768	52,5	95,1	132

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 30 – 30 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
30	47	9	5,9	3,1	330	43 000	63 000	0,3	0,3	15	0,05	**HS71906-C-T-P4S**
	47	9	5,6	2,95	315	38 000	60 000	0,3	0,3	25	0,05	**HS71906-E-T-P4S**
	47	9	5,6	2,85	228	48 000	75 000	0,3	0,3	25	0,046	**HC71906-E-T-P4S**
	47	9	6,9	3,2	335	42 900	65 000	0,3	0,15	17	0,044	**M71906-C-T-P4S-XL**
	47	9	6,6	3,05	320	40 300	59 800	0,3	0,15	25	0,044	**M71906-E-T-P4S-XL**
	47	9	6,9	3,05	245	53 300	78 000	0,3	0,15	17	0,039	**HCM71906-C-T-P4S-XL**
	47	9	6,6	2,9	235	50 700	72 800	0,3	0,15	25	0,039	**HCM71906-E-T-P4S-XL**
	47	9	16,7	4,25	217	54 600	85 800	0,3	0,15	17	0,039	**VCM71906-C-T-P4S-XL**
	47	9	15,9	4,1	208	52 000	78 000	0,3	0,15	25	0,039	**VCM71906-E-T-P4S-XL**
	55	13	14,4	6,7	710	28 000	43 000	1	1	15	0,114	**B7006-C-T-P4S**
	55	13	13,7	6,4	670	24 000	38 000	1	1	25	0,114	**B7006-E-T-P4S**
	55	13	14,4	6,4	520	38 000	60 000	1	1	15	0,101	**HCB7006-C-T-P4S**
	55	13	13,7	6,1	490	34 000	53 000	1	1	25	0,101	**HCB7006-E-T-P4S**
	55	13	8,2	4,25	450	38 000	56 000	1	1	15	0,124	**HS7006-C-T-P4S**
	55	13	7,8	4,05	425	34 000	53 000	1	1	25	0,124	**HS7006-E-T-P4S**
	55	13	7,8	3,85	310	43 000	67 000	1	1	25	0,119	**HC7006-E-T-P4S**
	55	13	8,9	4,05	430	38 900	58 900	1	0,6	17	0,12	**M7006-C-T-P4S-XL**
	55	13	8,5	3,9	410	36 500	54 200	1	0,6	25	0,12	**M7006-E-T-P4S-XL**
	55	13	8,9	3,9	315	48 300	70 600	1	0,6	17	0,11	**HCM7006-C-T-P4S-XL**
	55	13	8,5	3,7	300	45 900	65 900	1	0,6	25	0,11	**HCM7006-E-T-P4S-XL**
	55	13	21,4	5,4	275	49 500	77 700	1	0,6	17	0,11	**VCM7006-C-T-P4S-XL**
	55	13	20,4	5,2	265	47 100	70 600	1	0,6	25	0,11	**VCM7006-E-T-P4S-XL**
	62	16	23,1	10,4	1 100	24 000	38 000	1	1	15	0,197	**B7206-C-T-P4S**
	62	16	22,1	9,9	1 050	22 000	36 000	1	1	25	0,197	**B7206-E-T-P4S**
	62	16	23,1	9,9	800	30 000	45 000	1	1	15	0,172	**HCB7206-C-T-P4S**
	62	16	22,2	9,5	770	26 000	40 000	1	1	25	0,172	**HCB7206-E-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

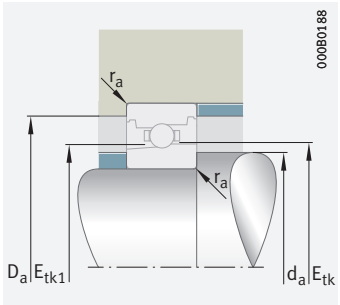
[1] The limiting speeds are based on elastically preloaded single bearings.

[2] Explanation of designations SP 1.

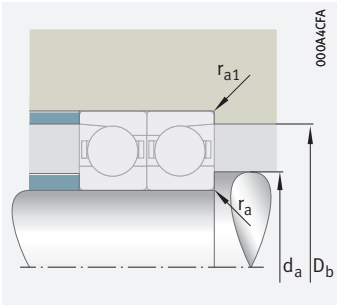
[3] The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

[4] L = light preload; M = moderate preload; H = high preload.

[5] Minimal quantity oil lubrication.



Mounting dimensions

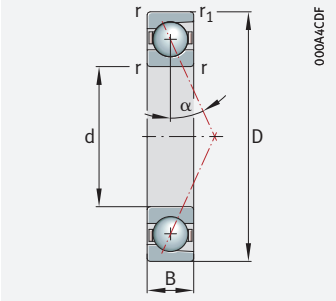


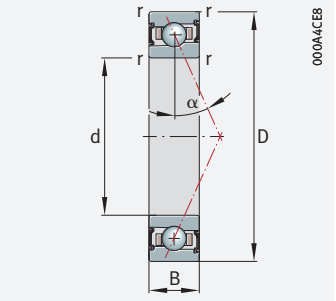
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
30	34	43,5	0,3	0,15	36,1	34,7	37	21	64	129	65	204	425	21,3	33,8	46,5
	34	43,5	0,3	0,15	36,1	34,7	37	35	104	207	100	306	625	52,9	79,1	103
	34	43,5	0,3	0,15	36,1	34,7	37	24	72	143	69	209	425	52,5	77,7	101
	34	43,5	0,3	0,15	35,7	33,9	37	34	89	188	99	270	592	27	39	54
	34	43,5	0,3	0,15	35,7	33,9	37	48	126	263	138	368	782	54	76	100
	34	43,5	0,3	0,15	35,7	33,9	37	24	62	131	69	186	400	27	38	51
	34	43,5	0,3	0,15	35,7	33,9	37	34	89	185	97	257	541	54	76	99
	34	43,5	0,3	0,15	35,7	33,9	37	21	56	117	62	166	356	26	38	51
	34	43,5	0,3	0,15	35,7	33,9	37	30	80	166	87	230	484	54	75	98
	36	49	1	0,3	39,4	39,4	40,6	74	254	516	228	848	1 844	32,4	56,7	81,8
	36	49	1	0,3	39,4	39,4	40,6	102	396	854	294	1 188	2 661	73,5	123	170
	36	49	1	0,3	39,4	39,4	40,6	35	137	293	104	431	976	26,9	47	67,1
	36	49	1	0,3	39,4	39,4	40,6	42	203	465	117	592	1 395	60,1	107	147
	36	49	1	0,3	39,7	37,9	40,9	29	88	177	89	280	584	24,4	38,7	53,2
	36	49	1	0,3	39,7	37,9	40,9	48	143	286	138	423	865	60,6	90,6	119
	36	49	1	0,3	39,7	37,9	40,9	33	98	197	94	287	583	60	88,8	115
	36	49	1	0,3	39,2	37,1	40,9	43	113	238	125	342	749	29	43	59
	36	49	1	0,3	39,2	37,1	40,9	61	161	335	176	469	995	59	84	110
	36	49	1	0,3	39,2	37,1	40,9	30	79	166	87	235	507	29	42	56
	36	49	1	0,3	39,2	37,1	40,9	43	113	235	124	327	689	59	83	109
	36	49	1	0,3	39,2	37,1	40,9	27	71	148	78	210	450	29	41	55
	36	49	1	0,3	39,2	37,1	40,9	39	102	211	111	293	616	59	83	108
	37,5	54,5	1	0,3	41,2	41,2	43,7	123	404	806	385	1 375	2 945	39,6	68,8	98,9
	37,5	54,5	1	0,3	41,2	41,2	43,7	177	641	1 355	518	1 946	4 271	90,4	148	203
	37,5	54,5	1	0,3	41,2	41,2	43,7	62	222	465	185	711	1 576	33,3	57,1	81,1
	37,5	54,5	1	0,3	41,2	41,2	43,7	80	339	749	231	1 001	2 273	76,8	130	177

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 35 – 35 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
35	55	10	12,1	6,8	720	26 000	40 000	0,6	0,6	15	0,077	**B71907-C-T-P4S**
	55	10	11,5	6,5	680	24 000	36 000	0,6	0,6	25	0,077	**B71907-E-T-P4S**
	55	10	12,1	6,5	530	36 000	56 000	0,6	0,6	15	0,067	**HCB71907-C-T-P4S**
	55	10	11,5	6,2	500	32 000	50 000	0,6	0,6	25	0,067	**HCB71907-E-T-P4S**
	55	10	6,4	3,8	400	36 000	56 000	0,6	0,6	15	0,081	**HS71907-C-T-P4S**
	55	10	6,1	3,6	380	32 000	50 000	0,6	0,6	25	0,081	**HS71907-E-T-P4S**
	55	10	6,1	3,45	275	40 000	63 000	0,6	0,6	25	0,076	**HC71907-E-T-P4S**
	55	10	9,5	4,55	480	36 700	55 600	0,6	0,3	17	0,069	**M71907-C-T-P4S-XL**
	55	10	9	4,35	460	34 500	51 200	0,6	0,3	25	0,069	**M71907-E-T-P4S-XL**
	55	10	9,5	4,35	350	45 600	66 700	0,6	0,3	17	0,061	**HCM71907-C-T-P4S-XL**
	55	10	9,1	4,15	335	43 400	62 300	0,6	0,3	25	0,061	**HCM71907-E-T-P4S-XL**
	55	10	22,7	6,1	310	46 700	73 400	0,6	0,3	17	0,061	**VCM71907-C-T-P4S-XL**
	55	10	21,7	5,8	300	44 500	66 700	0,6	0,3	25	0,061	**VCM71907-E-T-P4S-XL**
	62	14	19,3	9,6	1 020	24 000	38 000	1	1	15	0,154	**B7007-C-T-P4S**
	62	14	18,4	9,2	970	22 000	34 000	1	1	25	0,154	**B7007-E-T-P4S**
	62	14	19,4	9,2	740	34 000	53 000	1	1	15	0,135	**HCB7007-C-T-P4S**
	62	14	18,5	8,8	710	30 000	45 000	1	1	25	0,135	**HCB7007-E-T-P4S**
	62	14	8,9	5	530	34 000	50 000	1	1	15	0,169	**HS7007-C-T-P4S**
	62	14	8,4	4,7	500	30 000	45 000	1	1	25	0,169	**HS7007-E-T-P4S**
	62	14	8,4	4,5	365	38 000	60 000	1	1	25	0,163	**HC7007-E-T-P4S**
	62	14	11,3	5,3	560	34 100	51 600	1	0,6	17	0,15	**M7007-C-T-P4S-XL**
	62	14	10,8	5	530	32 000	47 500	1	0,6	25	0,15	**M7007-E-T-P4S-XL**
	62	14	11,3	5	405	42 300	61 900	1	0,6	17	0,14	**HCM7007-C-T-P4S-XL**
	62	14	10,8	4,85	390	40 300	57 800	1	0,6	25	0,14	**HCM7007-E-T-P4S-XL**
	62	14	27	7,1	360	43 300	68 100	1	0,6	17	0,14	**VCM7007-C-T-P4S-XL**
	62	14	26	6,8	345	41 300	61 900	1	0,6	25	0,14	**VCM7007-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

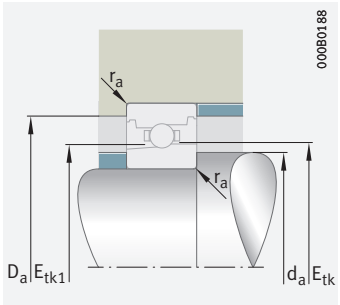
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

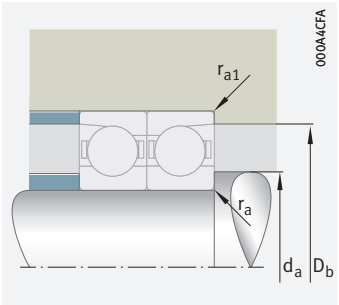
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

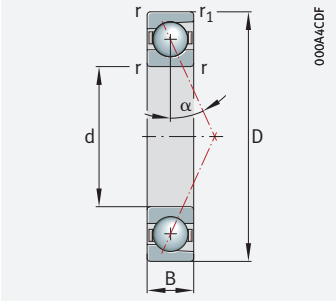


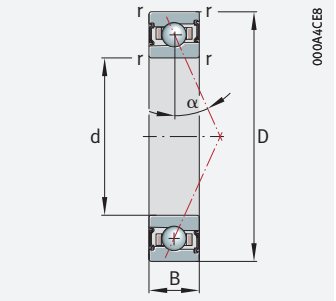
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
35	40	51,5	0,6	0,15	42,6	42,6	44	50	185	384	155	619	1 377	33,5	60,2	87,5
	40	51,5	0,6	0,15	42,6	42,6	44	60	273	613	174	820	1 910	72,9	129	179
	40	51,5	0,6	0,15	42,6	42,6	44	21	96	213	63	301	709	26,7	49,1	71
	40	51,5	0,6	0,15	42,6	42,6	44	33	158	359	95	463	1 081	66,7	117	161
	40	51,5	0,6	0,15	42,6	41,2	43,4	23	70	140	70	220	459	24,5	38,6	53
	40	51,5	0,6	0,15	42,6	41,2	43,4	38	113	226	109	333	680	61	91,1	119
	40	51,5	0,6	0,15	42,6	41,2	43,4	26	78	155	74	226	459	60,5	89,4	116
	40	51,5	0,6	0,15	41,7	39,6	43,3	48	127	267	141	384	841	33	48	66
	40	51,5	0,6	0,15	41,7	39,6	43,3	69	180	376	198	526	1 117	66	93	123
	40	51,5	0,6	0,15	41,7	39,6	43,3	34	89	186	98	264	569	33	47	63
	40	51,5	0,6	0,15	41,7	39,6	43,3	48	127	264	139	367	773	66	93	121
	40	51,5	0,6	0,15	41,7	39,6	43,3	30	79	166	88	235	506	32	46	62
	40	51,5	0,6	0,15	41,7	39,6	43,3	44	114	237	125	329	692	66	92	120
	41	56	1	0,3	44,5	44,5	46,3	95	321	649	296	1 087	2 357	38,3	66,6	95,8
	41	56	1	0,3	44,5	44,5	46,3	134	511	1 097	394	1 551	3 446	87,9	146	200
	41	56	1	0,3	44,5	44,5	46,3	46	175	372	138	558	1 255	32	55,5	78,9
	41	56	1	0,3	44,5	44,5	46,3	54	257	585	157	761	1 771	72,1	126	173
	41	56	1	0,3	45,7	43,9	46,8	31	93	187	94	295	614	27,1	42,8	58,8
	41	56	1	0,3	45,7	43,9	46,8	51	152	304	146	448	915	67,7	101	132
	41	56	1	0,3	45,7	43,9	46,8	35	105	210	101	307	623	67,3	99,5	129
	41	56	1	0,3	44,7	42,3	46,6	56	148	311	164	448	979	34	49	67
	41	56	1	0,3	44,7	42,3	46,6	80	210	438	230	613	1 302	68	96	126
	41	56	1	0,3	44,7	42,3	46,6	39	103	217	114	307	663	33	48	64
	41	56	1	0,3	44,7	42,3	46,6	57	148	308	162	428	901	68	95	124
	41	56	1	0,3	44,7	42,3	46,6	35	93	194	102	274	589	33	47	63
	41	56	1	0,3	44,7	42,3	46,6	51	133	276	145	383	806	68	95	123

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 35 – 40 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
35	72	17	25,5	12,6	1 340	20 000	34 000	1,1	1,1	15	0,301	**B7207-C-T-P4S**
	72	17	24,5	12,1	1 280	19 000	32 000	1,1	1,1	25	0,3	**B7207-E-T-P4S**
	72	17	25,5	12,1	980	26 000	40 000	1,1	1,1	15	0,265	**HCB7207-C-T-P4S**
	72	17	24,6	11,6	930	22 000	36 000	1,1	1,1	25	0,264	**HCB7207-E-T-P4S**
40	62	12	18	9,9	1 040	24 000	36 000	0,6	0,6	15	0,109	**B71908-C-T-P4S**
	62	12	17,1	9,4	990	20 000	32 000	0,6	0,6	25	0,109	**B71908-E-T-P4S**
	62	12	18,1	9,4	760	32 000	50 000	0,6	0,6	15	0,092	**HCB71908-C-T-P4S**
	62	12	17,2	9	720	28 000	45 000	0,6	0,6	25	0,092	**HCB71908-E-T-P4S**
	62	12	6,8	4,3	455	32 000	48 000	0,6	0,6	15	0,125	**HS71908-C-T-P4S**
	62	12	6,4	4,05	430	28 000	43 000	0,6	0,6	25	0,125	**HS71908-E-T-P4S**
	62	12	6,4	3,9	315	36 000	56 000	0,6	0,6	25	0,119	**HC71908-E-T-P4S**
	62	12	11,6	5,6	600	32 400	49 100	0,6	0,3	17	0,1	**M71908-C-T-P4S-XL**
	62	12	11,1	5,4	570	30 400	45 100	0,6	0,3	25	0,1	**M71908-E-T-P4S-XL**
	62	12	11,6	5,4	435	40 200	58 900	0,6	0,3	17	0,089	**HCM71908-C-T-P4S-XL**
	62	12	11,1	5,1	415	38 300	55 000	0,6	0,3	25	0,089	**HCM71908-E-T-P4S-XL**
	62	12	28	7,5	385	41 200	64 800	0,6	0,3	17	0,089	**VCM71908-C-T-P4S-XL**
	62	12	26,5	7,2	365	39 300	58 900	0,6	0,3	25	0,089	**VCM71908-E-T-P4S-XL**
	68	15	20,9	11,2	1 180	22 000	34 000	1	1	15	0,189	**B7008-C-T-P4S**
	68	15	19,9	10,6	1 130	20 000	30 000	1	1	25	0,189	**B7008-E-T-P4S**
	68	15	20,9	10,7	860	30 000	45 000	1	1	15	0,166	**HCB7008-C-T-P4S**
	68	15	19,9	10,2	820	28 000	43 000	1	1	25	0,166	**HCB7008-E-T-P4S**
	68	15	9,4	5,7	610	30 000	45 000	1	1	15	0,211	**HS7008-C-T-P4S**
	68	15	8,9	5,4	570	26 000	40 000	1	1	25	0,211	**HS7008-E-T-P4S**
	68	15	8,9	5,2	415	34 000	53 000	1	1	25	0,204	**HC7008-E-T-P4S**
	68	15	11,9	6	630	30 600	46 300	1	0,6	17	0,19	**M7008-C-T-P4S-XL**
	68	15	11,4	5,7	600	28 800	42 600	1	0,6	25	0,19	**M7008-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

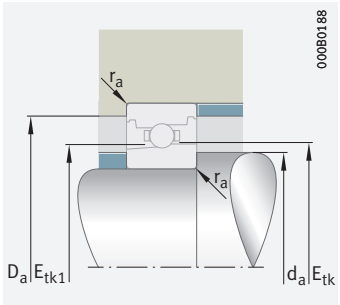
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

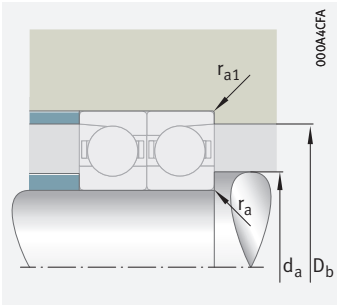
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

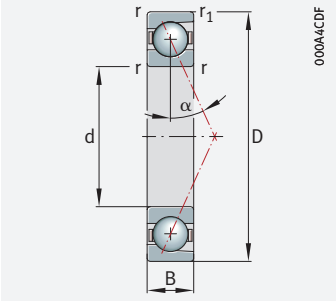


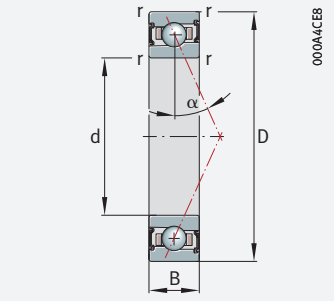
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
35	44	63	1	0,3	47,8	47,8	51	134	443	887	418	1 500	3 223	44,8	77,8	112
	44	63	1	0,3	47,8	47,8	51	195	710	1 504	570	2 152	4 730	103	169	232
	44	63	1	0,3	47,8	47,8	51	67	243	510	200	774	1 720	37,7	64,7	91,8
	44	63	1	0,3	47,8	47,8	51	84	363	806	242	1 069	2 438	86,2	146	200
40	45	58,5	0,6	0,15	47,3	47,3	49,1	84	292	594	259	979	2 140	40,7	71,6	103
	45	58,5	0,6	0,15	47,3	47,3	49,1	111	447	974	324	1 348	3 043	91,3	155	213
	45	58,5	0,6	0,15	47,3	47,3	49,1	39	156	337	116	494	1 127	33,5	59,2	84,7
	45	58,5	0,6	0,15	47,3	47,3	49,1	41	220	514	117	645	1 548	72,4	132	183
	45	58,5	0,6	0,15	48,6	47,2	49,3	24	72	145	72	227	473	26,6	41,8	57,2
	45	58,5	0,6	0,15	48,6	47,2	49,3	39	117	235	113	345	704	66,6	99,2	129
	45	58,5	0,6	0,15	48,6	47,2	49,3	27	82	164	78	238	484	66,4	98	127
	45	58,5	0,6	0,15	47,2	44,8	49,1	59	157	331	174	477	1 044	36	52	71
	45	58,5	0,6	0,15	47,2	44,8	49,1	85	224	466	245	653	1 386	72	101	134
	45	58,5	0,6	0,15	47,2	44,8	49,1	42	110	231	121	327	706	35	51	68
	45	58,5	0,6	0,15	47,2	44,8	49,1	60	157	327	172	456	960	72	101	132
	45	58,5	0,6	0,15	47,2	44,8	49,1	37	99	207	109	292	628	35	50	67
	45	58,5	0,6	0,15	47,2	44,8	49,1	54	141	294	155	408	858	72	100	131
	46	62	1	0,3	49,3	49,3	51,8	101	344	698	312	1 157	2 515	43,2	75,6	109
	46	62	1	0,3	49,3	49,3	51,8	141	543	1 170	410	1 640	3 663	98,6	165	227
	46	62	1	0,3	49,3	49,3	51,8	49	188	402	146	597	1 350	36,1	63,1	89,9
	46	62	1	0,3	49,3	49,3	51,8	55	271	622	159	797	1 875	80	142	195
	46	62	1	0,3	51,2	49,4	52,3	34	101	201	100	316	659	30,1	47,4	64,9
	46	62	1	0,3	51,2	49,4	52,3	53	160	321	154	472	964	74,7	111	145
	46	62	1	0,3	51,2	49,4	52,3	37	110	221	106	321	652	74,2	110	142
	46	62	1	0,6	50,2	47,8	52,1	63	167	352	185	507	1 110	38	55	76
	46	62	1	0,3	50,2	47,8	52,1	91	238	495	261	694	1 473	76	107	141

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 40 – 45 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
40	68	15	11,9	5,7	460	38 000	55 600	1	0,6	17	0,18	**HCM7008-C-T-P4S-XL**
	68	15	11,4	5,5	440	36 200	51 900	1	0,6	25	0,18	**HCM7008-E-T-P4S-XL**
	68	15	28,5	8	410	38 900	61 200	1	0,6	17	0,18	**VCM7008-C-T-P4S-XL**
	68	15	27,5	7,7	390	37 100	55 600	1	0,6	25	0,18	**VCM7008-E-T-P4S-XL**
	80	18	32,5	16,1	1 700	18 000	30 000	1,1	1,1	15	0,372	**B7208-C-T-P4S**
	80	18	31	15,4	1 630	17 000	28 000	1,1	1,1	25	0,371	**B7208-E-T-P4S**
	80	18	32,5	15,4	1 240	24 000	38 000	1,1	1,1	15	0,322	**HCB7208-C-T-P4S**
	80	18	31	14,7	1 190	20 000	34 000	1,1	1,1	25	0,321	**HCB7208-E-T-P4S**
45	68	12	19,1	11,2	1 180	20 000	32 000	0,6	0,6	15	0,127	**B71909-C-T-P4S**
	68	12	18,2	10,6	1 120	19 000	28 000	0,6	0,6	25	0,127	**B71909-E-T-P4S**
	68	12	19,2	10,7	860	28 000	45 000	0,6	0,6	15	0,108	**HCB71909-C-T-P4S**
	68	12	18,2	10,2	820	26 000	40 000	0,6	0,6	25	0,108	**HCB71909-E-T-P4S**
	68	12	9,6	6	630	28 000	43 000	0,6	0,6	15	0,136	**HS71909-C-T-P4S**
	68	12	9,1	5,6	600	26 000	40 000	0,6	0,6	25	0,136	**HS71909-E-T-P4S**
	68	12	9,1	5,4	435	32 000	50 000	0,6	0,6	25	0,129	**HC71909-E-T-P4S**
	68	12	12,2	6,3	670	29 300	44 300	0,6	0,3	17	0,12	**M71909-C-T-P4S-XL**
	68	12	11,7	6	640	27 500	40 800	0,6	0,3	25	0,12	**M71909-E-T-P4S-XL**
	68	12	12,3	6	485	36 300	53 100	0,6	0,3	17	0,11	**HCM71909-C-T-P4S-XL**
	68	12	11,7	5,8	465	34 600	49 600	0,6	0,3	25	0,11	**HCM71909-E-T-P4S-XL**
	68	12	29,5	8,5	430	37 200	58 500	0,6	0,3	17	0,11	**VCM71909-C-T-P4S-XL**
	68	12	28	8,1	415	35 400	53 100	0,6	0,3	25	0,11	**VCM71909-E-T-P4S-XL**
	75	16	28	14,9	1 580	19 000	30 000	1	1	15	0,232	**B7009-C-T-P4S**
	75	16	26,5	14,2	1 500	17 000	26 000	1	1	25	0,232	**B7009-E-T-P4S**
	75	16	28	14,3	1 150	26 000	40 000	1	1	15	0,191	**HCB7009-C-T-P4S**
	75	16	26,5	13,6	1 090	24 000	38 000	1	1	25	0,191	**HCB7009-E-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

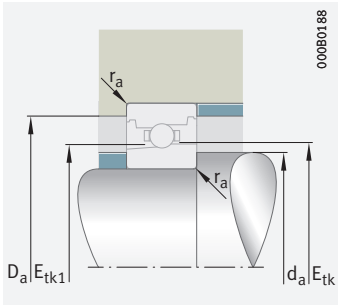
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

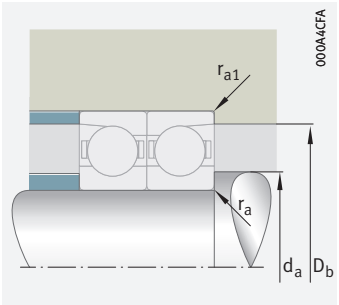
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

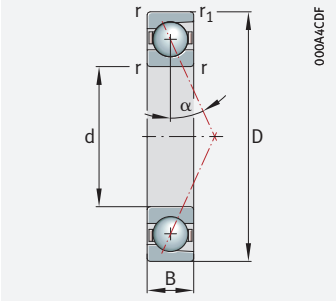


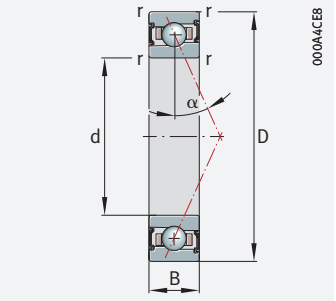
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
40	46	62	1	0,3	50,2	47,8	52,1	44	117	245	129	348	751	37	54	72
	46	62	1	0,3	50,2	47,8	52,1	64	167	348	183	484	1 020	76	107	139
	46	62	1	0,3	50,2	47,8	52,1	40	105	220	116	311	668	37	53	71
	46	62	1	0,3	50,2	47,8	52,1	57	150	312	164	434	912	76	106	138
	48	72	1	0,6	53,4	53,4	57,2	175	566	1 128	544	1 920	4 102	49,2	84,7	122
	48	72	1	0,6	53,4	53,4	57,2	257	906	1 903	750	2 748	5 985	114	184	252
	48	72	1	0,6	53,4	53,4	57,2	89	312	650	266	996	2 193	41,6	70,6	99,8
	48	72	1	0,6	53,4	53,4	57,2	121	485	1 059	347	1 432	3 208	97,6	162	220
45	50	63,5	0,6	0,15	52,3	52,3	54,5	88	307	628	270	1 027	2 251	44	77,5	112
	50	63,5	0,6	0,15	52,3	52,3	54,5	116	470	1 028	336	1 415	3 203	99	168	232
	50	63,5	0,6	0,15	52,3	52,3	54,5	40	164	355	120	516	1 182	36,2	64,1	91,7
	50	63,5	0,6	0,15	52,3	52,3	54,5	42	233	547	121	682	1 643	78,5	144	200
	50	63,5	0,6	0,15	53,7	51,9	54,7	34	101	201	100	316	657	30,8	48,4	66,2
	50	63,5	0,6	0,15	53,7	51,9	54,7	55	164	328	158	482	984	77,2	115	150
	50	63,5	0,6	0,15	53,7	51,9	54,7	38	113	226	108	329	667	76,6	113	146
	50	63,5	0,6	0,15	52,7	50,3	54,6	67	177	372	196	537	1 175	40	58	80
	50	63,5	0,6	0,15	52,7	50,3	54,6	96	251	524	276	734	1 558	80	113	149
	50	63,5	0,6	0,15	52,7	50,3	54,6	47	124	260	136	368	795	39	57	76
	50	63,5	0,6	0,15	52,7	50,3	54,6	68	177	368	194	512	1 078	80	112	146
	50	63,5	0,6	0,15	52,7	50,3	54,6	42	111	232	122	329	707	39	56	75
	50	63,5	0,6	0,15	52,7	50,3	54,6	61	159	330	174	459	964	80	111	145
	51	69	1	0,3	54,3	54,3	57,3	144	476	958	445	1 606	3 461	49,8	86,3	124
	51	69	1	0,3	54,3	54,3	57,3	208	763	1 622	606	2 308	5 082	115	189	259
	51	69	1	0,3	54,3	54,3	57,3	71	261	549	212	827	1 843	41,9	71,9	102
	51	69	1	0,3	54,3	54,3	57,3	89	389	869	254	1 145	2 622	95,8	163	223

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 45 – 50 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
45	75	16	12,3	7,5	790	26 000	40 000	1	1	15	0,262	**HS7009-C-T-P4S**
	75	16	11,6	7,1	750	24 000	36 000	1	1	25	0,261	**HS7009-E-T-P4S**
	75	16	11,6	6,8	550	30 000	48 000	1	1	25	0,248	**HC7009-E-T-P4S**
	75	16	12,8	7	740	27 100	41 000	1	0,6	17	0,25	**M7009-C-T-P4S-XL**
	75	16	12,2	6,7	710	25 500	37 800	1	0,6	25	0,25	**M7009-E-T-P4S-XL**
	75	16	12,9	6,7	540	33 700	49 200	1	0,6	17	0,23	**HCM7009-C-T-P4S-XL**
	75	16	12,3	6,4	520	32 000	46 000	1	0,6	25	0,23	**HCM7009-E-T-P4S-XL**
	75	16	31	9,4	480	34 500	54 100	1	0,6	17	0,23	**VCM7009-C-T-P4S-XL**
	75	16	29,5	9	455	32 800	49 200	1	0,6	25	0,23	**VCM7009-E-T-P4S-XL**
	85	19	34	17,7	1 880	17 000	28 000	1,1	1,1	15	0,423	**B7209-C-T-P4S**
	85	19	32,5	16,9	1 790	15 000	24 000	1,1	1,1	25	0,422	**B7209-E-T-P4S**
	85	19	34,5	17	1 370	22 000	36 000	1,1	1,1	15	0,37	**HCB7209-C-T-P4S**
	85	19	32,5	16,2	1 300	18 000	30 000	1,1	1,1	25	0,369	**HCB7209-E-T-P4S**
50	72	12	19,6	11,9	1 260	19 000	30 000	0,6	0,6	15	0,128	**B71910-C-T-P4S**
	72	12	18,6	11,3	1 200	17 000	26 000	0,6	0,6	25	0,128	**B71910-E-T-P4S**
	72	12	19,6	11,4	920	26 000	40 000	0,6	0,6	15	0,109	**HCB71910-C-T-P4S**
	72	12	18,6	10,8	870	24 000	36 000	0,6	0,6	25	0,109	**HCB71910-E-T-P4S**
	72	12	9,9	6,5	680	26 000	40 000	0,6	0,6	15	0,138	**HS71910-C-T-P4S**
	72	12	9,4	6,1	650	24 000	36 000	0,6	0,6	25	0,138	**HS71910-E-T-P4S**
	72	12	9,4	5,8	470	30 000	48 000	0,6	0,6	25	0,131	**HC71910-E-T-P4S**
	72	12	12,8	7	740	27 100	41 000	0,6	0,3	17	0,12	**M71910-C-T-P4S-XL**
	72	12	12,2	6,7	710	25 500	37 800	0,6	0,3	25	0,12	**M71910-E-T-P4S-XL**
	72	12	12,9	6,7	540	33 700	49 200	0,6	0,3	17	0,11	**HCM71910-C-T-P4S-XL**
	72	12	12,3	6,4	520	32 000	46 000	0,6	0,3	25	0,11	**HCM71910-E-T-P4S-XL**
	72	12	31	9,4	480	34 500	54 100	0,6	0,3	17	0,11	**VCM71910-C-T-P4S-XL**
	72	12	29,5	9	455	32 800	49 200	0,6	0,3	25	0,11	**VCM71910-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

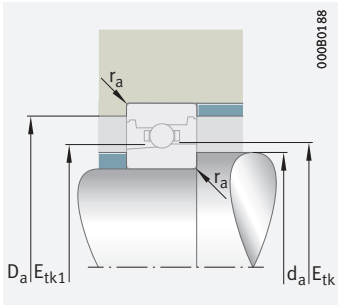
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

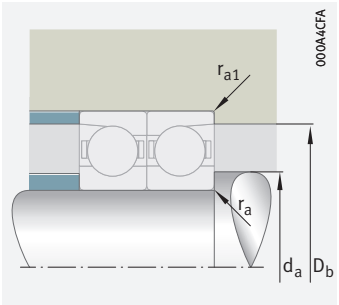
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

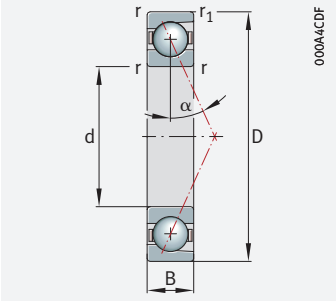


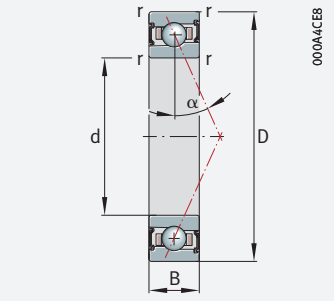
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
45	51	69	1	0,3	56,7	54,6	58,2	43	130	259	130	409	853	34,3	54,1	74,3
	51	69	1	0,3	56,7	54,6	58,2	70	210	421	203	621	1 269	85,4	128	167
	51	69	1	0,3	56,7	54,6	58,2	48	143	286	137	417	848	84,4	125	161
	51	69	1	0,3	57,2	54,8	59	74	196	413	217	595	1 303	44	64	88
	51	69	1	0,3	57,2	54,8	59	106	278	580	305	812	1 726	88	124	164
	51	69	1	0,3	57,2	54,8	59	52	137	288	151	408	881	43	62	84
	51	69	1	0,3	57,2	54,8	59	75	196	407	214	567	1 194	88	123	161
	51	69	1	0,3	57,2	54,8	59	47	123	258	135	364	784	43	62	82
	51	69	1	0,3	57,2	54,8	59	67	176	365	192	508	1 068	88	123	160
	52,5	78	1	0,6	58,5	58,5	62,2	182	592	1 182	567	2 003	4 286	52,2	90	129
	52,5	78	1	0,6	58,5	58,5	62,2	268	948	1 994	782	2 873	6 261	121	196	268
	52,5	78	1	0,6	58,5	58,5	62,2	93	329	685	279	1 047	2 307	44,4	75,3	106
	52,5	78	1	0,6	58,5	58,5	62,2	123	500	1 095	354	1 475	3 312	103	172	233
50	55	67,5	0,6	0,15	56,8	56,8	58,9	89	313	642	274	1 044	2 293	45,6	80,2	116
	55	67,5	0,6	0,15	56,8	56,8	58,9	117	479	1 049	340	1 439	3 263	103	174	241
	55	67,5	0,6	0,15	56,8	56,8	58,9	41	167	362	121	525	1 205	37,5	66,4	95
	55	67,5	0,6	0,15	56,8	56,8	58,9	40	229	542	115	671	1 626	79,7	148	205
	55	67,5	0,6	0,15	58,2	56,4	59,1	35	105	209	104	328	682	32,6	51,2	70
	55	67,5	0,6	0,15	58,2	56,4	59,1	56	169	338	163	497	1 014	81,7	122	159
	55	67,5	0,6	0,15	58,2	56,4	59,1	39	116	231	110	336	682	80,9	119	154
	55	67,5	0,6	0,3	57,2	54,8	58,9	74	196	413	217	595	1 303	44	64	88
	55	67,5	0,6	0,3	57,2	54,8	58,9	106	278	580	305	812	1 726	88	124	164
	55	67,5	0,6	0,15	57,2	54,8	58,9	52	137	288	151	408	881	43	62	84
	55	67,5	0,6	0,15	57,2	54,8	58,9	75	196	407	214	567	1 194	88	123	161
	55	67,5	0,6	0,15	57,2	54,8	58,9	47	123	258	135	364	784	43	62	82
	55	67,5	0,6	0,15	57,2	54,8	58,9	67	176	365	192	508	1 068	88	123	160

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 50 – 55 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
50	80	16	29	16,1	1 710	18 000	28 000	1	1	15	0,25	**B7010-C-T-P4S**
	80	16	27,5	15,3	1 620	16 000	24 000	1	1	25	0,25	**B7010-E-T-P4S**
	80	16	29	15,4	1 240	24 000	38 000	1	1	15	0,213	**HCB7010-C-T-P4S**
	80	16	27,5	14,7	1 180	22 000	34 000	1	1	25	0,213	**HCB7010-E-T-P4S**
	80	16	12,8	8,2	860	24 000	38 000	1	1	15	0,283	**HS7010-C-T-P4S**
	80	16	12,1	7,7	820	22 000	34 000	1	1	25	0,282	**HS7010-E-T-P4S**
	80	16	12,1	7,4	600	28 000	43 000	1	1	25	0,269	**HC7010-E-T-P4S**
	80	16	13,1	7,4	780	25 400	38 500	1	0,6	17	0,27	**M7010-C-T-P4S-XL**
	80	16	12,4	7	740	23 900	35 400	1	0,6	25	0,27	**M7010-E-T-P4S-XL**
	80	16	13,1	7,1	570	31 600	46 200	1	0,6	17	0,26	**HCM7010-C-T-P4S-XL**
	80	16	12,5	6,7	540	30 000	43 100	1	0,6	25	0,26	**HCM7010-E-T-P4S-XL**
	80	16	31,5	9,9	500	32 400	50 800	1	0,6	17	0,26	**VCM7010-C-T-P4S-XL**
	80	16	30	9,4	480	30 800	46 200	1	0,6	25	0,26	**VCM7010-E-T-P4S-XL**
	90	20	43	22,4	2 370	16 000	26 000	1,1	1,1	15	0,448	**B7210-C-T-P4S**
	90	20	41	21,4	2 260	14 000	22 000	1,1	1,1	25	0,446	**B7210-E-T-P4S**
	90	20	43	21,4	1 730	20 000	34 000	1,1	1,1	15	0,384	**HCB7210-C-T-P4S**
	90	20	41,5	20,4	1 650	17 000	28 000	1,1	1,1	25	0,382	**HCB7210-E-T-P4S**
55	80	13	23,5	14,4	1 530	17 000	26 000	1	1	15	0,174	**B71911-C-T-P4S**
	80	13	22,2	13,7	1 450	15 000	24 000	1	1	25	0,174	**B71911-E-T-P4S**
	80	13	23,5	13,8	1 110	24 000	36 000	1	1	15	0,148	**HCB71911-C-T-P4S**
	80	13	22,3	13,1	1 060	22 000	32 000	1	1	25	0,148	**HCB71911-E-T-P4S**
	80	13	13	8,5	900	24 000	36 000	1	1	15	0,186	**HS71911-C-T-P4S**
	80	13	12,3	8	850	22 000	32 000	1	1	25	0,186	**HS71911-E-T-P4S**
	80	13	12,3	7,7	620	28 000	43 000	1	1	25	0,172	**HC71911-E-T-P4S**
	80	13	18,5	9,9	1 050	24 500	37 100	1	0,6	17	0,16	**M71911-C-T-P4S-XL**
	80	13	17,7	9,5	1 000	23 000	34 100	1	0,6	25	0,16	**M71911-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

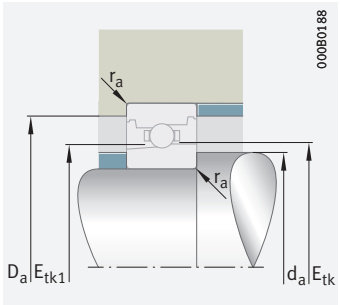
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

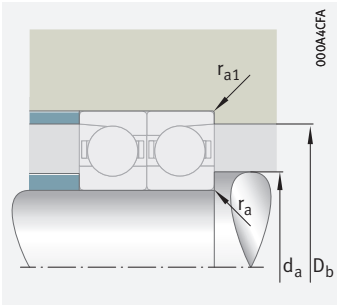
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

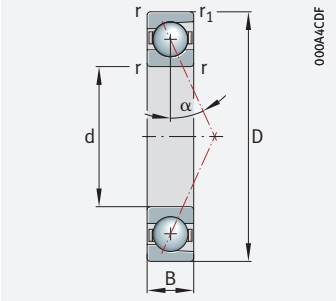


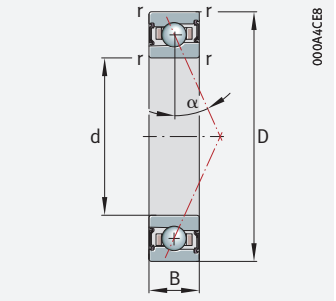
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
50	56	74	1	0,3	59,3	59,3	62,3	148	493	994	459	1 659	3 579	52,3	90,5	130
	56	74	1	0,3	59,3	59,3	62,3	209	774	1 648	610	2 336	5 151	120	197	270
	56	74	1	0,3	59,3	59,3	62,3	73	268	566	217	848	1 894	43,9	75,3	107
	56	74	1	0,3	59,3	59,3	62,3	90	400	895	259	1 175	2 697	100	171	234
	56	74	1	0,3	61,7	59,6	63	45	135	269	135	424	884	36,4	57,4	78,8
	56	74	1	0,3	61,7	59,6	63	72	216	431	208	635	1 297	90,6	135	176
	56	74	1	0,3	61,7	59,6	63	50	149	298	143	435	883	90	133	172
	56	74	1	0,6	61,2	58,8	63	78	206	435	229	627	1 373	46	67	92
	56	74	1	0,6	61,2	58,8	63	112	293	610	321	855	1 816	92	130	171
	56	74	1	0,3	61,2	58,8	63	55	144	303	159	430	928	45	65	88
	56	74	1	0,3	61,2	58,8	63	79	206	429	225	596	1 257	92	129	169
	56	74	1	0,3	61,2	58,8	63	49	129	271	143	384	825	45	64	86
	56	74	1	0,3	61,2	58,8	63	71	185	385	202	534	1 124	92	128	167
	57	83	1	0,6	62,4	62,4	66,8	240	771	1 534	746	2 606	5 556	59,9	103	147
	57	83	1	0,6	62,4	62,4	66,8	352	1 221	2 553	1 027	3 697	8 006	138	223	303
	57	83	1	0,6	62,4	62,4	66,8	126	434	898	377	1 383	3 027	51,4	86,5	122
	57	83	1	0,6	62,4	62,4	66,8	168	656	1 420	484	1 933	4 292	120	197	265
55	60	75,5	0,6	0,3	62,8	62,8	65,1	111	382	780	340	1 274	2 784	50,8	88,6	128
	60	75,5	0,6	0,3	62,8	62,8	65,1	149	588	1 278	431	1 768	3 973	115	193	266
	60	75,5	0,6	0,3	62,8	62,8	65,1	53	208	447	157	654	1 487	42,4	74,1	106
	60	75,5	0,6	0,3	62,8	62,8	65,1	57	296	686	164	867	2 058	93	167	230
	60	75,5	0,6	0,3	64,2	62,1	65,4	45	135	269	135	424	882	37,3	58,6	80,3
	60	75,5	0,6	0,3	64,2	62,1	65,4	73	219	438	211	645	1 317	93,2	139	181
	60	75,5	0,6	0,3	64,2	62,1	65,4	51	152	304	145	442	897	92,7	137	177
	60	75,5	1	0,6	62,7	59,7	65,1	104	276	583	307	840	1 838	50	73	100
	60	75,5	1	0,6	62,7	59,7	65,1	150	393	820	431	1 148	2 438	100	141	186

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 55 – 60 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
55	80	13	18,5	9,5	760	30 400	44 500	1	0,6	17	0,13	**HCM71911-C-T-P4S-XL**
	80	13	17,7	9,1	730	28 900	41 500	1	0,6	25	0,13	**HCM71911-E-T-P4S-XL**
	80	13	44,5	13,3	680	31 200	48 900	1	0,6	17	0,13	**VCM71911-C-T-P4S-XL**
	80	13	42,5	12,7	650	29 700	44 500	1	0,6	25	0,13	**VCM71911-E-T-P4S-XL**
	90	18	38,5	22,1	2 340	16 000	24 000	1,1	1,1	15	0,371	**B7011-C-T-P4S**
	90	18	37	21	2 230	14 000	22 000	1,1	1,1	25	0,371	**B7011-E-T-P4S**
	90	18	39	21,2	1 710	22 000	34 000	1,1	1,1	15	0,31	**HCB7011-C-T-P4S**
	90	18	37	20,1	1 620	20 000	30 000	1,1	1,1	25	0,311	**HCB7011-E-T-P4S**
	90	18	17,9	11,5	1 210	22 000	34 000	1,1	1,1	15	0,405	**HS7011-C-T-P4S**
	90	18	16,9	10,9	1 150	20 000	30 000	1,1	1,1	25	0,404	**HS7011-E-T-P4S**
	90	18	17	10,4	840	26 000	40 000	1,1	1,1	25	0,386	**HC7011-E-T-P4S**
	90	18	19,4	11	1 160	22 800	34 500	1,1	0,6	17	0,39	**M7011-C-T-P4S-XL**
	90	18	18,5	10,5	1 110	21 400	31 800	1,1	0,6	25	0,39	**M7011-E-T-P4S-XL**
	90	18	19,5	10,5	850	28 300	41 400	1,1	0,6	17	0,36	**HCM7011-C-T-P4S-XL**
	90	18	18,6	10	810	26 900	38 700	1,1	0,6	25	0,36	**HCM7011-E-T-P4S-XL**
	90	18	46,5	14,7	750	29 000	45 600	1,1	0,6	17	0,36	**VCM7011-C-T-P4S-XL**
	90	18	44,5	14	720	27 600	41 400	1,1	0,6	25	0,36	**VCM7011-E-T-P4S-XL**
	100	21	47	26,5	2 800	14 000	22 000	1,5	1,5	15	0,619	**B7211-C-T-P4S**
	100	21	45	25	2 650	13 000	20 000	1,5	1,5	25	0,617	**B7211-E-T-P4S**
	100	21	47	25	2 030	18 000	30 000	1,5	1,5	15	0,546	**HCB7211-C-T-P4S**
	100	21	45	24	1 930	15 000	24 000	1,5	1,5	25	0,544	**HCB7211-E-T-P4S**
60	85	13	24,7	16	1 690	16 000	24 000	1	1	15	0,188	**B71912-C-T-P4S**
	85	13	23,4	15,2	1 610	14 000	22 000	1	1	25	0,188	**B71912-E-T-P4S**
	85	13	24,7	15,3	1 230	22 000	34 000	1	1	15	0,159	**HCB71912-C-T-P4S**
	85	13	23,4	14,5	1 170	20 000	30 000	1	1	25	0,159	**HCB71912-E-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

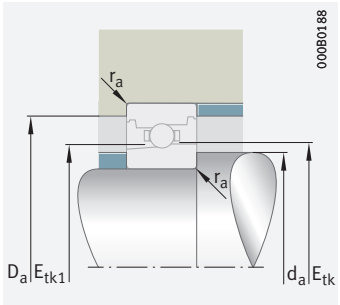
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

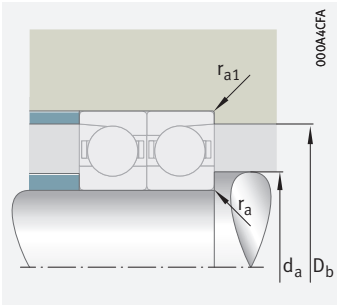
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

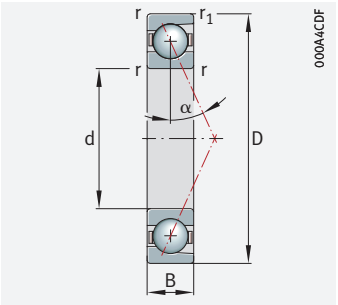


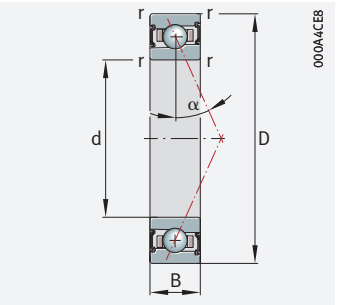
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
55	60	75,5	0,6	0,3	62,7	59,7	65,1	73	194	406	213	576	1 243	49	71	95
	60	75,5	0,6	0,3	62,7	59,7	65,1	106	277	575	303	801	1 687	100	140	183
	60	75,5	0,6	0,3	62,7	59,7	65,1	66	174	363	191	514	1 105	49	70	94
	60	75,5	0,6	0,3	62,7	59,7	65,1	95	249	516	272	718	1 509	100	139	182
	62	83	1	0,6	65,9	65,9	69,6	205	670	1 344	635	2 253	4 837	61,4	106	151
	62	83	1	0,6	65,9	65,9	69,6	296	1 059	2 234	862	3 197	6 983	142	230	314
	62	83	1	0,6	65,9	65,9	69,6	102	366	765	305	1 158	2 559	51,9	87,9	124
	62	83	1	0,6	65,9	65,9	69,6	136	562	1 236	390	1 653	3 728	121	203	275
	62	83	1	0,6	68,5	65,9	70,3	62	187	374	187	588	1 225	42,2	66,5	91,1
	62	83	1	0,6	68,5	65,9	70,3	101	304	607	292	895	1 826	106	157	206
	62	83	1	0,6	68,5	65,9	70,3	70	210	421	201	613	1 244	105	155	201
	62	83	1,1	0,6	67,7	64,7	70,1	116	306	645	340	931	2 038	55	80	110
	62	83	1,1	0,6	67,7	64,7	70,1	166	435	908	477	1 271	2 700	110	155	205
	62	83	1	0,6	67,7	64,7	70,1	81	214	450	236	638	1 378	54	78	105
	62	83	1	0,6	67,7	64,7	70,1	117	306	637	335	887	1 869	110	154	201
	62	83	1	0,6	67,7	64,7	70,1	73	192	403	212	570	1 225	54	77	103
	62	83	1	0,6	67,7	64,7	70,1	105	275	572	301	794	1 671	109	153	200
	63	92	1,5	0,6	69,9	69,9	74,3	258	832	1 662	800	2 800	5 985	66,7	114	163
	63	92	1,5	0,6	69,9	69,9	74,3	378	1 321	2 767	1 103	3 991	8 652	155	249	339
	63	92	1,5	0,6	69,9	69,9	74,3	132	460	956	395	1 460	3 203	56,9	95,6	135
	63	92	1,5	0,6	69,9	69,9	74,3	180	709	1 540	518	2 088	4 646	134	220	297
60	65	80,5	0,6	0,3	67,8	67,8	70,1	116	401	822	354	1 333	2 919	54,5	95,1	137
	65	80,5	0,6	0,3	67,8	67,8	70,1	155	617	1 344	448	1 853	4 171	124	208	286
	65	80,5	0,6	0,3	67,8	67,8	70,1	54	214	462	159	671	1 530	45,1	79	112
	65	80,5	0,6	0,3	67,8	67,8	70,1	57	303	707	163	887	2 118	98,5	179	246

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 60 – 60 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
60	85	13	13,4	9,2	970	22 000	34 000	1	1	15	0,2	**HS71912-C-T-P4S**
	85	13	12,6	8,7	920	20 000	30 000	1	1	25	0,2	**HS71912-E-T-P4S**
	85	13	12,7	8,3	670	26 000	40 000	1	1	25	0,185	**HC71912-E-T-P4S**
	85	13	19,4	11	1 160	22 800	34 500	1	0,6	17	0,17	**M71912-C-T-P4S-XL**
	85	13	18,5	10,5	1 110	21 400	31 800	1	0,6	25	0,17	**M71912-E-T-P4S-XL**
	85	13	19,5	10,5	850	28 300	41 400	1	0,6	17	0,14	**HCM71912-C-T-P4S-XL**
	85	13	18,6	10	810	26 900	38 700	1	0,6	25	0,14	**HCM71912-E-T-P4S-XL**
	85	13	46,5	14,7	750	29 000	45 600	1	0,6	17	0,14	**VCM71912-C-T-P4S-XL**
	85	13	44,5	14	720	27 600	41 400	1	0,6	25	0,14	**VCM71912-E-T-P4S-XL**
	95	18	40	23,8	2 500	15 000	22 000	1,1	1,1	15	0,395	**B7012-C-T-P4S**
	95	18	38	22,6	2 390	13 000	20 000	1,1	1,1	25	0,396	**B7012-E-T-P4S**
	95	18	40	22,7	1 830	20 000	32 000	1,1	1,1	15	0,335	**HCB7012-C-T-P4S**
	95	18	38	21,6	1 740	19 000	28 000	1,1	1,1	25	0,335	**HCB7012-E-T-P4S**
	95	18	18,6	12,5	1 320	20 000	32 000	1,1	1,1	15	0,433	**HS7012-C-T-P4S**
	95	18	17,6	11,8	1 250	18 000	28 000	1,1	1,1	25	0,433	**HS7012-E-T-P4S**
	95	18	17,6	11,3	910	24 000	36 000	1,1	1,1	25	0,413	**HC7012-E-T-P4S**
	95	18	19,8	11,6	1 220	21 300	32 300	1,1	0,6	17	0,42	**M7012-C-T-P4S-XL**
	95	18	18,8	11	1 170	20 000	29 700	1,1	0,6	25	0,42	**M7012-E-T-P4S-XL**
	95	18	19,8	11,1	890	26 500	38 800	1,1	0,6	17	0,39	**HCM7012-C-T-P4S-XL**
	95	18	18,9	10,6	850	25 200	36 200	1,1	0,6	25	0,39	**HCM7012-E-T-P4S-XL**
	95	18	47,5	15,5	790	27 100	42 600	1,1	0,6	17	0,39	**VCM7012-C-T-P4S-XL**
	95	18	45,5	14,8	750	25 900	38 800	1,1	0,6	25	0,39	**VCM7012-E-T-P4S-XL**
	110	22	56	31	3 300	13 000	20 000	1,5	1,5	15	0,795	**B7212-C-T-P4S**
	110	22	53	29,5	3 150	12 000	19 000	1,5	1,5	25	0,793	**B7212-E-T-P4S**
	110	22	56	29,5	2 390	16 000	26 000	1,5	1,5	15	0,687	**HCB7212-C-T-P4S**
	110	22	53	28,5	2 280	14 000	22 000	1,5	1,5	25	0,685	**HCB7212-E-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

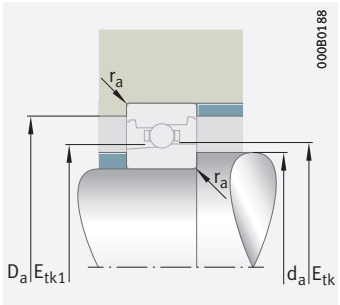
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

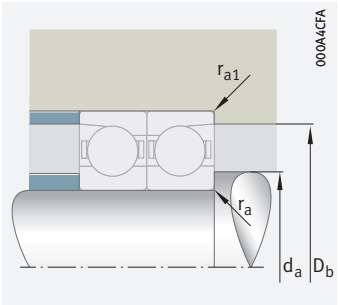
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

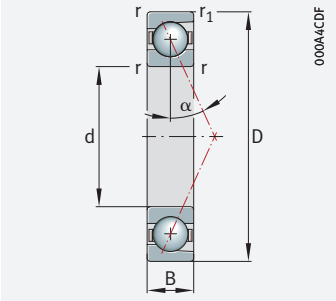


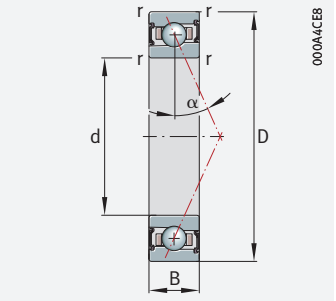
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
60	65	80,5	0,6	0,3	69,2	67,1	70,4	47	141	281	140	442	920	39,5	62,1	85
	65	80,5	0,6	0,3	69,2	67,1	70,4	76	228	455	219	670	1 368	98,8	147	192
	65	80,5	0,6	0,3	69,2	67,1	70,4	52	155	311	148	452	917	97,7	144	186
	65	80,5	1	0,6	67,7	64,7	70	116	306	645	340	931	2 038	55	80	110
	65	80,5	1	0,6	67,7	64,7	70	166	435	908	477	1 271	2 700	110	155	205
	65	80,5	0,6	0,3	67,7	64,7	70	81	214	450	236	638	1 378	54	78	105
	65	80,5	0,6	0,3	67,7	64,7	70	117	306	637	335	887	1 869	110	154	201
	65	80,5	0,6	0,3	67,7	64,7	70	73	192	403	212	570	1 225	54	77	103
	65	80,5	0,6	0,3	67,7	64,7	70	105	275	572	301	794	1 671	109	153	200
	67	88	1	0,6	70,9	70,9	74,5	209	687	1 381	647	2 304	4 952	64	110	157
	67	88	1	0,6	70,9	70,9	74,5	297	1 069	2 259	864	3 221	7 045	147	239	326
	67	88	1	0,6	70,9	70,9	74,5	106	379	794	315	1 198	2 651	54,4	92,2	130
	67	88	1	0,6	70,9	70,9	74,5	136	569	1 256	391	1 673	3 782	126	211	286
	67	88	1	0,6	73,5	70,9	75,3	65	194	388	194	609	1 269	44,8	70,5	96,4
	67	88	1	0,6	73,5	70,9	75,3	105	316	631	304	929	1 896	112	167	218
	67	88	1	0,6	73,5	70,9	75,3	73	219	438	209	638	1 294	112	165	213
	67	88	1	0,6	72,7	69,7	75,1	122	323	680	358	981	2 150	57	84	115
	67	88	1	0,6	72,7	69,7	75,1	175	458	956	503	1 339	2 845	115	162	214
	67	88	1	0,6	72,7	69,7	75,1	86	226	474	249	673	1 453	57	81	110
	67	88	1	0,6	72,7	69,7	75,1	123	323	671	353	934	1 968	115	161	211
	67	88	1	0,6	72,7	69,7	75,1	77	203	424	223	601	1 292	56	81	108
	67	88	1	0,6	72,7	69,7	75,1	111	290	602	317	837	1 760	115	160	209
	69,5	101,5	1,5	0,6	77	77	81,9	312	996	1 982	968	3 352	7 140	70,9	121	172
	69,5	101,5	1,5	0,6	77	77	81,9	463	1 586	3 304	1 351	4 794	10 334	165	264	358
	69,5	101,5	1,5	0,6	77	77	81,9	163	557	1 149	488	1 767	3 852	60,9	102	143
	69,5	101,5	1,5	0,6	77	77	81,9	226	859	1 847	651	2 531	5 576	144	234	315

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 65 – 65 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ 1188
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
65	90	13	25	16,9	1 790	15 000	22 000	1	1	15	0,2	**B71913-C-T-P4S**
	90	13	23,7	16	1 690	13 000	20 000	1	1	25	0,2	**B71913-E-T-P4S**
	90	13	25	16,1	1 300	20 000	32 000	1	1	15	0,17	**HCB71913-C-T-P4S**
	90	13	23,8	15,3	1 230	19 000	28 000	1	1	25	0,17	**HCB71913-E-T-P4S**
	90	13	13,8	9,9	1 040	20 000	32 000	1	1	15	0,214	**HS71913-C-T-P4S**
	90	13	13	9,3	990	18 000	28 000	1	1	25	0,214	**HS71913-E-T-P4S**
	90	13	13	8,9	720	24 000	36 000	1	1	25	0,198	**HC71913-E-T-P4S**
	90	13	19,8	11,6	1 220	21 300	32 300	1	0,6	17	0,18	**M71913-C-T-P4S-XL**
	90	13	18,8	11	1 170	20 000	29 700	1	0,6	25	0,18	**M71913-E-T-P4S-XL**
	90	13	19,8	11,1	890	26 500	38 800	1	0,6	17	0,15	**HCM71913-C-T-P4S-XL**
	90	13	18,9	10,6	850	25 200	36 200	1	0,6	25	0,15	**HCM71913-E-T-P4S-XL**
	90	13	47,5	15,5	790	27 100	42 600	1	0,6	17	0,15	**VCM71913-C-T-P4S-XL**
	90	13	45,5	14,8	750	25 900	38 800	1	0,6	25	0,15	**VCM71913-E-T-P4S-XL**
	100	18	41,5	25,5	2 700	14 000	22 000	1,1	1,1	15	0,42	**B7013-C-T-P4S**
	100	18	39	24,1	2 550	13 000	19 000	1,1	1,1	25	0,42	**B7013-E-T-P4S**
	100	18	41,5	24,3	1 960	19 000	30 000	1,1	1,1	15	0,356	**HCB7013-C-T-P4S**
	100	18	39,5	23,1	1 860	17 000	26 000	1,1	1,1	25	0,356	**HCB7013-E-T-P4S**
	100	18	19,3	13,4	1 420	19 000	30 000	1,1	1,1	15	0,461	**HS7013-C-T-P4S**
	100	18	18,2	12,7	1 350	17 000	26 000	1,1	1,1	25	0,461	**HS7013-E-T-P4S**
	100	18	18,2	12,2	980	22 000	34 000	1,1	1,1	25	0,44	**HC7013-E-T-P4S**
	100	18	20,1	12,1	1 280	20 000	30 400	1,1	0,6	17	0,44	**M7013-C-T-P4S-XL**
	100	18	19,1	11,6	1 230	18 800	27 900	1,1	0,6	25	0,44	**M7013-E-T-P4S-XL**
	100	18	20,1	11,6	940	24 900	36 400	1,1	0,6	17	0,41	**HCM7013-C-T-P4S-XL**
	100	18	19,2	11,1	890	23 700	34 000	1,1	0,6	25	0,41	**HCM7013-E-T-P4S-XL**
	100	18	48	16,3	830	25 500	40 000	1,1	0,6	17	0,41	**VCM7013-C-T-P4S-XL**
	100	18	46	15,5	790	24 300	36 400	1,1	0,6	25	0,41	**VCM7013-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

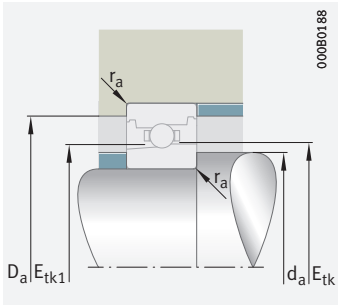
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

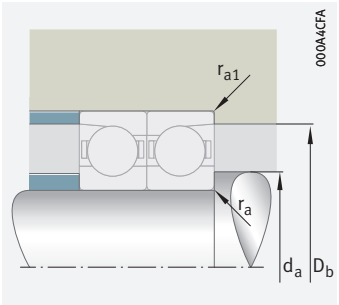
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

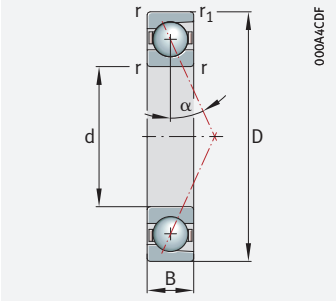


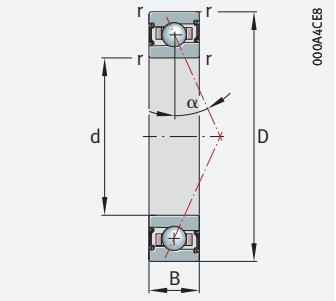
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a	r_{a1}	E_{tk}	E_{tk1}	E_{tk} E_{tk1}	L	M	H	L	M	H	L	M	H
			max.	max.	min.	min.	max.	N	N	N	N	N	N	N/µm	N/µm	N/µm
65	70	85,5	0,6	0,3	72,8	72,8	75,1	117	409	839	360	1 356	2 973	56,2	98,1	141
	70	85,5	0,6	0,3	72,8	72,8	75,1	152	613	1 339	440	1 837	4 145	126	213	293
	70	85,5	0,6	0,3	72,8	72,8	75,1	55	219	473	161	684	1 562	46,6	81,7	116
	70	85,5	0,6	0,3	72,8	72,8	75,1	58	309	723	165	904	2 165	102	185	255
	70	85,5	0,6	0,3	74,2	72,1	75,3	48	144	287	143	450	937	41,5	65	88,8
	70	85,5	0,6	0,3	74,2	72,1	75,3	77	231	462	222	680	1 386	104	154	201
	70	85,5	0,6	0,3	74,2	72,1	75,3	53	160	321	153	466	946	103	152	196
	70	85,5	1	0,6	72,7	69,7	75	122	323	680	358	981	2 150	57	84	115
	70	85,5	1	0,6	72,7	69,7	75	175	458	956	503	1 339	2 845	115	162	214
	70	85,5	0,6	0,3	72,7	69,7	75	86	226	474	249	673	1 453	57	81	110
	70	85,5	0,6	0,3	72,7	69,7	75	123	323	671	353	934	1 968	115	161	211
	70	85,5	0,6	0,3	72,7	69,7	75	77	203	424	223	601	1 292	56	81	108
	70	85,5	0,6	0,3	72,7	69,7	75	111	290	602	317	837	1 760	115	160	209
	72	93	1	0,6	75,9	75,9	79,5	214	704	1 417	660	2 354	5 068	66,7	114	164
	72	93	1	0,6	75,9	75,9	79,5	308	1 111	2 350	896	3 347	7 323	154	251	342
	72	93	1	0,6	75,9	75,9	79,5	107	385	808	318	1 213	2 688	56,4	95,6	135
	72	93	1	0,6	75,9	75,9	79,5	137	577	1 276	392	1 694	3 836	131	219	297
	72	93	1	0,6	78,5	75,9	80,2	67	201	402	200	630	1 312	47,4	74,4	102
	72	93	1	0,6	78,5	75,9	80,2	109	328	656	315	964	1 967	119	177	231
	72	93	1	0,6	78,5	75,9	80,2	74	223	445	213	647	1 313	118	173	224
	72	93	1,1	0,6	77,7	74,7	80	128	339	715	377	1 032	2 260	60	88	120
	72	93	1,1	0,6	77,7	74,7	80	183	481	1 004	528	1 406	2 988	120	170	224
	72	93	1	0,6	77,7	74,7	80	90	237	498	262	707	1 528	59	85	115
	72	93	1	0,6	77,7	74,7	80	129	339	705	371	981	2 067	120	169	220
	72	93	1	0,6	77,7	74,7	80	81	213	446	234	631	1 358	59	84	113
	72	93	1	0,6	77,7	74,7	80	116	304	632	333	879	1 849	120	168	218

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 65 – 70 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
65	120	23	68	38,5	4 050	12 000	19 000	1,5	1,5	15	1	**B7213-C-T-P4S**
	120	23	65	36,5	3 850	11 000	18 000	1,5	1,5	25	0,998	**B7213-E-T-P4S**
	120	23	68	36,5	2 950	15 000	24 000	1,5	1,5	15	0,866	**HCB7213-C-T-P4S**
	120	23	65	35	2 800	13 000	20 000	1,5	1,5	25	0,863	**HCB7213-E-T-P4S**
70	100	16	34,5	23	2 430	14 000	20 000	1	1	15	0,33	**B71914-C-T-P4S**
	100	16	32,5	21,8	2 300	12 000	19 000	1	1	25	0,33	**B71914-E-T-P4S**
	100	16	34,5	22	1 770	19 000	28 000	1	1	15	0,28	**HCB71914-C-T-P4S**
	100	16	32,5	20,8	1 680	17 000	26 000	1	1	25	0,28	**HCB71914-E-T-P4S**
	100	16	17,8	12,9	1 370	19 000	28 000	1	1	15	0,354	**HS71914-C-T-P4S**
	100	16	16,8	12,2	1 290	17 000	26 000	1	1	25	0,353	**HS71914-E-T-P4S**
	100	16	16,8	11,7	940	22 000	34 000	1	1	25	0,334	**HC71914-E-T-P4S**
	100	16	27	15,7	1 660	19 500	29 500	1	0,6	17	0,3	**M71914-C-T-P4S-XL**
	100	16	26	15	1 580	18 300	27 100	1	0,6	25	0,3	**M71914-E-T-P4S-XL**
	100	16	27	15	1 210	24 200	35 300	1	0,6	17	0,25	**HCM71914-C-T-P4S-XL**
	100	16	26	14,3	1 150	23 000	33 000	1	0,6	25	0,25	**HCM71914-E-T-P4S-XL**
	100	16	65	21	1 070	24 800	38 900	1	0,6	17	0,25	**VCM71914-C-T-P4S-XL**
	100	16	62	20,1	1 020	23 600	35 300	1	0,6	25	0,25	**VCM71914-E-T-P4S-XL**
	110	20	50	30,5	3 250	13 000	20 000	1,1	1,1	15	0,59	**B7014-C-T-P4S**
	110	20	48	29	3 100	11 000	18 000	1,1	1,1	25	0,59	**B7014-E-T-P4S**
	110	20	50	29,5	2 360	18 000	28 000	1,1	1,1	15	0,495	**HCB7014-C-T-P4S**
	110	20	48	28	2 240	16 000	24 000	1,1	1,1	25	0,495	**HCB7014-E-T-P4S**
	110	20	25	17,2	1 820	18 000	28 000	1,1	1,1	15	0,644	**HS7014-C-T-P4S**
	110	20	23,6	16,3	1 720	16 000	24 000	1,1	1,1	25	0,643	**HS7014-E-T-P4S**
	110	20	23,7	15,6	1 260	20 000	32 000	1,1	1,1	25	0,611	**HC7014-E-T-P4S**
	110	20	27,5	16,5	1 740	18 400	27 800	1,1	0,6	17	0,61	**M7014-C-T-P4S-XL**
	110	20	26,5	15,7	1 670	17 300	25 600	1,1	0,6	25	0,61	**M7014-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

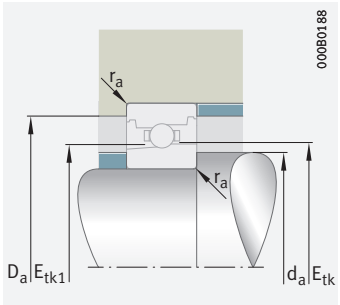
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

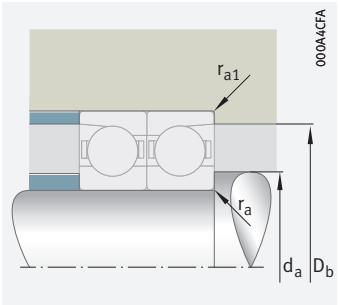
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

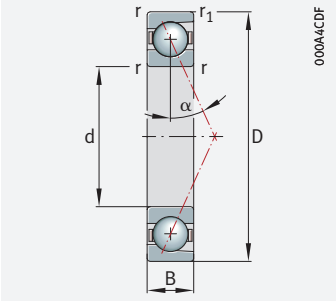


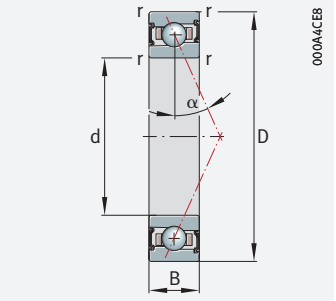
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
65	75,5	109,5	1,5	0,6	83	83	88,6	386	1 224	2 431	1 198	4 118	8 752	78,9	134	191
	75,5	109,5	1,5	0,6	83	83	88,6	585	1 977	4 100	1 709	5 978	12 828	185	295	399
	75,5	109,5	1,5	0,6	83	83	88,6	205	690	1 419	614	2 192	4 757	68,2	113	159
	75,5	109,5	1,5	0,6	83	83	88,6	290	1 071	2 286	834	3 157	6 901	162	261	350
70	76	94,5	0,6	0,3	79,3	79,3	82,2	170	576	1 171	523	1 912	4 155	66	114	163
	76	94,5	0,6	0,3	79,3	79,3	82,2	233	886	1 902	677	2 658	5 898	151	249	341
	76	94,5	0,6	0,3	79,3	79,3	82,2	83	312	665	245	980	2 200	55,5	95,3	135
	76	94,5	0,6	0,3	79,3	79,3	82,2	98	459	1 040	281	1 343	3 118	126	218	298
	76	94,5	0,6	0,3	81,2	78,8	82,6	61	184	368	183	576	1 198	47	73,7	101
	76	94,5	0,6	0,3	81,2	78,8	82,6	99	298	597	287	877	1 789	118	176	229
	76	94,5	0,6	0,3	81,2	78,8	82,6	69	207	414	198	602	1 221	117	173	223
	76	94,5	0,6	0,3	79,3	75,7	82,1	165	437	921	485	1 327	2 905	65	96	131
	76	94,5	0,6	0,3	79,3	75,7	82,1	237	621	1 295	681	1 813	3 851	131	186	245
	76	94,5	0,6	0,3	79,3	75,7	82,1	116	306	641	337	910	1 965	65	93	125
	76	94,5	0,6	0,3	79,3	75,7	82,1	167	437	909	478	1 265	2 665	132	184	241
	76	94,5	0,6	0,3	79,3	75,7	82,1	104	274	574	302	812	1 747	64	92	123
	76	94,5	0,6	0,3	79,3	75,7	82,1	150	393	816	429	1 133	2 383	131	183	239
	77	102	1	0,6	82,4	82,4	86,7	276	894	1 790	853	2 995	6 414	73,5	125	179
	77	102	1	0,6	82,4	82,4	86,7	395	1 388	2 915	1 149	4 183	9 083	169	273	371
	77	102	1	0,6	82,4	82,4	86,7	139	487	1 014	414	1 538	3 380	62,3	105	147
	77	102	1	0,6	82,4	82,4	86,7	188	749	1 633	540	2 203	4 915	147	242	326
	77	102	1	0,6	85,2	82,3	87,5	87	261	523	261	820	1 706	52,2	81,9	112
	77	102	1	0,6	85,2	82,3	87,5	141	423	845	406	1 243	2 536	131	194	253
	77	102	1	0,6	85,2	82,3	87,5	98	293	587	280	853	1 731	130	192	248
	77	102	1	0,6	84,3	80,7	87,2	173	460	969	510	1 397	3 060	68	100	137
	77	102	1	0,6	84,3	80,7	87,2	249	653	1 362	716	1 908	4 053	137	194	256

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 70 – 75 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
70	110	20	27,5	15,8	1 270	22 800	33 400	1,1	0,6	17	0,56	**HCM7014-C-T-P4S-XL**
	110	20	26,5	15,1	1 210	21 700	31 200	1,1	0,6	25	0,56	**HCM7014-E-T-P4S-XL**
	110	20	66	22,1	1 130	23 400	36 700	1,1	0,6	17	0,56	**VCM7014-C-T-P4S-XL**
	110	20	63	21,1	1 080	22 300	33 400	1,1	0,6	25	0,56	**VCM7014-E-T-P4S-XL**
	125	24	71	41,5	4 400	11 000	18 000	1,5	1,5	15	1,1	**B7214-C-T-P4S**
	125	24	67	39,5	4 200	10 000	17 000	1,5	1,5	25	1,09	**B7214-E-T-P4S**
	125	24	71	39,5	3 200	14 000	22 000	1,5	1,5	15	0,954	**HCB7214-C-T-P4S**
	125	24	67	38	3 050	12 000	19 000	1,5	1,5	25	0,951	**HCB7214-E-T-P4S**
75	105	16	35	24,2	2 550	13 000	20 000	1	1	15	0,347	**B71915-C-T-P4S**
	105	16	33	22,9	2 420	11 000	18 000	1	1	25	0,347	**B71915-E-T-P4S**
	105	16	35	23,1	1 860	18 000	28 000	1	1	15	0,285	**HCB71915-C-T-P4S**
	105	16	33	21,9	1 770	16 000	24 000	1	1	25	0,285	**HCB71915-E-T-P4S**
	105	16	18,3	13,8	1 460	18 000	28 000	1	1	15	0,374	**HS71915-C-T-P4S**
	105	16	17,2	13	1 380	16 000	24 000	1	1	25	0,373	**HS71915-E-T-P4S**
	105	16	17,3	12,5	1 000	20 000	32 000	1	1	25	0,353	**HC71915-E-T-P4S**
	105	16	27,5	16,5	1 740	18 400	27 800	1	0,6	17	0,32	**M71915-C-T-P4S-XL**
	105	16	26,5	15,7	1 670	17 300	25 600	1	0,6	25	0,32	**M71915-E-T-P4S-XL**
	105	16	27,5	15,8	1 270	22 800	33 400	1	0,6	17	0,27	**HCM71915-C-T-P4S-XL**
	105	16	26,5	15,1	1 210	21 700	31 200	1	0,6	25	0,27	**HCM71915-E-T-P4S-XL**
	105	16	66	22,1	1 130	23 400	36 700	1	0,6	17	0,27	**VCM71915-C-T-P4S-XL**
	105	16	63	21,1	1 080	22 300	33 400	1	0,6	25	0,27	**VCM71915-E-T-P4S-XL**
	115	20	52	32,5	3 450	12 000	19 000	1,1	1,1	15	0,62	**B7015-C-T-P4S**
	115	20	49,5	31	3 300	11 000	17 000	1,1	1,1	25	0,62	**B7015-E-T-P4S**
	115	20	52	31,5	2 500	17 000	26 000	1,1	1,1	15	0,52	**HCB7015-C-T-P4S**
	115	20	49,5	29,5	2 390	15 000	24 000	1,1	1,1	25	0,52	**HCB7015-E-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

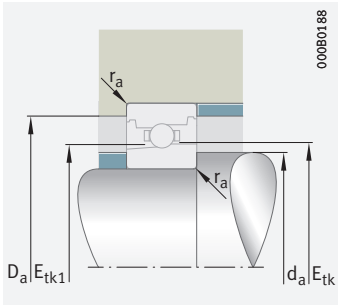
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

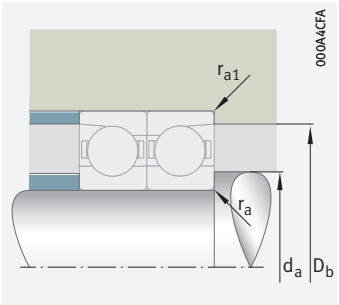
3) The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

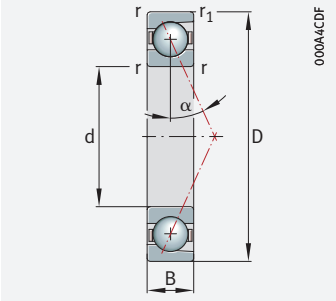


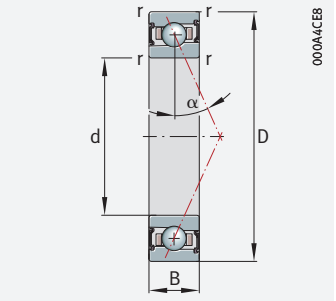
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
70	77	102	1	0,6	84,3	80,7	87,2	122	322	675	355	958	2 069	68	97	131
	77	102	1	0,6	84,3	80,7	87,2	176	460	956	503	1 331	2 804	138	193	252
	77	102	1	0,6	84,3	80,7	87,2	110	289	605	318	855	1 839	67	96	129
	77	102	1	0,6	84,3	80,7	87,2	158	413	858	451	1 192	2 508	137	192	250
	80	115	1,5	0,6	88	88	93,6	399	1 269	2 524	1 238	4 260	9 062	83,1	141	201
	80	115	1,5	0,6	88	88	93,6	595	2 017	4 189	1 736	6 090	13 077	194	309	418
	80	115	1,5	0,6	88	88	93,6	211	711	1 464	630	2 253	4 894	71,6	119	166
	80	115	1,5	0,6	88	88	93,6	297	1 103	2 359	854	3 249	7 111	171	275	368
75	81	99,5	0,6	0,3	84,3	84,3	87,2	172	584	1 189	527	1 933	4 206	68	117	168
	81	99,5	0,6	0,3	84,3	84,3	87,2	235	897	1 928	682	2 688	5 970	156	257	351
	81	99,5	0,6	0,3	84,3	84,3	87,2	83	317	676	247	991	2 229	57,1	98,2	139
	81	99,5	0,6	0,3	84,3	84,3	87,2	95	454	1 034	273	1 328	3 094	128	223	305
	81	99,5	0,6	0,3	86,2	83,9	87,5	64	191	382	190	597	1 242	49,5	77,5	106
	81	99,5	0,6	0,3	86,2	83,9	87,5	101	304	607	292	891	1 817	123	183	239
	81	99,5	0,6	0,3	86,2	83,9	87,5	70	210	421	201	611	1 240	123	181	233
	81	99,5	1	0,6	84,3	80,7	87,1	173	460	969	510	1 397	3 060	68	100	137
	81	99,5	1	0,6	84,3	80,7	87,1	249	653	1 362	716	1 908	4 053	137	194	256
	81	99,5	0,6	0,3	84,3	80,7	87,1	122	322	675	355	958	2 069	68	97	131
	81	99,5	0,6	0,3	84,3	80,7	87,1	176	460	956	503	1 331	2 804	138	193	252
	81	99,5	0,6	0,3	84,3	80,7	87,1	110	289	605	318	855	1 839	67	96	129
	81	99,5	0,6	0,3	84,3	80,7	87,1	158	413	858	451	1 192	2 508	137	192	250
	82	107	1	0,6	87,4	87,4	91,7	280	911	1 827	865	3 043	6 525	76,3	130	186
	82	107	1	0,6	87,4	87,4	91,7	405	1 430	3 005	1 180	4 305	9 353	177	285	387
	82	107	1	0,6	87,4	87,4	91,7	145	508	1 059	431	1 603	3 524	65,4	110	154
	82	107	1	0,6	87,4	87,4	91,7	192	769	1 679	551	2 260	5 050	153	253	341

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 75 – 80 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ 1188
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
75	115	20	25,5	17,9	1 900	17 000	26 000	1,1	1,1	15	0,679	**HS7015-C-T-P4S**
	115	20	23,9	17	1 800	15 000	24 000	1,1	1,1	25	0,678	**HS7015-E-T-P4S**
	115	20	24	16,2	1 310	19 000	30 000	1,1	1,1	25	0,644	**HC7015-E-T-P4S**
	115	20	28	17,3	1 830	17 400	26 400	1,1	0,6	17	0,64	**M7015-C-T-P4S-XL**
	115	20	26,5	16,5	1 750	16 400	24 300	1,1	0,6	25	0,64	**M7015-E-T-P4S-XL**
	115	20	28	16,6	1 330	21 600	31 600	1,1	0,6	17	0,59	**HCM7015-C-T-P4S-XL**
	115	20	27	15,8	1 270	20 600	29 500	1,1	0,6	25	0,59	**HCM7015-E-T-P4S-XL**
	115	20	67	23,2	1 180	22 200	34 800	1,1	0,6	17	0,59	**VCM7015-C-T-P4S-XL**
	115	20	64	22,1	1 130	21 100	31 600	1,1	0,6	25	0,59	**VCM7015-E-T-P4S-XL**
	130	25	73	44,5	4 650	11 000	18 000	1,5	1,5	15	1,2	**B7215-C-T-P4S**
	130	25	70	42,5	4 450	9 500	16 000	1,5	1,5	25	1,2	**B7215-E-T-P4S**
	130	25	73	42,5	3 400	14 000	22 000	1,5	1,5	15	1,05	**HCB7215-C-T-P4S**
	130	25	70	40,5	3 250	12 000	19 000	1,5	1,5	25	1,04	**HCB7215-E-T-P4S**
80	110	16	35,5	25,5	2 700	12 000	19 000	1	1	15	0,366	**B71916-C-T-P4S**
	110	16	33,5	24	2 550	11 000	17 000	1	1	25	0,366	**B71916-E-T-P4S**
	110	16	36	24,3	1 960	17 000	26 000	1	1	15	0,309	**HCB71916-C-T-P4S**
	110	16	34	23	1 850	15 000	24 000	1	1	25	0,31	**HCB71916-E-T-P4S**
	110	16	20,3	15,5	1 640	17 000	26 000	1	1	15	0,379	**HS71916-C-T-P4S**
	110	16	19,2	14,6	1 550	15 000	24 000	1	1	25	0,379	**HS71916-E-T-P4S**
	110	16	19,2	14	1 130	19 000	30 000	1	1	25	0,355	**HC71916-E-T-P4S**
	110	16	28	17,3	1 830	17 400	26 400	1	0,6	17	0,33	**M71916-C-T-P4S-XL**
	110	16	26,5	16,5	1 750	16 400	24 300	1	0,6	25	0,33	**M71916-E-T-P4S-XL**
	110	16	28	16,6	1 330	21 600	31 600	1	0,6	17	0,28	**HCM71916-C-T-P4S-XL**
	110	16	27	15,8	1 270	20 600	29 500	1	0,6	25	0,28	**HCM71916-E-T-P4S-XL**
	110	16	67	23,2	1 180	22 200	34 800	1	0,6	17	0,28	**VCM71916-C-T-P4S-XL**
	110	16	64	22,1	1 130	21 100	31 600	1	0,6	25	0,28	**VCM71916-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

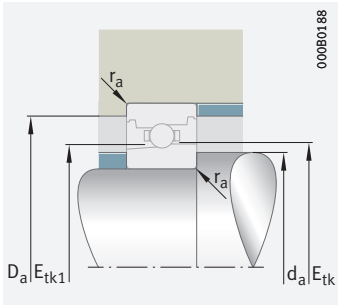
[1] The limiting speeds are based on elastically preloaded single bearings.

[2] Explanation of designations SP 1.

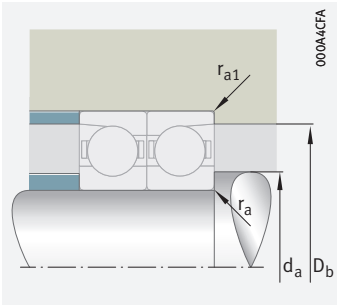
[3] The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

[4] L = light preload; M = moderate preload; H = high preload.

[5] Minimal quantity oil lubrication.



Mounting dimensions

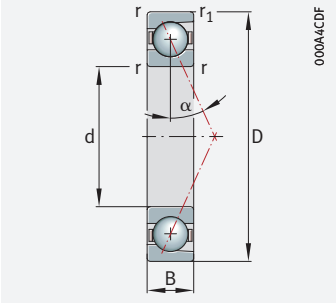


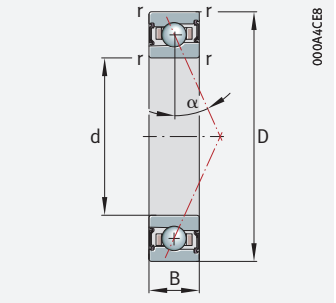
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
75	82	107	1	0,6	90,2	87,3	92,4	89	266	533	265	835	1 737	53,7	84,3	115
	82	107	1	0,6	90,2	87,3	92,4	144	431	863	415	1 268	2 587	135	200	261
	82	107	1	0,6	90,2	87,3	92,4	99	298	597	285	868	1 761	134	197	255
	82	107	1,1	0,6	89,3	85,7	92,1	182	483	1 017	536	1 467	3 214	71	105	143
	82	107	1,1	0,6	89,3	85,7	92,1	261	685	1 429	752	2 002	4 254	143	203	268
	82	107	1	0,6	89,3	85,7	92,1	128	338	709	373	1 006	2 173	71	102	137
	82	107	1	0,6	89,3	85,7	92,1	184	483	1 003	528	1 396	2 943	144	202	263
	82	107	1	0,6	89,3	85,7	92,1	115	303	635	334	898	1 932	70	101	135
	82	107	1	0,6	89,3	85,7	92,1	166	433	900	474	1 251	2 632	143	200	261
	85	120	1,5	0,6	93	93	98,5	413	1 314	2 617	1 278	4 401	9 371	87,2	148	210
	85	120	1,5	0,6	93	93	98,5	615	2 091	4 345	1 794	6 306	13 546	204	325	439
	85	120	1,5	0,6	93	93	98,5	219	740	1 524	653	2 341	5 087	75,4	125	175
	85	120	1,5	0,6	93	93	98,5	308	1 149	2 459	887	3 383	7 409	180	290	388
80	86	104	0,6	0,3	89,3	89,3	92,2	174	591	1 206	532	1 954	4 257	69,9	121	173
	86	104	0,6	0,3	89,3	89,3	92,2	237	908	1 955	686	2 718	6 043	160	265	362
	86	104	0,6	0,3	89,3	89,3	92,2	84	321	686	249	1 004	2 259	58,8	101	143
	86	104	0,6	0,3	89,3	89,3	92,2	95	459	1 049	273	1 344	3 137	132	230	315
	86	104	0,6	0,3	91	88,5	92,5	71	213	426	212	666	1 385	52,3	81,9	112
	86	104	0,6	0,3	91	88,5	92,5	113	338	676	325	992	2 023	130	194	252
	86	104	0,6	0,3	91	88,5	92,5	79	236	473	226	686	1 392	130	192	248
	86	104	0,6	0,3	89,3	85,7	92,1	182	483	1 017	536	1 467	3 214	71	105	143
	86	104	0,6	0,3	89,3	85,7	92,1	261	685	1 429	752	2 002	4 254	143	203	268
	86	104	0,6	0,3	89,3	85,7	92,1	128	338	709	373	1 006	2 173	71	102	137
	86	104	0,6	0,3	89,3	85,7	92,1	184	483	1 003	528	1 396	2 943	144	202	263
	86	104	0,6	0,3	89,3	85,7	92,1	115	303	635	334	898	1 932	70	101	135
	86	104	0,6	0,3	89,3	85,7	92,1	166	433	900	474	1 251	2 632	143	200	261

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 80 – 85 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
80	125	22	64	41	4 300	11 000	17 000	1,1	1,1	15	0,84	**B7016-C-T-P4S**
	125	22	61	39	4 050	10 000	15 000	1,1	1,1	25	0,84	**B7016-E-T-P4S**
	125	22	65	39	3 100	15 000	24 000	1,1	1,1	15	0,7	**HCB7016-C-T-P4S**
	125	22	61	37,5	2 950	14 000	22 000	1,1	1,1	25	0,7	**HCB7016-E-T-P4S**
	125	22	30,5	21,8	2 280	15 000	24 000	1,1	1,1	15	0,927	**HS7016-C-T-P4S**
	125	22	28,5	20,6	2 160	14 000	22 000	1,1	1,1	25	0,925	**HS7016-E-T-P4S**
	125	22	28,5	19,7	1 570	18 000	28 000	1,1	1,1	25	0,87	**HC7016-E-T-P4S**
	125	22	34	22,8	2 380	16 100	24 400	1,1	0,6	17	0,87	**M7016-C-T-P4S-XL**
	125	22	32,5	21,7	2 270	15 200	22 500	1,1	0,6	25	0,87	**M7016-E-T-P4S-XL**
	125	22	34	21,8	1 730	20 000	29 300	1,1	0,6	17	0,81	**HCM7016-C-T-P4S-XL**
	125	22	32,5	20,8	1 660	19 100	27 400	1,1	0,6	25	0,81	**HCM7016-E-T-P4S-XL**
	125	22	82	30,5	1 540	20 500	31 900	1,1	0,6	17	0,81	**VCM7016-C-T-P4S-XL**
	125	22	78	29	1 470	19 600	29 300	1,1	0,6	25	0,81	**VCM7016-E-T-P4S-XL**
	140	26	94	55	5 500	10 000	17 000	2	2	15	1,43	**B7216-C-T-P4S**
	140	26	89	52	5 300	9 000	15 000	2	2	25	1,42	**B7216-E-T-P4S**
	140	26	94	52	4 000	12 000	19 000	2	2	15	1,18	**HCB7216-C-T-P4S**
	140	26	89	50	3 850	11 000	18 000	2	2	25	1,18	**HCB7216-E-T-P4S**
85	120	18	47	33,5	3 500	11 000	17 000	1,1	1,1	15	0,53	**B71917-C-T-P4S**
	120	18	44,5	31,5	3 300	10 000	15 000	1,1	1,1	25	0,53	**B71917-E-T-P4S**
	120	18	47	32	2 550	15 000	24 000	1,1	1,1	15	0,44	**HCB71917-C-T-P4S**
	120	18	44,5	30	2 410	14 000	22 000	1,1	1,1	25	0,44	**HCB71917-E-T-P4S**
	120	18	21,2	17	1 770	15 000	24 000	1,1	1,1	15	0,572	**HS71917-C-T-P4S**
	120	18	20	16	1 670	14 000	22 000	1,1	1,1	25	0,571	**HS71917-E-T-P4S**
	120	18	20	15,3	1 220	18 000	28 000	1,1	1,1	25	0,545	**HC71917-E-T-P4S**
	120	18	31,5	19,3	2 020	16 100	24 400	1,1	0,6	17	0,49	**M71917-C-T-P4S-XL**
	120	18	30	18,4	1 930	15 200	22 500	1,1	0,6	25	0,49	**M71917-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

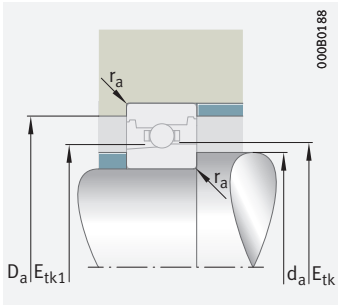
[1] The limiting speeds are based on elastically preloaded single bearings.

[2] Explanation of designations SP 1.

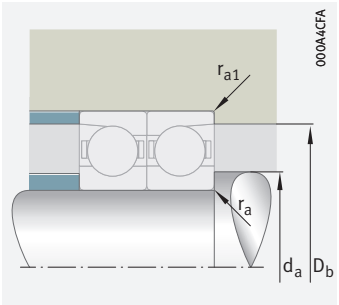
[3] The bearings are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

[4] L = light preload; M = moderate preload; H = high preload.

[5] Minimal quantity oil lubrication.



Mounting dimensions

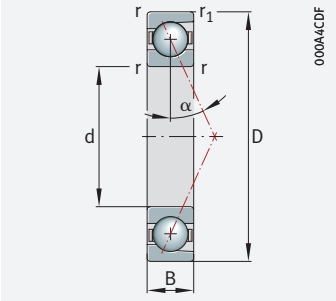


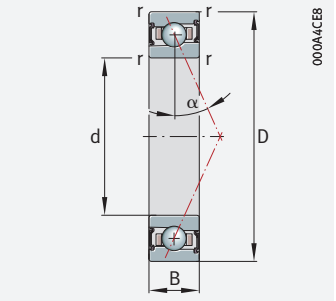
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
80	88	117	1	0,6	94	94	98,8	354	1 138	2 277	1 091	3 797	8 119	85,7	145	207
	88	117	1	0,6	94	94	98,8	525	1 816	3 796	1 528	5 469	11 813	201	321	435
	88	117	1	0,6	94	94	98,8	186	640	1 327	554	2 020	4 415	74	123	173
	88	117	1	0,6	94	94	98,8	252	977	2 113	726	2 872	6 354	175	284	383
	88	117	1	0,6	97,3	94	99,7	106	317	633	315	991	2 063	58,7	92	126
	88	117	1	0,6	97,3	94	99,7	173	518	1 035	497	1 521	3 103	148	220	286
	88	117	1	0,6	97,3	94	99,7	117	352	704	336	1 023	2 075	146	215	278
	88	117	1,1	0,6	96,3	92,4	99,6	241	640	1 353	715	1 977	4 374	83	122	170
	88	117	1,1	0,6	96,3	92,4	99,6	345	907	1 895	996	2 668	5 705	164	234	311
	88	117	1	0,6	96,3	92,4	99,6	169	447	941	495	1 348	2 936	81	118	161
	88	117	1	0,6	96,3	92,4	99,6	243	638	1 328	698	1 855	3 929	164	231	304
	88	117	1	0,6	96,3	92,4	99,6	152	401	842	443	1 200	2 604	81	117	158
	88	117	1	0,6	96,3	92,4	99,6	218	572	1 191	627	1 661	3 509	163	230	301
	91	129	2	1	100,5	100,5	105,3	549	1 721	3 412	1 701	5 781	12 250	94,1	159	226
	91	129	2	1	100,5	100,5	105,3	833	2 764	5 699	2 433	8 347	17 799	221	349	472
	91	129	2	1	100,5	100,5	105,3	293	968	1 979	876	3 068	6 618	81,5	134	187
	91	129	2	1	100,5	100,5	105,3	428	1 527	3 225	1 232	4 498	9 728	196	312	416
85	92	114	0,6	0,6	95,9	95,9	99,3	237	788	1 597	726	2 609	5 644	79,7	136	195
	92	114	0,6	0,6	95,9	95,9	99,3	333	1 226	2 609	968	3 675	8 074	184	301	409
	92	114	0,6	0,6	95,9	95,9	99,3	117	428	906	346	1 341	2 985	67,4	114	161
	92	114	0,6	0,6	95,9	95,9	99,3	143	627	1 403	409	1 837	4 197	154	262	356
	92	114	0,6	0,6	98,5	96	99,9	74	221	442	220	689	1 433	55,9	87,4	119
	92	114	0,6	0,6	98,5	96	99,9	117	352	704	338	1 032	2 102	140	208	270
	92	114	0,6	0,6	98,5	96	99,9	82	247	493	236	716	1 452	140	206	265
	92	114	0,6	0,6	96,3	92,4	99,5	203	537	1 131	596	1 630	3 569	74	108	148
	92	114	0,6	0,6	96,3	92,4	99,5	291	764	1 592	838	2 230	4 737	149	210	277

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 85 – 90 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
85	120	18	31,5	18,5	1 470	20 000	29 300	1,1	0,6	17	0,43	**HCM71917-C-T-P4S-XL**
	120	18	30	17,6	1 400	19 100	27 400	1,1	0,6	25	0,43	**HCM71917-E-T-P4S-XL**
	120	18	75	26	1 300	20 500	32 200	1,1	0,6	17	0,43	**VCM71917-C-T-P4S-XL**
	120	18	72	24,7	1 240	19 600	29 300	1,1	0,6	25	0,43	**VCM71917-E-T-P4S-XL**
	130	22	66	43,5	4 450	11 000	16 000	1,1	1,1	15	0,88	**B7017-C-T-P4S**
	130	22	63	41,5	4 200	9 500	15 000	1,1	1,1	25	0,88	**B7017-E-T-P4S**
	130	22	67	41,5	3 250	15 000	22 000	1,1	1,1	15	0,74	**HCB7017-C-T-P4S**
	130	22	63	39,5	3 100	13 000	20 000	1,1	1,1	25	0,74	**HCB7017-E-T-P4S**
	130	22	30,5	22,7	2 320	15 000	22 000	1,1	1,1	15	0,97	**HS7017-C-T-P4S**
	130	22	29	21,4	2 190	13 000	20 000	1,1	1,1	25	0,969	**HS7017-E-T-P4S**
	130	22	29	20,5	1 590	17 000	26 000	1,1	1,1	25	0,913	**HC7017-E-T-P4S**
	130	22	35,5	24,8	2 550	15 400	23 300	1,1	0,6	17	0,92	**M7017-C-T-P4S-XL**
	130	22	33,5	23,7	2 420	14 500	21 400	1,1	0,6	25	0,92	**M7017-E-T-P4S-XL**
	130	22	35,5	23,8	1 850	19 100	28 000	1,1	0,6	17	0,85	**HCM7017-C-T-P4S-XL**
	130	22	34	22,7	1 760	18 200	26 100	1,1	0,6	25	0,85	**HCM7017-E-T-P4S-XL**
	130	22	85	33,5	1 640	19 600	29 100	1,1	0,6	17	0,85	**VCM7017-C-T-P4S-XL**
	130	22	81	32	1 560	18 700	28 000	1,1	0,6	25	0,85	**VCM7017-E-T-P4S-XL**
	150	28	97	59	5 800	9 000	15 000	2	2	15	1,82	**B7217-C-T-P4S**
	150	28	93	57	5 500	8 000	13 000	2	2	25	1,81	**B7217-E-T-P4S**
	150	28	98	57	4 200	11 000	18 000	2	2	15	1,55	**HCB7217-C-T-P4S**
	150	28	93	54	4 000	10 000	17 000	2	2	25	1,55	**HCB7217-E-T-P4S**
90	125	18	48	35	3 550	11 000	16 000	1,1	1,1	15	0,55	**B71918-C-T-P4S**
	125	18	45	33	3 400	9 500	15 000	1,1	1,1	25	0,55	**B71918-E-T-P4S**
	125	18	48	33,5	2 600	15 000	22 000	1,1	1,1	15	0,461	**HCB71918-C-T-P4S**
	125	18	45,5	31,5	2 470	13 000	20 000	1,1	1,1	25	0,462	**HCB71918-E-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

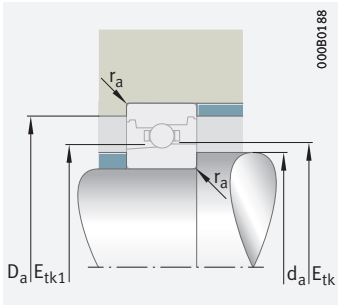
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

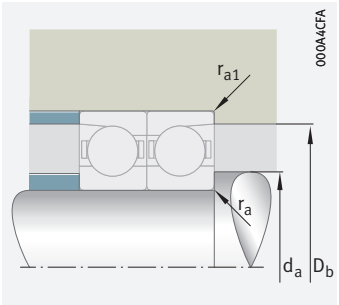
3) The series 719 and 70 are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

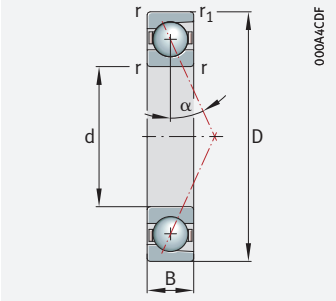


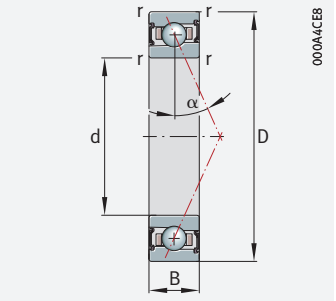
Mounting dimensions

d	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
85	92	114	0,6	0,6	96,3	92,4	99,5	142	376	788	414	1 118	2 414	73	105	142
	92	114	0,6	0,6	96,3	92,4	99,5	205	538	1 118	588	1 556	3 278	149	209	273
	92	114	0,6	0,6	96,3	92,4	99,5	128	337	706	371	998	2 146	73	104	139
	92	114	0,6	0,6	96,3	92,4	99,5	185	483	1 003	528	1 394	2 932	148	208	270
	93	122	1	0,6	99	99	103,8	367	1 183	2 368	1 132	3 942	8 434	89,7	152	217
	93	122	1	0,6	99	99	103,8	540	1 874	3 919	1 573	5 639	12 184	209	336	454
	93	122	1	0,6	99	99	103,8	189	653	1 356	562	2 058	4 501	76,9	128	179
	93	122	1	0,6	99	99	103,8	256	997	2 159	736	2 927	6 484	181	296	398
	93	122	1	0,6	102,3	99	104,7	107	322	643	320	1 006	2 093	60,3	94,4	129
	93	122	1	0,6	102,3	99	104,7	173	518	1 035	497	1 520	3 099	151	224	292
	93	122	1	0,6	102,3	99	104,7	120	359	718	343	1 042	2 115	150	221	286
	93	122	1	0,6	101,3	97,4	104,5	262	698	1 476	780	2 157	4 772	90	133	185
	93	122	1	0,6	101,3	97,4	104,5	376	988	2 066	1 086	2 909	6 220	178	254	337
	93	122	1	0,6	101,3	97,4	104,5	184	488	1 026	540	1 470	3 203	88	128	175
	93	122	1	0,6	101,3	97,4	104,5	265	695	1 448	761	2 022	4 283	178	251	330
	93	122	1	0,6	101,3	97,4	104,5	165	437	918	483	1 309	2 841	88	127	171
	93	122	1	0,6	101,3	97,4	104,5	238	624	1 298	683	1 811	3 826	177	249	327
	98	138	2	1	106,6	106,6	113,2	568	1 786	3 544	1 759	5 983	12 688	99,1	167	238
	98	138	2	1	106,6	106,6	113,2	864	2 869	5 921	2 520	8 657	18 466	233	369	497
	98	138	2	1	106,6	106,6	113,2	306	1 012	2 071	915	3 205	6 915	86,2	142	198
	98	138	2	1	106,6	106,6	113,2	438	1 572	3 325	1 262	4 626	10 015	206	328	438
90	97	119	0,6	0,6	100,9	100,9	104,3	238	796	1 615	729	2 628	5 691	81,8	140	200
	97	119	0,6	0,6	100,9	100,9	104,3	334	1 236	2 634	970	3 701	8 140	189	309	420
	97	119	0,6	0,6	100,9	100,9	104,3	118	434	919	349	1 357	3 023	69,4	118	165
	97	119	0,6	0,6	100,9	100,9	104,3	147	648	1 450	421	1 897	4 337	160	272	369

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 90 – 90 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
90	125	18	23,2	18,7	1 910	15 000	22 000	1,1	1,1	15	0,58	**HS71918-C-T-P4S**
	125	18	21,9	17,7	1 810	13 000	20 000	1,1	1,1	25	0,579	**HS71918-E-T-P4S**
	125	18	22	16,9	1 310	17 000	26 000	1,1	1,1	25	0,564	**HC71918-E-T-P4S**
	125	18	33	21	2 150	15 400	23 300	1,1	0,6	17	0,52	**M71918-C-T-P4S-XL**
	125	18	31	20,1	2 050	14 500	21 400	1,1	0,6	25	0,52	**M71918-E-T-P4S-XL**
	125	18	33	20,1	1 560	19 100	28 000	1,1	0,6	17	0,45	**HCM71918-C-T-P4S-XL**
	125	18	31,5	19,2	1 490	18 200	26 100	1,1	0,6	25	0,45	**HCM71918-E-T-P4S-XL**
	125	18	79	28	1 390	19 600	30 600	1,1	0,6	17	0,45	**VCM71918-C-T-P4S-XL**
	125	18	75	27	1 320	18 700	28 000	1,1	0,6	25	0,45	**VCM71918-E-T-P4S-XL**
	140	24	78	51	5 000	10 000	15 000	1,5	1,5	15	1,14	**B7018-C-T-P4S**
	140	24	74	48,5	4 800	9 000	14 000	1,5	1,5	25	1,14	**B7018-E-T-P4S**
	140	24	78	49	3 700	14 000	22 000	1,5	1,5	15	0,95	**HCB7018-C-T-P4S**
	140	24	74	46,5	3 500	12 000	19 000	1,5	1,5	25	0,95	**HCB7018-E-T-P4S**
	140	24	36	26,5	2 600	14 000	22 000	1,5	1,5	15	1,27	**HS7018-C-T-P4S**
	140	24	34	25	2 480	12 000	19 000	1,5	1,5	25	1,27	**HS7018-E-T-P4S**
	140	24	34	24	1 810	16 000	24 000	1,5	1,5	25	1,19	**HC7018-E-T-P4S**
	140	24	39,5	27,5	2 700	14 400	21 800	1,5	1	17	1,2	**M7018-C-T-P4S-XL**
	140	24	37,5	26	2 600	13 500	20 000	1,5	1	25	1,2	**M7018-E-T-P4S-XL**
	140	24	39,5	26,5	1 980	17 900	26 100	1,5	1	17	1,1	**HCM7018-C-T-P4S-XL**
	140	24	37,5	25	1 890	17 000	24 400	1,5	1	25	1,1	**HCM7018-E-T-P4S-XL**
	140	24	95	37	1 750	18 300	27 600	1,5	1	17	1,1	**VCM7018-C-T-P4S-XL**
	140	24	90	35	1 670	17 400	26 100	1,5	1	25	1,1	**VCM7018-E-T-P4S-XL**
	160	30	125	75	7 100	8 500	14 000	2	2	15	2,2	**B7218-C-T-P4S**
	160	30	119	72	6 800	7 500	12 000	2	2	25	2,19	**B7218-E-T-P4S**
	160	30	125	72	5 200	11 000	18 000	2	2	15	1,8	**HCB7218-C-T-P4S**
	160	30	119	69	4 950	9 000	15 000	2	2	25	1,79	**HCB7218-E-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

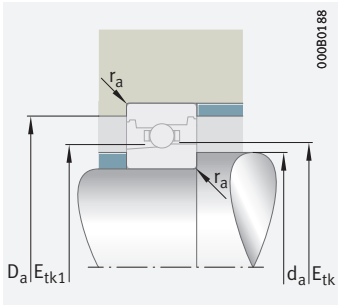
[1] The limiting speeds are based on elastically preloaded single bearings.

[2] Explanation of designations SP 1.

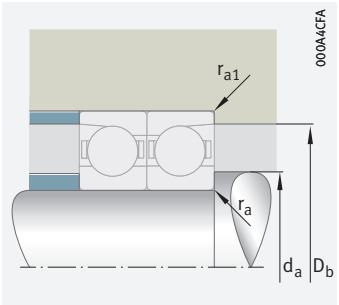
[3] The series 719 and 70 are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

[4] L = light preload; M = moderate preload; H = high preload.

[5] Minimal quantity oil lubrication.



Mounting dimensions

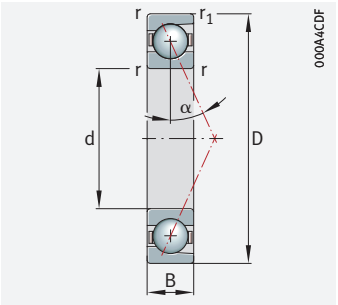


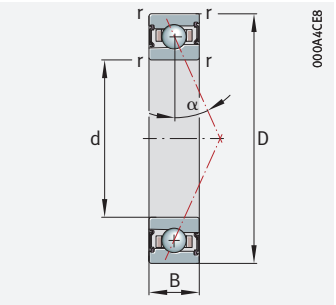
Mounting dimensions

d	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
90	97	119	0,6	0,6	103,2	100,6	104,8	79	237	474	235	739	1 536	57,2	89,4	122
	97	119	0,6	0,6	103,2	100,6	104,8	129	386	773	371	1 133	2 309	144	214	279
	97	119	0,6	0,6	103,2	100,6	104,8	90	269	538	257	781	1 584	144	212	273
	97	119	0,6	0,6	101,3	97,4	104,4	221	585	1 233	650	1 778	3 894	80	117	161
	97	119	0,6	0,6	101,3	97,4	104,4	317	832	1 736	913	2 431	5 164	161	228	301
	97	119	0,6	0,6	101,3	97,4	104,4	155	410	859	452	1 220	2 633	80	114	154
	97	119	0,6	0,6	101,3	97,4	104,4	224	586	1 219	641	1 696	3 574	162	227	296
	97	119	0,6	0,6	101,3	97,4	104,4	139	367	769	405	1 089	2 341	79	113	151
	97	119	0,6	0,6	101,3	97,4	104,4	201	526	1 093	575	1 520	3 196	161	225	294
	100	131	1,5	0,6	105,5	105,5	110,9	437	1 395	2 785	1 347	4 651	9 920	95,2	161	229
	100	131	1,5	0,6	105,5	105,5	110,9	646	2 205	4 590	1 880	6 636	14 269	223	355	479
	100	131	1,5	0,6	105,5	105,5	110,9	230	781	1 613	685	2 464	5 361	82,3	136	191
	100	131	1,5	0,6	105,5	105,5	110,9	319	1 201	2 577	916	3 528	7 745	195	316	423
	100	131	1,5	0,6	109,3	105,7	111,9	126	377	754	375	1 178	2 451	65,4	102	140
	100	131	1,5	0,6	109,3	105,7	111,9	204	612	1 225	588	1 799	3 667	164	244	318
	100	131	1,5	0,6	109,3	105,7	111,9	141	423	845	404	1 228	2 490	163	241	310
	100	131	1,5	0,6	108,3	104,1	111,7	291	775	1 639	866	2 395	5 299	93	137	191
	100	131	1,5	0,6	108,3	104,1	111,7	418	1 098	2 295	1 207	3 232	6 910	184	262	349
	100	131	1,5	0,6	108,3	104,1	111,7	205	542	1 140	599	1 632	3 557	91	133	181
	100	131	1,5	0,6	108,3	104,1	111,7	295	772	1 608	846	2 247	4 759	184	260	341
	100	131	1,5	0,6	108,3	104,1	111,7	184	485	1 020	536	1 454	3 155	91	131	177
	100	131	1,5	0,6	108,3	104,1	111,7	265	693	1 443	759	2 012	4 250	183	258	338
	104	147	2	1	112,1	112,1	120	732	2 280	4 513	2 267	7 640	16 156	109	183	260
	104	147	2	1	112,1	112,1	120	1 127	3 689	7 575	3 291	11 132	23 627	257	404	545
	104	147	2	1	112,1	112,1	120	400	1 303	2 655	1 197	4 129	8 866	95,2	156	217
	104	147	2	1	112,1	112,1	120	586	2 042	4 283	1 688	6 013	12 905	230	361	481

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 95 – 95 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
95	130	18	48,5	36,5	3 650	10 000	16 000	1,1	1,1	15	0,58	**B71919-C-T-P4S**
	130	18	46	34,5	3 450	9 000	14 000	1,1	1,1	25	0,58	**B71919-E-T-P4S**
	130	18	49	35	2 650	14 000	22 000	1,1	1,1	15	0,482	**HCB71919-C-T-P4S**
	130	18	46	33	2 500	13 000	19 000	1,1	1,1	25	0,483	**HCB71919-E-T-P4S**
	130	18	23,9	19,9	1 980	14 000	22 000	1,1	1,1	15	0,606	**HS71919-C-T-P4S**
	130	18	22,5	18,7	1 870	13 000	19 000	1,1	1,1	25	0,605	**HS71919-E-T-P4S**
	130	18	22,5	17,9	1 360	16 000	24 000	1,1	1,1	25	0,59	**HC71919-E-T-P4S**
	130	18	33,5	22	2 190	14 700	22 300	1,1	0,6	17	0,54	**M71919-C-T-P4S-XL**
	130	18	31,5	21	2 090	13 800	20 500	1,1	0,6	25	0,54	**M71919-E-T-P4S-XL**
	130	18	33,5	21	1 600	18 300	26 700	1,1	0,6	17	0,47	**HCM71919-C-T-P4S-XL**
	130	18	32	20,1	1 520	17 400	24 900	1,1	0,6	25	0,47	**HCM71919-E-T-P4S-XL**
	130	18	80	29,5	1 420	18 700	28 100	1,1	0,6	17	0,47	**VCM71919-C-T-P4S-XL**
	130	18	76	28	1 350	17 800	26 700	1,1	0,6	25	0,47	**VCM71919-E-T-P4S-XL**
	145	24	81	54	5 200	9 500	15 000	1,5	1,5	15	1,19	**B7019-C-T-P4S**
	145	24	77	52	5 000	8 500	13 000	1,5	1,5	25	1,19	**B7019-E-T-P4S**
	145	24	81	52	3 800	13 000	20 000	1,5	1,5	15	1	**HCB7019-C-T-P4S**
	145	24	77	49,5	3 650	12 000	18 000	1,5	1,5	25	1	**HCB7019-E-T-P4S**
	145	24	36,5	27,5	2 650	13 000	20 000	1,5	1,5	15	1,32	**HS7019-C-T-P4S**
	145	24	34	26	2 500	12 000	18 000	1,5	1,5	25	1,32	**HS7019-E-T-P4S**
	145	24	34,5	25	1 840	15 000	24 000	1,5	1,5	25	1,24	**HC7019-E-T-P4S**
	145	24	42	31	3 000	13 800	20 900	1,5	1	17	1,3	**M7019-C-T-P4S-XL**
	145	24	40	29,5	2 850	13 000	19 200	1,5	1	25	1,3	**M7019-E-T-P4S-XL**
	145	24	42	29,5	2 180	17 100	25 000	1,5	1	17	1,2	**HCM7019-C-T-P4S-XL**
	145	24	40	28,5	2 080	16 300	23 400	1,5	1	25	1,2	**HCM7019-E-T-P4S-XL**
	145	24	101	41,5	1 930	17 500	25 400	1,5	1	17	1,2	**VCM7019-C-T-P4S-XL**
	145	24	97	39,5	1 840	16 700	25 000	1,5	1	25	1,2	**VCM7019-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

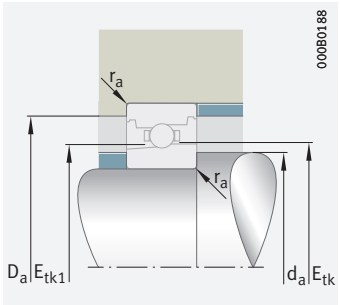
[1] The limiting speeds are based on elastically preloaded single bearings.

[2] Explanation of designations SP 1.

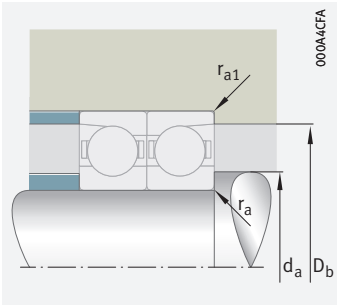
[3] The series 719 and 70 are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

[4] L = light preload; M = moderate preload; H = high preload.

[5] Minimal quantity oil lubrication.



Mounting dimensions

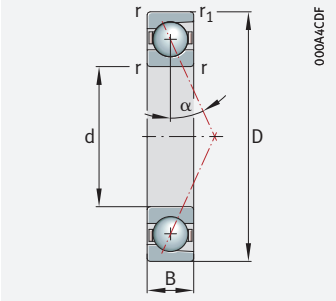


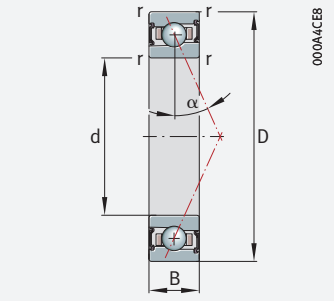
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
95	102	124	0,6	0,6	105,9	105,9	109,2	243	813	1 651	743	2 679	5 806	84,4	144	206
	102	124	0,6	0,6	105,9	105,9	109,2	341	1 262	2 693	988	3 777	8 313	196	319	434
	102	124	0,6	0,6	105,9	105,9	109,2	119	440	932	352	1 373	3 061	71,3	121	170
	102	124	0,6	0,6	105,9	105,9	109,2	148	656	1 470	423	1 918	4 393	164	280	380
	102	124	0,6	0,6	108,2	105,6	109,7	82	246	492	244	766	1 593	60	93,7	127
	102	124	0,6	0,6	108,2	105,6	109,7	131	393	787	377	1 153	2 347	150	223	290
	102	124	0,6	0,6	108,2	105,6	109,7	92	276	552	263	801	1 623	150	221	285
	102	124	0,6	0,6	106,3	102,4	109,3	231	611	1 288	679	1 858	4 069	84	122	168
	102	124	0,6	0,6	106,3	102,4	109,3	331	869	1 812	953	2 539	5 393	168	237	313
	102	124	0,6	0,6	106,3	102,4	109,3	162	428	898	472	1 275	2 752	83	119	160
	102	124	0,6	0,6	106,3	102,4	109,3	234	612	1 272	670	1 771	3 732	168	236	308
	102	124	0,6	0,6	106,3	102,4	109,3	146	384	804	423	1 137	2 446	82	118	158
	102	124	0,6	0,6	106,3	102,4	109,3	210	550	1 142	601	1 587	3 338	167	234	305
	105	136	1,5	0,6	110,5	110,5	115,8	444	1 421	2 842	1 367	4 726	10 091	98,8	167	237
	105	136	1,5	0,6	110,5	110,5	115,8	671	2 295	4 780	1 955	6 904	14 849	233	372	502
	105	136	1,5	0,6	110,5	110,5	115,8	233	794	1 643	693	2 499	5 442	85,3	141	197
	105	136	1,5	0,6	110,5	110,5	115,8	322	1 220	2 622	924	3 581	7 871	203	328	439
	105	136	1,5	0,6	114,3	110,7	116,8	127	382	764	380	1 192	2 480	67	105	143
	105	136	1,5	0,6	114,3	110,7	116,8	204	612	1 225	588	1 797	3 663	168	249	324
	105	136	1,5	0,6	114,3	110,7	116,8	141	423	845	404	1 227	2 488	167	246	317
	105	136	1,5	0,6	113,3	109,1	116,7	328	874	1 846	975	2 699	5 972	104	154	215
	105	136	1,5	0,6	113,3	109,1	116,7	470	1 236	2 584	1 359	3 640	7 782	207	295	392
	105	136	1,5	0,6	113,3	109,1	116,7	231	610	1 284	675	1 839	4 007	102	149	203
	105	136	1,5	0,6	113,3	109,1	116,7	332	869	1 811	952	2 530	5 359	207	292	383
	105	136	1,5	0,6	113,3	109,1	116,7	207	547	1 149	604	1 638	3 555	102	147	199
	105	136	1,5	0,6	113,3	109,1	116,7	298	780	1 624	854	2 265	4 786	206	289	379

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 95 – 100 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
95	170	32	130	81	7 500	8 000	13 000	2,1	2,1	15	2,73	**B7219-C-T-P4S**
	170	32	124	78	7 100	7 000	11 000	2,1	2,1	25	2,72	**B7219-E-T-P4S**
	170	32	130	78	5 500	10 000	17 000	2,1	2,1	15	2,3	**HCB7219-C-T-P4S**
	170	32	124	74	5 200	8 500	14 000	2,1	2,1	25	2,29	**HCB7219-E-T-P4S**
100	140	20	60	45	4 300	9 500	14 000	1,1	1,1	15	0,78	**B71920-C-T-P4S**
	140	20	57	42,5	4 100	8 500	13 000	1,1	1,1	25	0,78	**B71920-E-T-P4S**
	140	20	60	43	3 150	13 000	20 000	1,1	1,1	15	0,65	**HCB71920-C-T-P4S**
	140	20	57	40,5	3 000	12 000	18 000	1,1	1,1	25	0,65	**HCB71920-E-T-P4S**
	140	20	28,5	23,5	2 270	13 000	20 000	1,1	1,1	15	0,86	**HS71920-C-T-P4S**
	140	20	27	22,1	2 140	12 000	18 000	1,1	1,1	25	0,86	**HS71920-E-T-P4S**
	140	20	27	21,2	1 560	15 000	24 000	1,1	1,1	25	0,81	**HC71920-E-T-P4S**
	140	20	38,5	25,5	2 480	13 800	20 900	1,1	0,6	17	0,76	**M71920-C-T-P4S-XL**
	140	20	36,5	24,5	2 370	13 000	19 200	1,1	0,6	25	0,76	**M71920-E-T-P4S-XL**
	140	20	38,5	24,6	1 810	17 100	25 000	1,1	0,6	17	0,67	**HCM71920-C-T-P4S-XL**
	140	20	36,5	23,5	1 730	16 300	23 400	1,1	0,6	25	0,67	**HCM71920-E-T-P4S-XL**
	140	20	92	34,5	1 600	17 500	26 600	1,1	0,6	17	0,67	**VCM71920-C-T-P4S-XL**
	140	20	88	33	1 530	16 700	25 000	1,1	0,6	25	0,67	**VCM71920-E-T-P4S-XL**
	150	24	83	57	5 400	9 000	14 000	1,5	1,5	15	1,24	**B7020-C-T-P4S**
	150	24	79	55	5 200	8 000	13 000	1,5	1,5	25	1,24	**B7020-E-T-P4S**
	150	24	83	55	3 950	13 000	19 000	1,5	1,5	15	1,03	**HCB7020-C-T-P4S**
	150	24	79	52	3 750	11 000	17 000	1,5	1,5	25	1,03	**HCB7020-E-T-P4S**
	150	24	36,5	28,5	2 700	13 000	19 000	1,5	1,5	15	1,38	**HS7020-C-T-P4S**
	150	24	34,5	27	2 550	11 000	17 000	1,5	1,5	25	1,38	**HS7020-E-T-P4S**
	150	24	34,5	26	1 860	15 000	22 000	1,5	1,5	25	1,29	**HC7020-E-T-P4S**
	150	24	43	32	3 050	13 200	20 000	1,5	1	17	1,3	**M7020-C-T-P4S-XL**
	150	24	40,5	31	2 900	12 400	18 400	1,5	1	25	1,3	**M7020-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

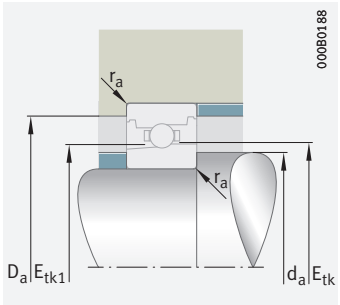
[1] The limiting speeds are based on elastically preloaded single bearings.

[2] Explanation of designations SP 1.

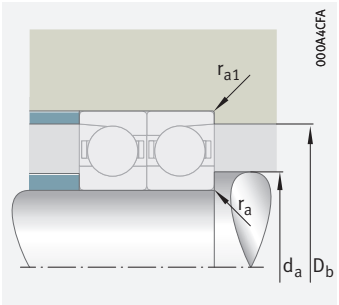
[3] The series 719 and 70 are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

[4] L = light preload; M = moderate preload; H = high preload.

[5] Minimal quantity oil lubrication.



Mounting dimensions

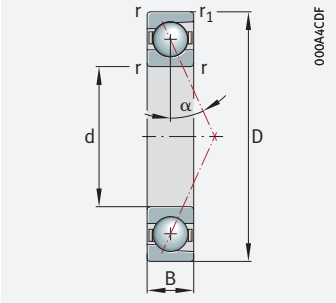


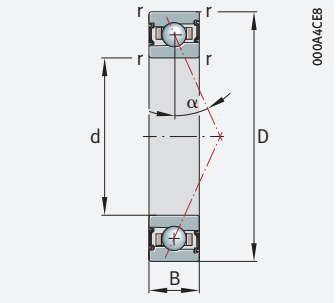
Mounting dimensions

d	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
95	110,5	154	2,1	1	119,1	119,1	126,9	760	2 373	4 703	2 353	7 935	16 792	115	193	273
	110,5	154	2,1	1	119,1	119,1	126,9	1 184	3 876	7 964	3 454	11 693	24 820	273	429	577
	110,5	154	2,1	1	119,1	119,1	126,9	413	1 348	2 748	1 234	4 261	9 153	100	164	228
	110,5	154	2,1	1	119,1	119,1	126,9	605	2 113	4 437	1 741	6 219	13 355	242	381	507
100	107	133	0,6	0,6	113,4	113,4	117,5	316	1 040	2 101	968	3 432	7 399	94,1	160	228
	107	133	0,6	0,6	113,4	113,4	117,5	450	1 616	3 417	1 305	4 839	10 556	219	353	479
	107	133	0,6	0,6	113,4	113,4	117,5	160	572	1 201	473	1 789	3 950	80,4	135	189
	107	133	0,6	0,6	113,4	113,4	117,5	204	850	1 876	584	2 489	5 611	187	311	421
	107	133	0,6	0,6	115,2	112,3	116,9	97	291	583	289	906	1 883	64,6	101	137
	107	133	0,6	0,6	115,2	112,3	116,9	158	474	949	455	1 390	2 832	163	242	314
	107	133	0,6	0,6	115,2	112,3	116,9	109	328	656	313	951	1 927	162	239	307
	107	133	0,6	0,6	113,3	109,1	116,6	269	714	1 506	793	2 172	4 759	90	132	181
	107	133	0,6	0,6	113,3	109,1	116,6	387	1 016	2 118	1 114	2 967	6 305	181	256	338
	107	133	0,6	0,6	113,3	109,1	116,6	190	500	1 049	551	1 489	3 217	89	129	173
	107	133	0,6	0,6	113,3	109,1	116,6	273	715	1 487	782	2 070	4 362	182	255	333
	107	133	0,6	0,6	113,3	109,1	116,6	170	448	939	494	1 329	2 860	89	127	170
	107	133	0,6	0,6	113,3	109,1	116,6	245	642	1 334	702	1 855	3 901	181	253	330
	110	141	1,5	0,6	115,5	115,5	120,8	464	1 484	2 970	1 427	4 935	10 539	104	175	248
	110	141	1,5	0,6	115,5	115,5	120,8	681	2 336	4 869	1 982	7 018	15 103	242	385	521
	110	141	1,5	0,6	115,5	115,5	120,8	241	823	1 703	717	2 587	5 636	89,1	148	206
	110	141	1,5	0,6	115,5	115,5	120,8	333	1 266	2 723	957	3 715	8 170	212	343	459
	110	141	1,5	0,6	119,3	115,7	121,8	127	382	764	379	1 190	2 476	68,3	107	145
	110	141	1,5	0,6	119,3	115,7	121,8	207	621	1 242	596	1 822	3 713	172	256	333
	110	141	1,5	0,6	119,3	115,7	121,8	144	431	863	412	1 252	2 539	171	253	326
	110	141	1,5	0,6	118,3	114,1	121,7	342	909	1 922	1 016	2 810	6 220	108	160	223
	110	141	1,5	0,6	118,3	114,1	121,7	489	1 287	2 690	1 414	3 788	8 101	215	306	406

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 100 – 105 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
100	150	24	43	31	2 220	16 400	23 500	1,5	1	17	1,2	**HCM7020-C-T-P4S-XL**
	150	24	41	29,5	2 120	15 600	22 400	1,5	1	25	1,2	**HCM7020-E-T-P4S-XL**
	150	24	103	43	1 970	16 800	23 500	1,5	1	17	1,2	**VCM7020-C-T-P4S-XL**
	150	24	98	41	1 880	16 000	23 500	1,5	1	25	1,2	**VCM7020-E-T-P4S-XL**
	180	34	135	88	7 800	7 500	12 000	2,1	2,1	15	3,35	**B7220-C-T-P4S**
	180	34	129	84	7 500	6 700	10 000	2,1	2,1	25	3,34	**B7220-E-T-P4S**
	180	34	135	84	5 700	9 500	16 000	2,1	2,1	15	2,89	**HCB7220-C-T-P4S**
	180	34	129	80	5 400	8 000	13 000	2,1	2,1	25	2,88	**HCB7220-E-T-P4S**
105	145	20	60	45	4 250	9 000	14 000	1,1	1,1	15	0,81	**B71921-C-T-P4S**
	145	20	57	42,5	4 050	8 000	13 000	1,1	1,1	25	0,81	**B71921-E-T-P4S**
	145	20	60	43	3 100	13 000	19 000	1,1	1,1	15	0,69	**HCB71921-C-T-P4S**
	145	20	57	41	2 950	11 000	17 000	1,1	1,1	25	0,69	**HCB71921-E-T-P4S**
	145	20	29	24,8	2 350	13 000	19 000	1,1	1,1	15	0,89	**HS71921-C-T-P4S**
	145	20	27,5	23,4	2 220	11 000	17 000	1,1	1,1	25	0,89	**HS71921-E-T-P4S**
	145	20	27,5	22,4	1 610	15 000	22 000	1,1	1,1	25	0,83	**HC71921-E-T-P4S**
	145	20	39	27	2 550	13 200	20 000	1,1	0,6	17	0,79	**M71921-C-T-P4S-XL**
	145	20	37	25,5	2 420	12 400	18 400	1,1	0,6	25	0,79	**M71921-E-T-P4S-XL**
	145	20	39	25,5	1 850	16 400	24 000	1,1	0,6	17	0,69	**HCM71921-C-T-P4S-XL**
	145	20	37	24,4	1 760	15 600	22 400	1,1	0,6	25	0,69	**HCM71921-E-T-P4S-XL**
	145	20	94	36	1 640	16 800	24 700	1,1	0,6	17	0,69	**VCM71921-C-T-P4S-XL**
	145	20	89	34	1 560	16 000	24 000	1,1	0,6	25	0,69	**VCM71921-E-T-P4S-XL**
	160	26	85	61	5 600	8 500	13 000	2	2	15	1,6	**B7021-C-T-P4S**
	160	26	80	58	5 300	7 500	12 000	2	2	25	1,6	**B7021-E-T-P4S**
	160	26	85	58	4 100	12 000	18 000	2	2	15	1,39	**HCB7021-C-T-P4S**
	160	26	81	55	3 850	11 000	16 000	2	2	25	1,39	**HCB7021-E-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

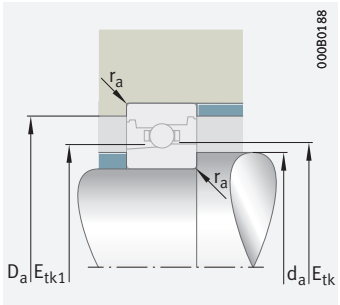
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

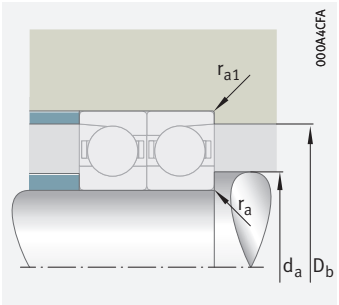
3) The series 719 and 70 are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

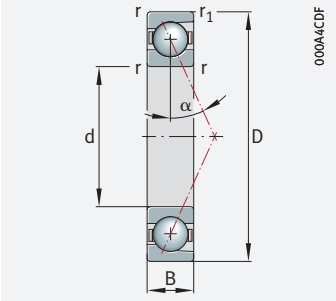


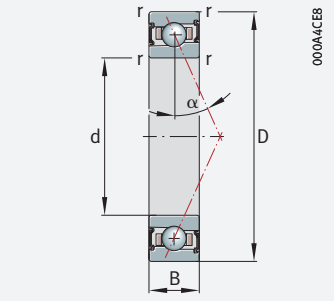
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a	r_{a1}	E_{tk}	E_{tk1}	E_{tk} E_{tk1}	L	M	H	L	M	H	L	M	H
			max.	max.	min.	min.	max.	N	N	N	N	N	N	N/µm	N/µm	N/µm
100	110	141	1,5	0,6	118,3	114,1	121,7	240	635	1 336	703	1 915	4 174	106	154	210
	110	141	1,5	0,6	118,3	114,1	121,7	345	905	1 885	991	2 633	5 578	215	302	397
	110	141	1,5	0,6	118,3	114,1	121,7	215	569	1 196	629	1 706	3 702	105	152	206
	110	141	1,5	0,6	118,3	114,1	121,7	310	812	1 691	889	2 358	4 982	213	300	393
	114,5	165,5	2,1	1	126,6	126,6	134,4	789	2 466	4 892	2 439	8 230	17 428	121	203	287
	114,5	165,5	2,1	1	126,6	126,6	134,4	1 208	3 964	8 152	3 521	11 940	25 355	285	449	604
	114,5	165,5	2,1	1	126,6	126,6	134,4	428	1 400	2 856	1 279	4 420	9 498	106	172	240
	114,5	165,5	2,1	1	126,6	126,6	134,4	627	2 198	4 619	1 806	6 466	13 894	255	402	535
105	112	138	0,6	0,6	117,4	117,4	121,4	316	1 040	2 101	968	3 432	7 399	94,1	160	228
	112	138	0,6	0,6	117,4	117,4	121,4	450	1 616	3 417	1 305	4 839	10 556	219	353	479
	112	138	0,6	0,6	117,4	117,4	121,4	157	564	1 185	466	1 763	3 895	80	134	188
	112	138	0,6	0,6	117,4	117,4	121,4	204	850	1 876	584	2 489	5 611	187	311	421
	112	138	0,6	0,6	120,2	117,3	121,9	101	302	603	299	937	1 946	67,6	105	143
	112	138	0,6	0,6	120,2	117,3	121,9	161	483	966	463	1 414	2 880	170	252	327
	112	138	0,6	0,6	120,2	117,3	121,9	113	338	676	323	980	1 987	170	250	321
	112	138	0,6	0,6	118,3	114,1	121,6	281	745	1 569	827	2 265	4 962	94	137	188
	112	138	0,6	0,6	118,3	114,1	121,6	403	1 058	2 207	1 161	3 092	6 571	188	266	351
	112	138	0,6	0,6	118,3	114,1	121,6	198	521	1 093	575	1 553	3 354	93	134	180
	112	138	0,6	0,6	118,3	114,1	121,6	285	745	1 549	815	2 157	4 546	189	265	346
	112	138	0,6	0,6	118,3	114,1	121,6	177	467	979	515	1 385	2 981	92	132	177
	112	138	0,6	0,6	118,3	114,1	121,6	256	669	1 390	732	1 933	4 065	188	263	343
	116	150	2	1	123	123	128,3	471	1 511	3 027	1 447	5 010	10 710	107	181	257
	116	150	2	1	123	123	128,3	691	2 377	4 959	2 010	7 133	15 359	251	399	539
	116	150	2	1	123	123	128,3	244	836	1 732	725	2 623	5 718	92,1	153	213
	116	150	2	1	123	123	128,3	336	1 285	2 768	966	3 768	8 297	219	355	476

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 105 – 110 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
105	160	26	47,5	36,5	3 350	12 000	18 000	2	2	15	1,7	**HS7021-C-T-P4S**
	160	26	45	34,5	3 150	11 000	16 000	2	2	25	1,7	**HS7021-E-T-P4S**
	160	26	45	33	2 300	14 000	22 000	2	2	25	1,59	**HC7021-E-T-P4S**
	160	26	53	39,5	3 650	12 500	18 900	2	1	17	1,6	**M7021-C-T-P4S-XL**
	160	26	51	38	3 450	11 700	17 400	2	1	25	1,6	**M7021-E-T-P4S-XL**
	160	26	53	38	2 650	15 500	22 700	2	1	17	1,5	**HCM7021-C-T-P4S-XL**
	160	26	51	36	2 550	14 800	21 200	2	1	25	1,5	**HCM7021-E-T-P4S-XL**
	160	26	128	53	2 350	15 900	23 400	2	1	17	1,5	**VCM7021-C-T-P4S-XL**
	160	26	122	51	2 240	15 100	22 700	2	1	25	1,5	**VCM7021-E-T-P4S-XL**
	190	36	164	104	9 000	7 000	11 000	2,1	2,1	15	3,89	**B7221-C-T-P4S**
	190	36	156	99	8 600	6 300	9 500	2,1	2,1	25	3,88	**B7221-E-T-P4S**
	190	36	164	99	6 600	9 000	15 000	2,1	2,1	15	3,26	**HCB7221-C-T-P4S**
	190	36	157	95	6 300	7 500	12 000	2,1	2,1	25	3,25	**HCB7221-E-T-P4S**
110	150	20	61	47	4 350	8 500	13 000	1,1	1,1	15	0,85	**B71922-C-T-P4S**
	150	20	58	44,5	4 150	8 000	12 000	1,1	1,1	25	0,85	**B71922-E-T-P4S**
	150	20	61	45	3 200	12 000	19 000	1,1	1,1	15	0,71	**HCB71922-C-T-P4S**
	150	20	58	42,5	3 000	11 000	17 000	1,1	1,1	25	0,71	**HCB71922-E-T-P4S**
	150	20	34	28,5	2 650	12 000	19 000	1,1	1,1	15	0,91	**HS71922-C-T-P4S**
	150	20	32	27	2 500	11 000	17 000	1,1	1,1	25	0,91	**HS71922-E-T-P4S**
	150	20	32	26	1 820	14 000	22 000	1,1	1,1	25	0,84	**HC71922-E-T-P4S**
	150	20	39,5	28	2 600	12 700	19 300	1,1	0,6	17	0,82	**M71922-C-T-P4S-XL**
	150	20	37,5	26,5	2 470	12 000	17 700	1,1	0,6	25	0,82	**M71922-E-T-P4S-XL**
	150	20	39,5	26,5	1 880	15 800	23 000	1,1	0,6	17	0,72	**HCM71922-C-T-P4S-XL**
	150	20	38	25,5	1 800	15 000	21 600	1,1	0,6	25	0,72	**HCM71922-E-T-P4S-XL**
	150	20	95	37,5	1 670	16 200	23 000	1,1	0,6	17	0,72	**VCM71922-C-T-P4S-XL**
	150	20	91	35,5	1 590	15 400	23 000	1,1	0,6	25	0,72	**VCM71922-E-T-P4S-XL**
	170	28	129	55	2 290	15 000	21 500	2	1	17	2,09	**VCM7022-C-T-P4S-XL**
	170	28	123	52	2 180	14 300	21 500	2	1	25	2,09	**VCM7022-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

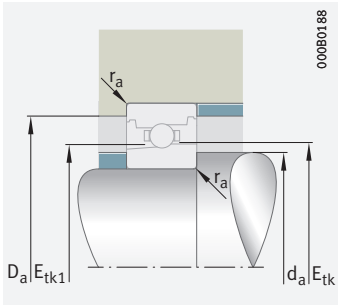
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

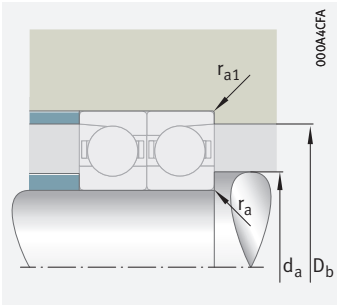
3) The series 719 and 70 are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

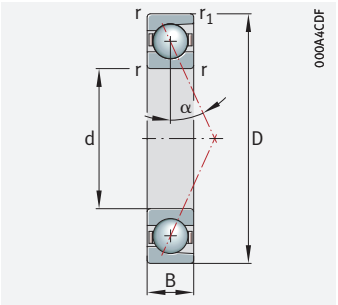


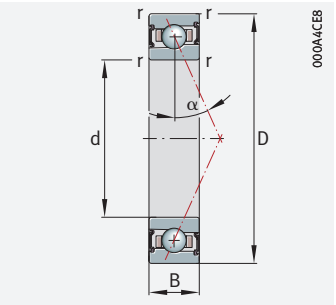
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
105	116	150	2	1	125,8	121,7	129	164	492	985	489	1 536	3 194	75	117	160
	116	150	2	1	125,8	121,7	129	267	802	1 604	770	2 354	4 797	189	281	365
	116	150	2	1	125,8	121,7	129	184	552	1 104	527	1 602	3 250	188	277	357
	116	150	2	1	124,9	120,1	129	419	1 114	2 356	1 244	3 445	7 626	115	171	238
	116	150	2	1	124,9	120,1	129	599	1 574	3 292	1 731	4 636	9 916	229	326	433
	116	150	2	1	124,9	120,1	129	294	778	1 638	861	2 347	5 116	113	165	225
	116	150	2	1	124,9	120,1	129	422	1 107	2 306	1 213	3 222	6 827	229	323	424
	116	150	2	1	124,9	120,1	129	264	697	1 465	770	2 090	4 537	112	163	220
	116	150	2	1	124,9	120,1	129	379	994	2 069	1 088	2 885	6 097	228	320	420
	120,5	174,5	2,1	1	132,2	132,2	141,2	989	3 069	6 072	3 060	10 252	21 655	131	219	311
	120,5	174,5	2,1	1	132,2	132,2	141,2	1 545	5 006	10 249	4 508	15 092	31 918	312	488	656
	120,5	174,5	2,1	1	132,2	132,2	141,2	536	1 733	3 524	1 603	5 476	11 721	114	186	258
	120,5	174,5	2,1	1	132,2	132,2	141,2	800	2 742	5 723	2 303	8 067	17 220	278	434	577
110	117	143	0,6	0,6	122,4	122,4	126,4	314	1 038	2 102	961	3 415	7 373	96,1	163	232
	117	143	0,6	0,6	122,4	122,4	126,4	455	1 642	3 475	1 321	4 913	10 722	225	364	493
	117	143	0,6	0,6	122,4	122,4	126,4	158	570	1 199	468	1 777	3 931	82,1	138	193
	117	143	0,6	0,6	122,4	122,4	126,4	208	871	1 923	596	2 547	5 747	193	322	435
	117	143	0,6	0,6	124,8	121,5	126,9	116	347	693	344	1 077	2 238	70,6	110	149
	117	143	0,6	0,6	124,8	121,5	126,9	187	561	1 121	538	1 642	3 344	178	264	343
	117	143	0,6	0,6	124,8	121,5	126,9	131	393	787	375	1 141	2 312	178	262	337
	117	143	0,6	0,6	123,3	119,1	126,5	292	775	1 633	861	2 357	5 165	97	142	195
	117	143	0,6	0,6	123,3	119,1	126,5	419	1 101	2 296	1 208	3 217	6 837	195	276	365
	117	143	0,6	0,6	123,3	119,1	126,5	206	542	1 138	598	1 616	3 491	96	139	187
	117	143	0,6	0,6	123,3	119,1	126,5	296	775	1 612	848	2 244	4 730	196	275	359
	117	143	0,6	0,6	123,3	119,1	126,5	185	486	1 019	536	1 442	3 103	96	137	184
	117	143	0,6	0,6	123,3	119,1	126,5	266	696	1 446	761	2 010	4 230	195	273	356
	121	159	2	1	132,4	127,6	136,4	276	728	1 530	805	2 184	4 742	117	169	229
	121	159	2	1	132,4	127,6	136,4	396	1 038	2 160	1 136	3 012	6 367	237	333	436

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 110 – 120 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
110	170	28	112	77	6 900	8 000	12 000	2	2	15	1,95	**B7022-C-T-P4S**
	170	28	106	73	6 600	7 500	12 000	2	2	25	1,95	**B7022-E-T-P4S**
	170	28	112	74	5 000	12 000	18 000	2	2	15	1,62	**HCB7022-C-T-P4S**
	170	28	106	70	4 750	11 000	16 000	2	2	25	1,62	**HCB7022-E-T-P4S**
	170	28	48	38	3 400	12 000	18 000	2	2	15	2,17	**HS7022-C-T-P4S**
	170	28	45,5	35,5	3 200	11 000	16 000	2	2	25	2,17	**HS7022-E-T-P4S**
	170	28	45,5	34	2 330	13 000	20 000	2	2	25	2,05	**HC7022-E-T-P4S**
	170	28	70	34	2 290	14 000	22 000	2	2	25	2,05	**XC7022-E-T-P4S**
	170	28	54	41,5	3 700	11 800	17 900	2	1	17	2,1	**M7022-C-T-P4S-XL**
	170	28	51	39,5	3 550	11 100	16 500	2	1	25	2,1	**M7022-E-T-P4S-XL**
	170	28	54	39,5	2 700	14 700	21 500	2	1	17	1,9	**HCM7022-C-T-P4S-XL**
	170	28	51	37,5	2 550	14 000	20 000	2	1	25	1,9	**HCM7022-E-T-P4S-XL**
	200	38	164	105	8 900	6 700	10 000	2,1	2,1	15	4,6	**B7222-C-T-P4S**
	200	38	156	100	8 500	6 000	9 000	2,1	2,1	25	4,59	**B7222-E-T-P4S**
	200	38	164	101	6 500	8 500	14 000	2,1	2,1	15	3,97	**HCB7222-C-T-P4S**
	200	38	156	96	6 200	7 000	10 000	2,1	2,1	25	3,96	**HCB7222-E-T-P4S**
120	165	22	76	59	5 300	8 000	12 000	1,1	1,1	15	1,16	**B71924-C-T-P4S**
	165	22	72	56	5 000	7 000	11 000	1,1	1,1	25	1,16	**B71924-E-T-P4S**
	165	22	76	57	3 850	11 000	17 000	1,1	1,1	15	0,97	**HCB71924-C-T-P4S**
	165	22	72	54	3 650	10 000	15 000	1,1	1,1	25	0,97	**HCB71924-E-T-P4S**
	165	22	35,5	32	2 850	11 000	17 000	1,1	1,1	15	1,29	**HS71924-C-T-P4S**
	165	22	33,5	30	2 650	10 000	15 000	1,1	1,1	25	1,29	**HS71924-E-T-P4S**
	165	22	33,5	29	1 940	13 000	20 000	1,1	1,1	25	1,21	**HC71924-E-T-P4S**
	165	22	51	29	1 910	14 000	22 000	1,1	1,1	25	1,21	**XC71924-E-T-P4S**
	165	22	119	46	1 910	14 800	21 700	1,1	0,6	17	1,11	**VCM71924-C-T-P4S-XL**
	165	22	113	44	1 820	14 100	21 100	1,1	0,6	25	1,11	**VCM71924-E-T-P4S-XL**
	180	28	133	59	2 390	14 000	18 800	2	1	17	2,23	**VCM7024-C-T-P4S-XL**
	180	28	127	57	2 280	13 400	18 800	2	1	25	2,23	**VCM7024-E-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

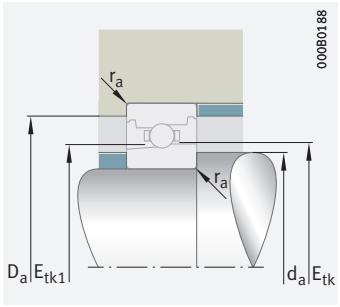
[1] The limiting speeds are based on elastically preloaded single bearings.

[2] Explanation of designations SP 1.

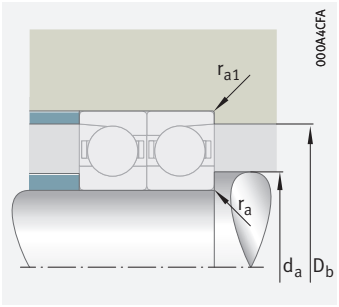
[3] The series 719 and 70 are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

[4] L = light preload; M = moderate preload; H = high preload.

[5] Minimal quantity oil lubrication.



Mounting dimensions

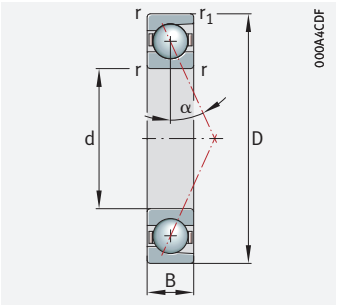


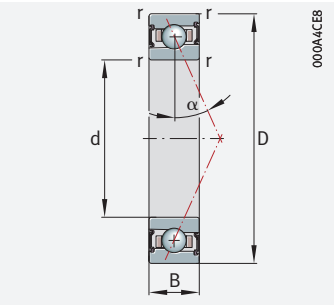
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
110	121	159	2	1	128,6	128,6	135,1	643	2 033	4 052	1 981	6 757	14 370	119	200	283
	121	159	2	1	128,6	128,6	135,1	968	3 242	6 709	2 820	9 745	20 814	280	443	596
	121	159	2	1	128,6	128,6	135,1	337	1 126	2 314	1 004	3 540	7 655	103	169	234
	121	159	2	1	128,6	128,6	135,1	490	1 779	3 778	1 409	5 224	11 341	248	395	527
	121	159	2	1	133,3	129,2	136,5	168	503	1 005	499	1 566	3 257	77,2	121	164
	121	159	2	1	133,3	129,2	136,5	267	802	1 604	770	2 352	4 792	193	287	373
	121	159	2	1	133,3	129,2	136,5	187	561	1 121	535	1 627	3 299	193	284	366
	121	159	2	1	133,3	129,2	136,5	187	561	1 121	535	1 627	3 299	193	284	366
	121	159	2	1	132,4	127,6	136,4	437	1 164	2 461	1 300	3 600	7 970	120	178	248
	121	159	2	1	132,4	127,6	136,4	625	1 644	3 437	1 807	4 841	10 356	238	339	451
	121	159	2	1	132,4	127,6	136,4	307	813	1 711	900	2 452	5 346	118	171	234
	121	159	2	1	132,4	127,6	136,4	441	1 156	2 408	1 266	3 365	7 129	238	335	441
	126,5	183,5	2,1	1	139,7	139,7	148,7	989	3 069	6 072	3 060	10 252	21 655	131	219	311
	126,5	183,5	2,1	1	139,7	139,7	148,7	1 512	4 905	10 048	4 410	14 777	31 257	309	484	650
	126,5	183,5	2,1	1	139,7	139,7	148,7	536	1 733	3 524	1 603	5 476	11 721	114	186	258
	126,5	183,5	2,1	1	139,7	139,7	148,7	800	2 742	5 723	2 303	8 067	17 220	278	434	577
120	128	157	0,6	0,6	134	134	138,5	405	1 321	2 665	1 239	4 349	9 350	109	184	261
	128	157	0,6	0,6	134	134	138,5	587	2 073	4 361	1 705	6 203	13 450	255	409	553
	128	157	0,6	0,6	134	134	138,5	208	732	1 530	616	2 286	5 019	93,7	156	218
	128	157	0,6	0,6	134	134	138,5	274	1 101	2 407	785	3 223	7 191	220	362	487
	128	157	0,6	0,6	137,3	134	139,2	122	367	734	363	1 137	2 362	76,8	119	162
	128	157	0,6	0,6	137,3	134	139,2	196	587	1 173	562	1 716	3 492	193	286	371
	128	157	0,6	0,6	137,3	134	139,2	136	407	814	388	1 179	2 389	192	283	364
	128	157	0,6	0,6	137,3	134	139,2	136	407	814	388	1 179	2 389	192	283	364
	128	157	0,6	0,6	134,9	130,1	138,8	231	609	1 276	671	1 805	3 884	105	151	202
	128	157	0,6	0,6	134,9	130,1	138,8	333	872	1 811	953	2 517	5 296	214	300	391
	131	169	2	1	142,4	137,6	146,4	298	787	1 654	870	2 361	5 126	126	182	246
	131	169	2	1	142,4	137,6	146,4	428	1 120	2 332	1 227	3 253	6 877	254	358	469

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 120 – 130 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
120	165	22	49,5	35	3 100	11 600	17 600	1,1	0,6	17	1,1	**M71924-C-T-P4S-XL**
	165	22	47	33	2 950	10 900	16 200	1,1	0,6	25	1,1	**M71924-E-T-P4S-XL**
	165	22	49,5	33,5	2 250	14 400	21 100	1,1	0,6	17	0,97	**HCM71924-C-T-P4S-XL**
	165	22	47	32	2 140	13 700	19 700	1,1	0,6	25	0,97	**HCM71924-E-T-P4S-XL**
	180	28	115	82	7 100	7 500	12 000	2	2	15	2,08	**B7024-C-T-P4S**
	180	28	109	78	6 700	6 700	10 000	2	2	25	2,07	**B7024-E-T-P4S**
	180	28	115	78	5 200	10 000	16 000	2	2	15	1,74	**HCB7024-C-T-P4S**
	180	28	109	75	4 900	9 500	14 000	2	2	25	1,73	**HCB7024-E-T-P4S**
	180	28	49,5	40,5	3 500	10 000	16 000	2	2	15	2,33	**HS7024-C-T-P4S**
	180	28	46,5	38,5	3 300	9 500	14 000	2	2	25	2,32	**HS7024-E-T-P4S**
	180	28	46,5	36,5	2 410	12 000	19 000	2	2	25	2,2	**HC7024-E-T-P4S**
	180	28	71	36,5	2 370	13 000	20 000	2	2	25	2,2	**XC7024-E-T-P4S**
	180	28	56	44,5	3 850	11 000	16 700	2	1	17	2,2	**M7024-C-T-P4S-XL**
	180	28	53	42,5	3 700	10 400	15 400	2	1	25	2,2	**M7024-E-T-P4S-XL**
	180	28	56	42,5	2 800	13 700	18 800	2	1	17	2,1	**HCM7024-C-T-P4S-XL**
	180	28	53	40,5	2 700	13 000	18 700	2	1	25	2,1	**HCM7024-E-T-P4S-XL**
	215	40	205	138	11 300	6 000	9 000	2,1	2,1	15	5,3	**B7224-C-T-P4S**
	215	40	196	132	10 800	5 300	8 000	2,1	2,1	25	5,28	**B7224-E-T-P4S**
	215	40	205	132	8 200	7 500	12 000	2,1	2,1	15	4,2	**HCB7224-C-T-P4S**
	215	40	196	126	7 900	6 700	9 500	2,1	2,1	25	4,18	**HCB7224-E-T-P4S**
130	180	24	90	71	6 000	7 000	11 000	1,5	1,5	15	1,52	**B71926-C-T-P4S**
	180	24	85	67	5 700	6 700	10 000	1,5	1,5	25	1,52	**B71926-E-T-P4S**
	180	24	90	68	4 400	10 000	15 000	1,5	1,5	15	1,34	**HCB71926-C-T-P4S**
	180	24	86	64	4 150	9 000	14 000	1,5	1,5	25	1,34	**HCB71926-E-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

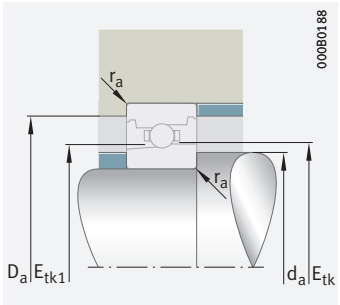
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

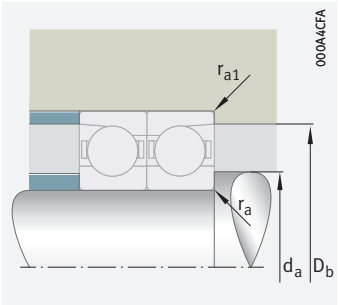
3) The series 719 and 70 are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

4) L = light preload; M = moderate preload; H = high preload.

5) Minimal quantity oil lubrication.



Mounting dimensions

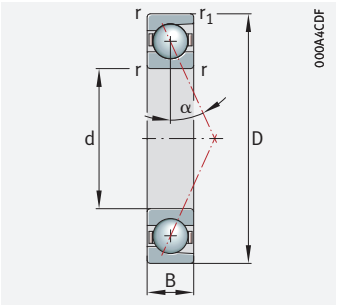


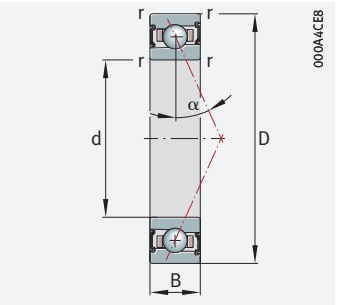
Mounting dimensions

	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
120	128	157	0,6	0,6	134,9	130,1	138,8	366	970	2 045	1 077	2 950	6 464	107	157	215
	128	157	0,6	0,6	134,9	130,1	138,8	525	1 379	2 875	1 512	4 028	8 558	215	304	401
	128	157	0,6	0,6	134,9	130,1	138,8	257	679	1 425	749	2 023	4 370	106	152	205
	128	157	0,6	0,6	134,9	130,1	138,8	371	971	2 018	1 062	2 809	5 922	215	302	395
	131	169	2	1	138,6	138,6	145,1	653	2 069	4 129	2 008	6 858	14 599	123	206	293
	131	169	2	1	138,6	138,6	145,1	983	3 298	6 830	2 860	9 902	21 158	290	459	618
	131	169	2	1	138,6	138,6	145,1	350	1 170	2 406	1 042	3 677	7 953	107	176	245
	131	169	2	1	138,6	138,6	145,1	496	1 810	3 849	1 427	5 313	11 543	257	410	547
	131	169	2	1	143,3	139,2	146,4	171	513	1 025	508	1 594	3 313	80,8	126	171
	131	169	2	1	143,3	139,2	146,4	276	828	1 656	795	2 426	4 942	203	302	392
	131	169	2	1	143,3	139,2	146,4	193	578	1 156	552	1 676	3 398	203	299	385
	131	169	2	1	143,3	139,2	146,4	193	578	1 156	552	1 676	3 398	203	299	385
	131	169	2	1	142,4	137,6	146,4	473	1 258	2 659	1 405	3 891	8 618	129	191	266
	131	169	2	1	142,4	137,6	146,4	675	1 775	3 712	1 952	5 229	11 187	256	364	484
	131	169	2	1	142,4	137,6	146,4	332	878	1 848	972	2 650	5 780	127	184	251
	131	169	2	1	142,4	137,6	146,4	476	1 248	2 601	1 368	3 634	7 700	255	360	474
	140	195	2,1	1	148,4	148,4	159,7	1 259	3 882	7 683	3 878	12 884	27 179	139	231	326
	140	195	2,1	1	148,4	148,4	159,7	1 989	6 365	12 984	5 797	19 139	40 275	333	518	694
	140	195	2,1	1	148,4	148,4	159,7	688	2 196	4 452	2 051	6 906	14 713	122	197	272
	140	195	2,1	1	148,4	148,4	159,7	1 055	3 535	7 327	3 037	10 386	21 994	300	465	615
130	139	171	0,6	0,6	145,5	145,5	150,7	486	1 571	3 160	1 488	5 171	11 084	117	197	279
	139	171	0,6	0,6	145,5	145,5	150,7	711	2 466	5 161	2 064	7 379	15 916	275	438	590
	139	171	0,6	0,6	145,5	145,5	150,7	253	875	1 819	750	2 732	5 967	101	167	233
	139	171	0,6	0,6	145,5	145,5	150,7	346	1 342	2 904	993	3 929	8 680	240	391	524

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Vacrodur rings
Open or sealed





d = 130 – 130 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2] [3]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[5]	r	r_1	α	m	X-life ➤ *1188*
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
130	180	24	38,5	33	2 130	12 000	18 000	1,5	1,5	25	1,61	**HC71926-E-T-P4S**
	180	24	59	33	2 100	13 000	20 000	1,5	1,5	25	1,61	**XC71926-E-T-P4S**
	180	24	51	37,5	3 200	10 700	16 200	1,5	1	17	1,5	**M71926-C-T-P4S-XL**
	180	24	48,5	36	3 050	10 000	14 900	1,5	1	25	1,5	**M71926-E-T-P4S-XL**
	180	24	51	36	2 330	13 300	18 900	1,5	1	17	1,4	**HCM71926-C-T-P4S-XL**
	180	24	48,5	34,5	2 220	12 600	18 100	1,5	1	25	1,4	**HCM71926-E-T-P4S-XL**
	180	24	122	50	1 980	13 600	18 900	1,5	1	17	1,53	**VCM71926-C-T-P4S-XL**
	180	24	116	47,5	1 890	13 000	18 900	1,5	1	25	1,53	**VCM71926-E-T-P4S-XL**
	200	33	149	107	8 800	6 700	10 000	2	2	15	3,16	**B7026-C-T-P4S**
	200	33	141	102	8 400	6 000	9 500	2	2	25	3,15	**B7026-E-T-P4S**
	200	33	149	102	6 400	9 500	14 000	2	2	15	2,63	**HCB7026-C-T-P4S**
	200	33	141	97	6 100	8 500	13 000	2	2	25	2,61	**HCB7026-E-T-P4S**
	200	33	64	53	4 400	9 500	15 000	2	2	15	3,52	**HS7026-C-T-P4S**
	200	33	60	50	4 150	8 500	13 000	2	2	25	3,51	**HS7026-E-T-P4S**
	200	33	60	48	3 000	11 000	17 000	2	2	25	3,36	**HC7026-E-T-P4S**
	200	33	92	48	2 950	12 000	19 000	2	2	25	3,36	**XC7026-E-T-P4S**
	200	33	58	49,5	4 100	10 000	15 200	2	1	17	3,6	**M7026-C-T-P4S-XL**
	200	33	55	47,5	3 900	9 400	14 000	2	1	25	3,6	**M7026-E-T-P4S-XL**
	200	33	58	47,5	3 000	12 500	16 200	2	1	17	3,4	**HCM7026-C-T-P4S-XL**
	200	33	55	45,5	2 850	11 900	16 200	2	1	25	3,4	**HCM7026-E-T-P4S-XL**
	200	33	139	66	2 550	12 800	16 200	2	1	17	3,56	**VCM7026-C-T-P4S-XL**
	200	33	132	63	2 410	12 200	16 200	2	1	25	3,56	**VCM7026-E-T-P4S-XL**
	230	40	215	151	11 900	5 600	8 500	3	3	15	6,11	**B7226-C-T-P4S**
	230	40	205	144	11 400	5 000	7 500	3	3	25	6,09	**B7226-E-T-P4S**
	230	40	215	144	8 700	7 000	11 000	3	3	15	4,94	**HCB7226-C-T-P4S**
	230	40	205	138	8 300	6 000	9 000	3	3	25	4,92	**HCB7226-E-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

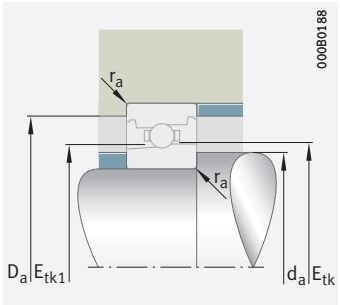
[1] The limiting speeds are based on elastically preloaded single bearings.

[2] Explanation of designations SP 1.

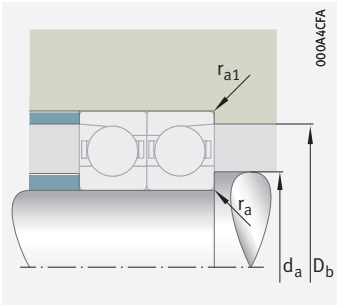
[3] The series 719 and 70 are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD). Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

[4] L = light preload; M = moderate preload; H = high preload.

[5] Minimal quantity oil lubrication.



Mounting dimensions

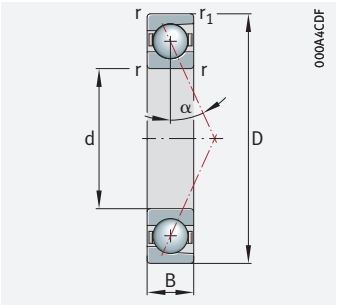


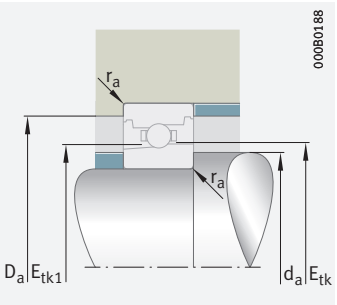
Mounting dimensions

d	Mounting dimensions							Preload force[4] F_V			Lift-off force[4] K_{aE}			Axial rigidity[4] c_a		
	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
130	139	171	0,6	0,6	149,3	145,8	151,4	155	466	932	444	1 349	2 732	204	300	385
	139	171	0,6	0,6	149,3	145,8	151,4	155	466	932	444	1 349	2 732	204	300	385
	139	171	0,6	0,6	147,4	142,6	151,3	396	1 050	2 213	1 166	3 194	7 000	115	169	231
	139	171	0,6	0,6	147,4	142,6	151,3	568	1 491	3 109	1 635	4 356	9 258	231	327	431
	139	171	0,6	0,6	147,4	142,6	151,3	279	735	1 542	811	2 190	4 731	114	164	221
	139	171	0,6	0,6	147,4	142,6	151,3	401	1 050	2 183	1 148	3 038	6 405	231	325	424
	139	171	0,6	0,6	147,4	142,6	151,3	250	659	1 380	726	1 954	4 205	113	162	217
	139	171	0,6	0,6	147,4	142,6	151,3	360	943	1 959	1 031	2 723	5 728	230	323	421
	142	189	2	1	151,6	151,6	159,3	850	2 669	5 314	2 616	8 846	18 773	137	229	324
	142	189	2	1	151,6	151,6	159,3	1 312	4 328	8 915	3 820	13 001	27 627	326	512	689
	142	189	2	1	151,6	151,6	159,3	464	1 524	3 119	1 381	4 791	10 306	120	196	272
	142	189	2	1	151,6	151,6	159,3	679	2 399	5 054	1 953	7 044	15 161	291	459	611
	142	189	2	1	157,4	152,6	161,2	219	658	1 317	653	2 046	4 251	91,8	143	194
	142	189	2	1	157,4	152,6	161,2	357	1 070	2 139	1 026	3 133	6 381	231	344	446
	142	189	2	1	157,4	152,6	161,2	244	733	1 466	700	2 126	4 308	230	338	435
	142	189	2	1	157,4	152,6	161,2	244	733	1 466	700	2 126	4 308	230	338	435
	142	189	2	1	157,4	152,6	161,3	525	1 398	2 957	1 563	4 329	9 590	142	211	294
	142	189	2	1	157,4	152,6	161,3	750	1 972	4 124	2 168	5 811	12 435	282	402	535
	142	189	2	1	157,4	152,6	161,3	369	976	2 055	1 081	2 948	6 431	140	204	278
	142	189	2	1	157,4	152,6	161,3	529	1 387	2 889	1 519	4 038	8 558	282	398	523
	142	189	2	1	157,4	152,6	161,3	331	875	1 839	967	2 626	5 703	139	201	272
	142	189	2	1	157,4	152,6	161,3	475	1 245	2 592	1 363	3 615	7 643	281	395	518
	148	211,5	2,5	1	160,9	160,9	172	1 306	4 034	7 993	4 018	13 354	28 189	147	244	344
	148	211,5	2,5	1	160,9	160,9	172	2 065	6 617	13 506	6 015	19 876	41 831	353	549	735
	148	211,5	2,5	1	160,9	160,9	172	716	2 288	4 642	2 132	7 184	15 307	129	208	288
	148	211,5	2,5	1	160,9	160,9	172	1 098	3 687	7 648	3 160	10 826	22 934	318	493	652

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Cronidur rings
Open or sealed





Mounting dimensions

d = 140 – 150 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	α	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
140	190	24	89	73	6 000	6 000	9 500	1,5	1,5	25	1,62	**B71928-E-T-P4S**[5]
	190	24	94	77	6 400	6 700	10 000	1,5	1,5	15	1,62	**B71928-C-T-P4S**[5]
	190	24	89	70	4 400	8 500	13 000	1,5	1,5	25	1,42	**HCB71928-E-T-P4S**[5]
	190	24	94	74	4 650	9 500	14 000	1,5	1,5	15	1,42	**HCB71928-C-T-P4S**[5]
	210	33	145	108	8 600	5 600	9 000	2	2	25	3,34	**B7028-E-T-P4S**[5]
	210	33	153	114	9 100	6 300	10 000	2	2	15	3,35	**B7028-C-T-P4S**[5]
	210	33	145	103	6 300	8 000	12 000	2	2	25	2,78	**HCB7028-E-T-P4S**[5]
	210	33	153	109	6 600	9 000	14 000	2	2	15	2,79	**HCB7028-C-T-P4S**[5]
	250	42	213	157	11 900	4 500	6 700	3	3	25	7,86	**B7228-E-T-P4S**
	250	42	224	164	12 500	5 000	7 500	3	3	15	7,88	**B7228-C-T-P4S**
	250	42	214	150	8 700	5 300	8 000	3	3	25	6,6	**HCB7228-E-T-P4S**
	250	42	224	157	9 100	6 300	9 500	3	3	15	6,62	**HCB7228-C-T-P4S**
150	210	28	119	95	7 500	5 600	8 500	2	1	25	2,49	**B71930-E-T-P4S**
	210	28	125	101	7 900	6 300	9 500	2	1	15	2,49	**B71930-C-T-P4S**
	210	28	119	91	5 500	7 500	12 000	2	1	25	2,09	**HCB71930-E-T-P4S**
	210	28	126	96	5 800	8 500	13 000	2	1	15	2,09	**HCB71930-C-T-P4S**
	225	35	178	130	10 100	5 300	8 000	2,1	2,1	25	4,03	**B7030-E-T-P4S**
	225	35	187	137	10 600	6 000	9 000	2,1	2,1	15	4,04	**B7030-C-T-P4S**
	225	35	178	125	7 300	7 500	11 000	2,1	2,1	25	3,24	**HCB7030-E-T-P4S**
	225	35	188	131	7 700	8 000	13 000	2,1	2,1	15	3,25	**HCB7030-C-T-P4S**
	270	45	221	169	12 400	4 000	6 000	3	3	25	10,1	**B7230-E-T-P4S**
	270	45	232	178	13 000	4 500	6 700	3	3	15	10,1	**B7230-C-T-P4S**
	270	45	221	162	9 000	5 000	7 500	3	3	25	8,79	**HCB7230-E-T-P4S**
	270	45	232	170	9 500	6 000	8 500	3	3	15	8,82	**HCB7230-C-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

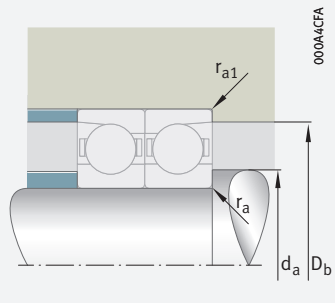
1) The limiting speeds are based on elastically preloaded single bearings.

2) Explanation of designations SP 1.

3) L = light preload; M = moderate preload; H = high preload.

4) Minimal quantity oil lubrication.

5) The series 719 and 70 are also available with gap seals (type HSS, HCS, XCS or suffix 2RSD).
Ordering examples: B7000-C-2RSD-T-P4S-UL and HSS7000-E-T-P4S-UL.

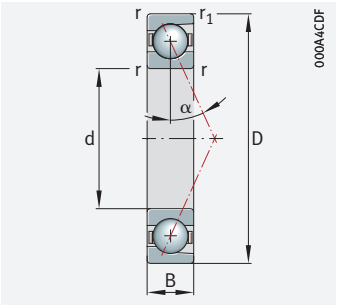


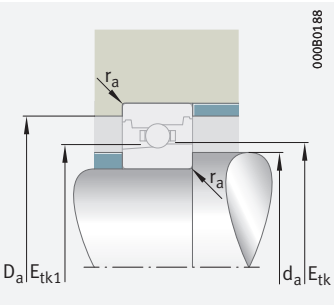
Mounting dimensions

	Mounting dimensions							Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
140	149	181	0,6	0,6	155,5	155,5	160,6	736	2 564	5 373	2 136	7 663	16 542	292	466	628
	149	181	0,6	0,6	155,5	155,5	160,6	504	1 632	3 289	1 539	5 357	11 496	124	208	295
	149	181	0,6	0,6	155,5	155,5	160,6	348	1 367	2 967	999	3 997	8 852	253	413	554
	149	181	0,6	0,6	155,5	155,5	160,6	259	901	1 876	767	2 806	6 135	107	177	246
	152	199	2	1	161,6	161,6	169,2	1 336	4 416	9 103	3 888	13 252	28 168	339	532	714
	152	199	2	1	161,6	161,6	169,2	866	2 724	5 429	2 661	9 007	19 129	142	237	335
	152	199	2	1	161,6	161,6	169,2	685	2 429	5 123	1 968	7 126	15 352	302	476	633
	152	199	2	1	161,6	161,6	169,2	471	1 553	3 179	1 402	4 871	10 483	125	203	282
	163	226,5	2,5	2,5	175,9	175,9	187	2 141	6 870	14 029	6 233	20 615	43 390	373	579	775
	163	226,5	2,5	2,5	175,9	175,9	187	1 353	4 185	8 302	4 158	13 825	29 200	155	257	362
	163	226,5	2,5	2,5	175,9	175,9	187	1 141	3 839	7 968	3 284	11 267	23 876	336	521	689
	163	226,5	2,5	2,5	175,9	175,9	187	749	2 397	4 864	2 230	7 516	16 017	137	220	304
150	160	199	1	1	168,6	168,6	174,9	1 040	3 522	7 317	3 021	10 536	22 549	331	524	704
	160	199	1	1	168,6	168,6	174,9	706	2 249	4 507	2 161	7 402	15 795	141	235	333
	160	199	1	1	168,6	168,6	174,9	527	1 950	4 164	1 513	5 709	12 445	294	470	627
	160	199	1	1	168,6	168,6	174,9	376	1 268	2 617	1 117	3 963	8 587	123	201	279
	163	213	2,1	1	172,2	172,2	181	1 691	5 520	11 332	4 923	16 566	35 067	371	580	778
	163	213	2,1	1	172,2	172,2	181	1 104	3 443	6 843	3 394	11 397	24 140	156	260	367
	163	213	2,1	1	172,2	172,2	181	889	3 079	6 448	2 556	9 036	19 329	333	522	692
	163	213	2,1	1	172,2	172,2	181	602	1 958	3 992	1 793	6 146	13 171	137	222	308
	178	241,5	2,5	2,5	190,9	190,9	201,9	2 173	6 987	14 280	6 322	20 936	44 075	390	605	808
	178	241,5	2,5	2,5	190,9	190,9	201,9	1 401	4 337	8 611	4 299	14 296	30 211	163	269	380
	178	241,5	2,5	2,5	190,9	190,9	201,9	1 167	3 935	8 175	3 355	11 539	24 467	352	546	722
	178	241,5	2,5	2,5	190,9	190,9	201,9	761	2 440	4 958	2 262	7 633	16 272	143	230	317

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Cronidur rings
Open or sealed





Mounting dimensions

d = 160 – 180 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	α	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
160	220	28	121	100	7 700	5 300	8 000	2	1	25	2,62	**B71932-E-T-P4S**
	220	28	128	106	8 100	6 000	9 000	2	1	15	2,63	**B71932-C-T-P4S**
	220	28	121	96	5 600	7 500	11 000	2	1	25	2,2	**HCB71932-E-T-P4S**
	220	28	128	101	5 900	8 000	12 000	2	1	15	2,21	**HCB71932-C-T-P4S**
	240	38	182	138	10 400	5 000	7 500	2,1	2,1	25	5,01	**B7032-E-T-P4S**
	240	38	192	146	10 900	5 600	8 500	2,1	2,1	15	5,04	**B7032-C-T-P4S**
	240	38	183	132	7 500	7 000	11 000	2,1	2,1	25	4,18	**HCB7032-E-T-P4S**
	240	38	193	140	8 000	7 500	12 000	2,1	2,1	15	4,2	**HCB7032-C-T-P4S**
	290	48	236	192	13 500	3 800	5 600	3	3	25	12,9	**B7232-E-T-P4S**
	290	48	249	202	14 200	4 300	6 300	3	3	15	12,9	**B7232-C-T-P4S**
	290	48	237	184	9 900	4 500	6 700	3	3	25	11,4	**HCB7232-E-T-P4S**
	290	48	249	193	10 400	5 300	8 000	3	3	15	11,4	**HCB7232-C-T-P4S**
170	230	28	126	108	8 100	5 000	7 500	2	1	25	2,78	**B71934-E-T-P4S**
	230	28	133	115	8 600	5 600	8 500	2	1	15	2,79	**B71934-C-T-P4S**
	230	28	126	104	5 900	7 000	11 000	2	1	25	2,32	**HCB71934-E-T-P4S**
	230	28	133	110	6 200	7 500	12 000	2	1	15	2,33	**HCB71934-C-T-P4S**
	260	42	229	180	13 000	4 500	7 000	2,1	2,1	25	6,49	**B7034-E-T-P4S**
	260	42	241	189	13 700	5 300	8 000	2,1	2,1	15	6,52	**B7034-C-T-P4S**
	310	52	285	241	16 500	3 600	5 300	4	4	25	15,6	**B7234-E-T-P4S**
	310	52	300	255	17 300	3 800	5 600	4	4	15	15,7	**B7234-C-T-P4S**
180	250	33	162	138	10 000	4 500	7 000	2	1	25	4,12	**B71936-E-T-P4S**
	250	33	171	146	10 500	5 300	8 000	2	1	15	4,14	**B71936-C-T-P4S**
	250	33	162	132	7 300	6 300	10 000	2	1	25	3,43	**HCB71936-E-T-P4S**
	250	33	171	139	7 700	7 000	11 000	2	1	15	3,45	**HCB71936-C-T-P4S**
	280	46	236	193	13 500	4 300	6 700	2,1	2,1	25	8,76	**B7036-E-T-P4S**
	280	46	248	203	14 200	4 800	7 500	2,1	2,1	15	8,79	**B7036-C-T-P4S**
	320	52	295	260	17 300	3 400	5 000	4	4	25	16,3	**B7236-E-T-P4S**
	320	52	310	270	18 100	3 800	5 600	4	4	15	16,4	**B7236-C-T-P4S**

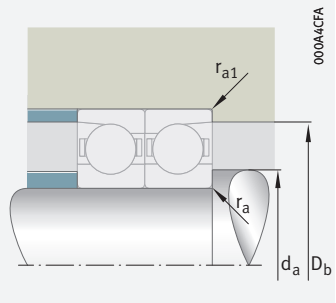
medias *https://www.schaeffler.de/std/1F9A*

[1] The limiting speeds are based on elastically preloaded single bearings.

[2] Explanation of designations SP 1.

[3] L = light preload; M = moderate preload; H = high preload.

[4] Minimal quantity oil lubrication.

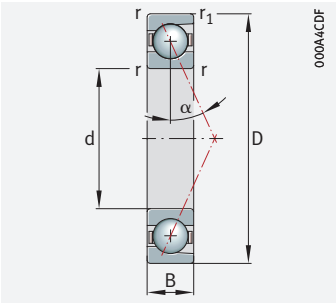


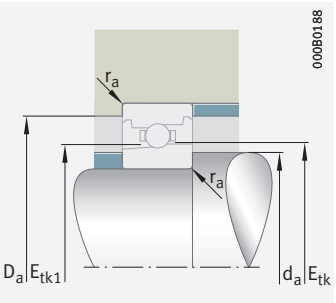
Mounting dimensions

	Mounting dimensions							Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
160	170	209	1	1	179,5	179,5	184,7	1 055	3 579	7 439	3 062	10 696	22 899	341	539	725
	170	209	1	1	179,5	179,5	184,7	722	2 304	4 619	2 209	7 572	16 164	145	243	344
	170	209	1	1	179,5	179,5	184,7	521	1 940	4 152	1 495	5 676	12 392	301	481	642
	170	209	1	1	179,5	179,5	184,7	374	1 265	2 614	1 108	3 944	8 551	126	206	285
	174	228	2,1	1	184,7	184,7	193,4	1 715	5 606	11 519	4 988	16 807	35 587	385	601	806
	174	228	2,1	1	184,7	184,7	193,4	1 145	3 574	7 107	3 520	11 821	25 044	163	271	384
	174	228	2,1	1	184,7	184,7	193,4	898	3 121	6 545	2 581	9 154	19 595	345	541	717
	174	228	2,1	1	184,7	184,7	193,4	609	1 986	4 053	1 812	6 221	13 337	142	230	318
	191	259	2,5	2,5	205,9	205,9	216,9	2 326	7 493	15 324	6 760	22 418	47 204	429	665	888
	191	259	2,5	2,5	205,9	205,9	216,9	1 502	4 659	9 263	4 601	15 309	32 375	179	295	416
	191	259	2,5	2,5	205,9	205,9	216,9	1 235	4 183	8 703	3 550	12 254	26 003	387	599	792
	191	259	2,5	2,5	205,9	205,9	216,9	827	2 657	5 402	2 457	8 298	17 692	158	254	350
170	180	219	1	1	188,6	188,6	194,7	1 105	3 757	7 816	3 206	11 221	24 031	364	575	773
	180	219	1	1	188,6	188,6	194,7	742	2 375	4 770	2 266	7 779	16 624	154	256	362
	180	219	1	1	188,6	188,6	194,7	534	2 004	4 295	1 533	5 856	12 804	318	510	681
	180	219	1	1	188,6	188,6	194,7	385	1 306	2 703	1 138	4 063	8 815	133	217	301
	185	246	2,1	1	195,9	195,9	206,9	2 250	7 240	14 802	6 541	21 677	45 639	409	635	848
	185	246	2,1	1	195,9	195,9	206,9	1 448	4 488	8 919	4 439	14 768	31 222	171	282	397
	205	275	3	3	217,1	217,1	230,4	2 860	9 126	18 610	8 307	27 255	57 164	452	699	930
	205	275	3	3	217,1	217,1	230,4	1 864	5 749	11 422	5 698	18 828	39 747	189	311	436
180	192	238	1	1	201,6	201,6	209	1 468	4 890	10 108	4 263	14 618	31 112	402	630	845
	192	238	1	1	201,6	201,6	209	960	3 036	6 076	2 933	9 953	21 191	168	279	394
	192	238	1	1	201,6	201,6	209	731	2 635	5 587	2 098	7 710	16 669	354	561	746
	192	238	1	1	201,6	201,6	209	519	1 726	3 546	1 540	5 380	11 597	148	240	332
	196	264	2,1	1	210,9	210,9	221,9	2 326	7 493	15 324	6 760	22 418	47 204	429	665	888
	196	264	2,1	1	210,9	210,9	221,9	1 502	4 659	9 263	4 601	15 309	32 375	179	295	416
	213,5	286,5	3	3	227,1	227,1	240,4	2 957	9 444	19 266	8 585	28 184	59 117	475	733	976
	213,5	286,5	3	3	227,1	227,1	240,4	1 891	5 843	11 625	5 771	19 076	40 296	197	323	453

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Cronidur rings
Open or sealed





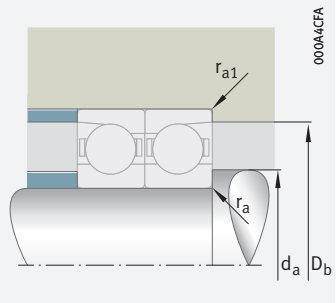
Mounting dimensions

d = 190 – 220 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	α	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
190	260	33	164	144	10 200	4 500	6 700	2	1	25	4,31	**B71938-E-T-P4S**
	260	33	174	152	10 700	5 000	7 500	2	1	15	4,33	**B71938-C-T-P4S**
	260	33	165	138	7 400	6 000	9 500	2	1	25	3,58	**HCB71938-E-T-P4S**
	260	33	174	146	7 800	6 700	10 000	2	1	15	3,6	**HCB71938-C-T-P4S**
	290	46	243	204	14 000	4 000	6 300	2,1	2,1	25	9,16	**B7038-E-T-P4S**
	290	46	255	215	14 700	4 500	7 000	2,1	2,1	15	9,2	**B7038-C-T-P4S**
	340	55	305	275	17 900	3 200	4 800	4	4	25	20	**B7238-E-T-P4S**
	340	55	320	290	18 800	3 400	5 000	4	4	15	20	**B7238-C-T-P4S**
200	280	38	199	170	11 600	4 000	6 300	2,1	1,1	25	6,03	**B71940-E-T-P4S**
	280	38	210	179	12 200	4 500	7 000	2,1	1,1	15	6,05	**B71940-C-T-P4S**
	280	38	199	162	8 400	5 600	9 000	2,1	1,1	25	5,04	**HCB71940-E-T-P4S**
	280	38	211	171	8 900	6 300	10 000	2,1	1,1	15	5,07	**HCB71940-C-T-P4S**
	310	51	295	260	17 200	3 800	6 000	2,1	2,1	25	11,6	**B7040-E-T-P4S**
	310	51	310	270	18 000	4 300	6 700	2,1	2,1	15	11,6	**B7040-C-T-P4S**
	360	58	315	295	18 500	3 000	4 500	4	4	25	24,2	**B7240-E-T-P4S**
	360	58	330	310	19 500	3 200	4 800	4	4	15	24,2	**B7240-C-T-P4S**
220	300	38	212	192	12 600	3 800	6 000	2,1	1,1	25	6,58	**B71944-E-T-P4S**
	300	38	224	203	13 300	4 300	6 700	2,1	1,1	15	6,6	**B71944-C-T-P4S**
	300	38	212	184	9 200	5 300	8 000	2,1	1,1	25	5,47	**HCB71944-E-T-P4S**
	300	38	224	194	9 700	6 000	9 000	2,1	1,1	15	5,49	**HCB71944-C-T-P4S**
	340	56	315	295	18 500	3 600	5 300	3	3	25	15,7	**B7044-E-T-P4S**
	340	56	330	310	19 500	4 000	6 000	3	3	15	15,7	**B7044-C-T-P4S**
	400	65	385	380	22 700	2 600	4 000	4	4	25	33,1	**B7244-E-T-P4S**
	400	65	405	400	23 900	2 800	4 300	4	4	15	33,1	**B7244-C-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

[1] The limiting speeds are based on elastically preloaded single bearings.
[2] Explanation of designations SP 1.
[3] L = light preload; M = moderate preload; H = high preload.
[4] Minimal quantity oil lubrication.

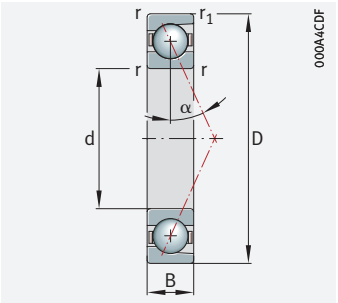


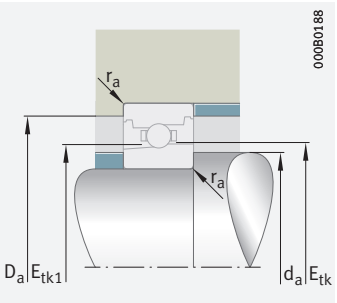
Mounting dimensions

	Mounting dimensions							Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
190	202	247	1	1	211,6	211,6	218,9	1 250	4 547	9 653	3 619	13 545	29 595	388	627	847
	202	247	1	1	211,6	211,6	218,9	888	2 947	5 992	2 700	9 612	20 790	166	281	398
	202	247	1	1	211,6	211,6	218,9	557	2 383	5 290	1 596	6 951	15 738	331	554	747
	202	247	1	1	211,6	211,6	218,9	450	1 629	3 436	1 328	5 053	11 178	143	239	334
	206	274	2,1	1	220,9	220,9	231,8	2 128	7 254	15 104	6 172	21 646	46 379	429	678	910
	206	274	2,1	1	220,9	220,9	231,8	1 436	4 599	9 248	4 377	15 038	32 154	181	302	426
	223,5	306,5	3	3	242,1	242,1	255,3	2 797	9 366	19 397	8 105	27 894	59 391	482	755	1 010
	223,5	306,5	3	3	242,1	242,1	255,3	1 846	5 864	11 779	5 614	19 073	40 669	201	333	468
200	214	266	1	1	224,7	224,7	233,1	1 635	5 765	12 127	4 737	17 199	37 246	423	676	911
	214	266	1	1	224,7	224,7	233,1	1 127	3 678	7 439	3 433	12 027	25 875	180	302	427
	214	266	1	1	224,7	224,7	233,1	768	3 083	6 732	2 202	9 005	20 060	366	601	806
	214	266	1	1	224,7	224,7	233,1	571	2 012	4 211	1 688	6 249	13 711	154	256	355
	217	293	2,1	1	232,1	232,1	245,4	2 711	9 065	18 765	7 860	27 018	57 509	460	722	965
	217	293	2,1	1	232,1	232,1	245,4	1 791	5 681	11 402	5 451	18 508	39 448	192	318	448
	238,5	321,5	3	3	257,1	257,1	270,1	2 882	9 666	20 030	8 349	28 771	61 275	503	789	1 055
	238,5	321,5	3	3	257,1	257,1	270,1	1 902	6 047	12 156	5 777	19 638	41 892	210	347	488
220	234	286	1	1	244,7	244,7	253,1	1 705	6 060	12 777	4 937	18 042	39 132	461	739	995
	234	286	1	1	244,7	244,7	253,1	1 185	3 886	7 879	3 600	12 649	27 258	196	329	465
	234	286	1	1	244,7	244,7	253,1	779	3 184	6 985	2 232	9 284	20 766	396	653	877
	234	286	1	1	244,7	244,7	253,1	606	2 147	4 503	1 788	6 651	14 612	169	280	390
	239	321	2,5	1	257,1	257,1	270,1	2 882	9 666	20 030	8 349	28 771	61 275	503	789	1 055
	239	321	2,5	1	257,1	257,1	270,1	1 902	6 047	12 156	5 777	19 638	41 892	210	347	488
	264	356	3	3	282,3	282,3	298,2	3 642	12 021	24 787	10 546	35 720	75 626	540	840	1 119
	264	356	3	3	282,3	282,3	298,2	2 387	7 527	15 105	7 238	24 345	51 776	224	368	515

Super precision angular contact ball bearings

Steel or ceramic balls
Steel or Cronidur rings
Open or sealed





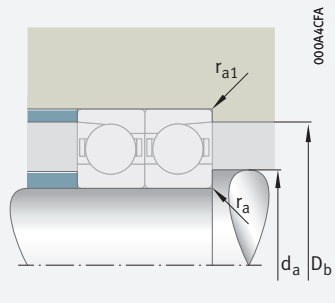
Mounting dimensions

d = 240 – 300 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Contact angle	Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	α	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	°	≈ kg	
240	320	38	218	208	13 100	3 600	5 300	2,1	1,1	25	7,08	**B71948-E-T-P4S**
	320	38	231	220	13 900	4 000	6 000	2,1	1,1	15	7,1	**B71948-C-T-P4S**
	360	56	320	310	19 000	3 200	5 000	3	3	25	16,7	**B7048-E-T-P4S**
	360	56	340	330	20 100	3 600	5 600	3	3	15	16,8	**B7048-C-T-P4S**
260	360	46	295	290	17 600	3 600	5 300	2,1	1,1	15	12	**B71952-C-T-P4S**
280	380	46	305	320	18 500	3 200	5 000	2,1	1,1	15	12,9	**B71956-C-T-P4S**
300	420	56	370	405	22 500	3 000	4 500	3	1,1	15	20	**B71960-C-T-P4S**

medias *https://www.schaeffler.de/std/1F9A*

1) The limiting speeds are based on elastically preloaded single bearings.
2) Explanation of designations SP 1.
3) L = light preload; M = moderate preload; H = high preload.
4) Minimal quantity oil lubrication.

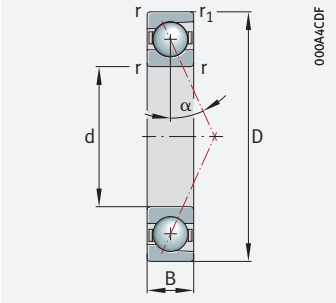


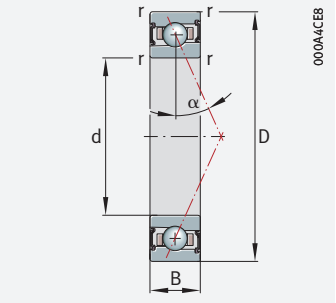
Mounting dimensions

	Mounting dimensions							Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	d_a h12	D_a H12	r_a max.	r_{a1} max.	E_{tk} min.	E_{tk1} min.	E_{tk} E_{tk1} max.	L N	M N	H N	L N	M N	H N	L N/µm	M N/µm	H N/µm
240	254	307	1	1	264,7	264,7	272,9	1 760	6 279	13 255	5 092	18 673	40 536	488	781	1 052
	254	307	1	1	264,7	264,7	272,9	1 224	4 024	8 171	3 712	13 066	28 181	207	347	490
	260	341	2,5	1	277,1	277,1	290	2 914	9 801	20 327	8 437	29 140	62 090	521	817	1 092
	260	341	2,5	1	277,1	277,1	290	1 957	6 231	12 533	5 940	20 205	43 114	219	361	507
260	278	342	1	1	290,9	290,9	301,4	1 615	5 221	10 556	4 894	16 900	36 243	222	368	518
280	298	362	1	1	310,9	310,9	321,2	1 696	5 491	11 113	5 134	17 744	38 073	236	392	551
300	322	398	1	1	337,1	337,1	349,7	2 084	6 676	13 480	6 297	21 485	45 930	249	409	574

Super precision angular contact ball bearings

Ceramic balls
Steel rings
Design DLR





d = 20 – 30 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	≈ kg	
20	42	12	10,3	4,05	325	53 000	80 000	0,6	0,6	0,06	**HCB7004-CDLR-T-P4S**
	42	12	9,8	3,9	315	48 000	75 000	0,6	0,6	0,06	**HCB7004-EDLR-T-P4S**
	42	12	5,4	2,47	199	60 000	95 000	0,6	0,6	0,072	**HC7004-EDLR-T-P4S**
	42	12	8,3	2,47	196	67 000	100 000	0,6	0,6	0,072	**XC7004-EDLR-T-P4S**
25	42	9	6,6	2,65	214	61 200	89 600	0,3	0,15	0,034	**HCM71905-CDLR-T-P4S-XL**
	42	9	6,3	2,55	205	58 300	83 600	0,3	0,15	0,034	**HCM71905-EDLR-T-P4S-XL**
	42	9	15,7	3,7	189	62 700	98 600	0,3	0,15	0,034	**VCM71905-CDLR-T-P4S-XL**
	42	9	15,1	3,55	181	59 800	89 600	0,3	0,15	0,034	**VCM71905-EDLR-T-P4S-XL**
	47	12	13,7	5,6	455	45 000	70 000	0,6	0,6	0,064	**HCB7005-CDLR-T-P4S**
	47	12	13,1	5,4	435	40 000	63 000	0,6	0,6	0,064	**HCB7005-EDLR-T-P4S**
	47	12	5,5	2,65	215	53 000	80 000	0,6	0,6	0,083	**HC7005-EDLR-T-P4S**
	47	12	8	3,15	250	57 000	83 400	0,6	0,3	0,069	**HCM7005-CDLR-T-P4S-XL**
	47	12	7,7	3	242	54 200	77 800	0,6	0,3	0,069	**HCM7005-EDLR-T-P4S-XL**
	47	12	19,2	4,4	223	58 400	91 700	0,6	0,3	0,069	**VCM7005-CDLR-T-P4S-XL**
	47	12	18,4	4,2	214	55 600	83 400	0,6	0,3	0,069	**VCM7005-EDLR-T-P4S-XL**
30	47	9	8,5	4,2	335	43 000	67 000	0,3	0,3	0,043	**HCB71906-CDLR-T-P4S**
	47	9	8,1	3,95	320	38 000	60 000	0,3	0,3	0,043	**HCB71906-EDLR-T-P4S**
	47	9	5,6	2,85	228	48 000	75 000	0,3	0,3	0,044	**HC71906-EDLR-T-P4S**
	47	9	6,9	3,05	245	53 300	78 000	0,3	0,15	0,039	**HCM71906-CDLR-T-P4S-XL**
	47	9	6,6	2,9	235	50 700	72 800	0,3	0,15	0,039	**HCM71906-EDLR-T-P4S-XL**
	47	9	16,7	4,25	217	54 600	85 800	0,3	0,15	0,039	**VCM71906-CDLR-T-P4S-XL**
	47	9	15,9	4,1	208	52 000	78 000	0,3	0,15	0,039	**VCM71906-EDLR-T-P4S-XL**
	55	13	14,4	6,4	520	38 000	60 000	1	1	0,1	**HCB7006-CDLR-T-P4S**
	55	13	13,7	6,1	490	34 000	53 000	1	1	0,1	**HCB7006-EDLR-T-P4S**
	55	13	7,8	3,85	310	43 000	67 000	1	1	0,118	**HC7006-EDLR-T-P4S**
	55	13	8,9	3,9	315	48 300	70 600	1	0,6	0,11	**HCM7006-CDLR-T-P4S-XL**
	55	13	8,5	3,7	300	45 900	65 900	1	0,6	0,11	**HCM7006-EDLR-T-P4S-XL**
	55	13	21,4	5,4	275	49 500	77 700	1	0,6	0,11	**VCM7006-CDLR-T-P4S-XL**
	55	13	20,4	5,2	265	47 100	70 600	1	0,6	0,11	**VCM7006-EDLR-T-P4S-XL**

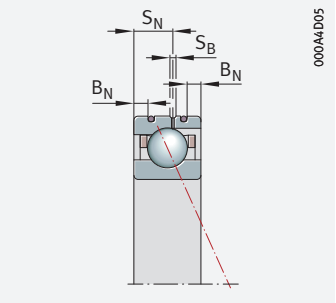
medias *https://www.schaeffler.de/std/1F9A*

[1] The limiting speeds are based on elastically preloaded single bearings.

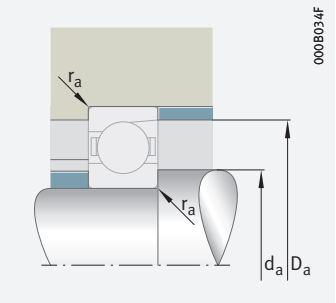
[2] Explanation of designations SP 1.

[3] L = light preload; M = moderate preload; H = high preload.

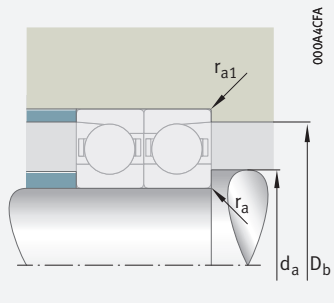
[4] Minimal quantity oil lubrication.



Design DLR



Mounting dimensions

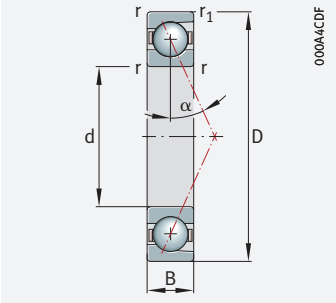


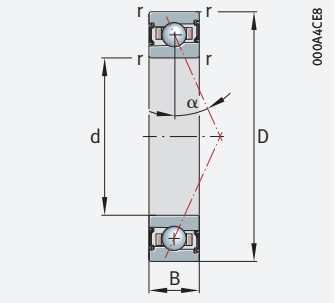
Mounting dimensions

Dimensions				Contact angle	Mounting dimensions				Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	B_N	S_N	S_B	α	d_a h12	D_a H12	r_a	r_{a1}	L	M	H	L	M	H	L	M	H
				°			max.	max.	N	N	N	N	N	N	N/µm	N/µm	N/µm
20	2,2	6,6	1,4	15	25	37	0,6	0,3	24	94	202	72	297	673	18,7	32,7	46,6
	2,2	6,6	1,4	25	25	37	0,6	0,3	28	140	321	80	410	966	42	74,7	103
	2,2	6,6	1,4	25	25	37	0,6	0,3	23	70	140	67	204	415	48,8	72,3	93,7
	2,2	6,6	1,4	25	25	37	0,6	0,3	23	70	140	67	204	415	48,8	72,3	93,7
25	1,4	5,35	1	17	29	38,5	0,3	0,15	21	54	114	60	161	348	24	34	45
	1,4	5,35	1	25	29	38,5	0,3	0,15	30	77	161	85	224	472	48	67	88
	1,4	5,35	1	17	29	38,5	0,3	0,15	18	49	102	54	144	310	23	33	45
	1,4	5,35	1	25	29	38,5	0,3	0,15	27	70	145	76	201	422	48	67	87
	2,2	6,6	1,4	15	30	42	0,6	0,3	35	132	283	104	419	944	24,6	42,5	60,2
	2,2	6,6	1,4	25	30	42	0,6	0,3	40	194	443	117	573	1 338	55,4	96,9	133
	2,2	6,6	1,4	25	30	42	0,6	0,3	23	70	140	67	204	415	50,4	74,7	96,7
	1,6	6,95	1	17	30	42	0,6	0,3	24	64	133	70	189	407	24	34	46
	1,6	6,95	1	25	30	42	0,6	0,3	35	91	190	100	264	555	49	69	90
	1,6	6,95	1	17	30	42	0,6	0,3	22	57	119	63	169	362	24	34	46
	1,6	6,95	1	25	30	42	0,6	0,3	31	82	170	90	236	497	49	68	89
30	1,1	5,3	1,4	15	34	43,5	0,3	0,15	14	68	155	40	210	504	21,1	40	58,3
	1,1	5,3	1,4	25	34	43,5	0,3	0,15	22	112	258	60	322	768	52,5	95,1	132
	1,1	5,3	1,4	25	34	43,5	0,3	0,15	24	72	143	69	209	425	52,5	77,7	101
	1,4	5,35	1	17	34	43,5	0,3	0,15	24	62	131	69	186	400	27	38	51
	1,4	5,35	1	25	34	43,5	0,3	0,15	34	89	185	97	257	541	54	76	99
	1,4	5,35	1	17	34	43,5	0,3	0,15	21	56	117	62	166	356	26	38	51
	1,4	5,35	1	25	34	43,5	0,3	0,15	30	80	166	87	230	484	54	75	98
	2,8	7,2	1,4	15	36	49	1	0,3	35	137	293	104	431	976	26,9	47	67,1
	2,8	7,2	1,4	25	36	49	1	0,3	42	203	465	117	592	1 395	60,1	107	147
	2,8	7,2	1,4	25	36	49	1	0,3	33	98	197	94	287	583	60	88,8	115
	2,4	7,4	1	17	36	49	1	0,3	30	79	166	87	235	507	29	42	56
	2,4	7,4	1	25	36	49	1	0,3	43	113	235	124	327	689	59	83	109
	2,4	7,4	1	17	36	49	1	0,3	27	71	148	78	210	450	29	41	55
	2,4	7,4	1	25	36	49	1	0,3	39	102	211	111	293	616	59	83	108

Super precision angular contact ball bearings

Ceramic balls
Steel rings
Design DLR





d = 35 – 40 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	≈ kg	
35	55	10	12,1	6,5	530	36 000	56 000	0,6	0,6	0,065	**HCB71907-CDLR-T-P4S**
	55	10	11,5	6,2	500	32 000	50 000	0,6	0,6	0,065	**HCB71907-EDLR-T-P4S**
	55	10	6,1	3,45	275	40 000	63 000	0,6	0,6	0,074	**HC71907-EDLR-T-P4S**
	55	10	9,5	4,35	350	45 600	66 700	0,6	0,3	0,061	**HCM71907-CDLR-T-P4S-XL**
	55	10	9,1	4,15	335	43 400	62 300	0,6	0,3	0,061	**HCM71907-EDLR-T-P4S-XL**
	55	10	22,7	6,1	310	46 700	73 400	0,6	0,3	0,061	**VCM71907-CDLR-T-P4S-XL**
	55	10	21,7	5,8	300	44 500	66 700	0,6	0,3	0,061	**VCM71907-EDLR-T-P4S-XL**
	62	14	19,4	9,2	740	34 000	53 000	1	1	0,134	**HCB7007-CDLR-T-P4S**
	62	14	18,5	8,8	710	30 000	45 000	1	1	0,134	**HCB7007-EDLR-T-P4S**
	62	14	8,4	4,5	365	38 000	60 000	1	1	0,162	**HC7007-EDLR-T-P4S**
	62	14	11,3	5	405	42 300	61 900	1	0,6	0,14	**HCM7007-CDLR-T-P4S-XL**
	62	14	10,8	4,85	390	40 300	57 800	1	0,6	0,14	**HCM7007-EDLR-T-P4S-XL**
	62	14	27	7,1	360	43 300	68 100	1	0,6	0,14	**VCM7007-CDLR-T-P4S-XL**
	62	14	26	6,8	345	41 300	61 900	1	0,6	0,14	**VCM7007-EDLR-T-P4S-XL**
40	62	12	18,1	9,4	760	32 000	50 000	0,6	0,6	0,086	**HCB71908-CDLR-T-P4S**
	62	12	17,2	9	720	28 000	45 000	0,6	0,6	0,086	**HCB71908-EDLR-T-P4S**
	62	12	6,4	3,9	315	36 000	56 000	0,6	0,6	0,119	**HC71908-EDLR-T-P4S**
	62	12	11,6	5,4	435	40 200	58 900	0,6	0,3	0,089	**HCM71908-CDLR-T-P4S-XL**
	62	12	11,1	5,1	415	38 300	55 000	0,6	0,3	0,089	**HCM71908-EDLR-T-P4S-XL**
	62	12	28	7,5	385	41 200	64 800	0,6	0,3	0,089	**VCM71908-CDLR-T-P4S-XL**
	62	12	26,5	7,2	365	39 300	58 900	0,6	0,3	0,089	**VCM71908-EDLR-T-P4S-XL**
	68	15	20,9	10,7	860	30 000	45 000	1	1	0,164	**HCB7008-CDLR-T-P4S**
	68	15	19,9	10,2	820	28 000	43 000	1	1	0,164	**HCB7008-EDLR-T-P4S**
	68	15	8,9	5,2	415	34 000	53 000	1	1	0,202	**HC7008-EDLR-T-P4S**
	68	15	11,9	5,7	460	38 000	55 600	1	0,6	0,18	**HCM7008-CDLR-T-P4S-XL**
	68	15	11,4	5,5	440	36 200	51 900	1	0,6	0,18	**HCM7008-EDLR-T-P4S-XL**
	68	15	28,5	8	410	38 900	61 200	1	0,6	0,18	**VCM7008-CDLR-T-P4S-XL**
	68	15	27,5	7,7	390	37 100	55 600	1	0,6	0,18	**VCM7008-EDLR-T-P4S-XL**

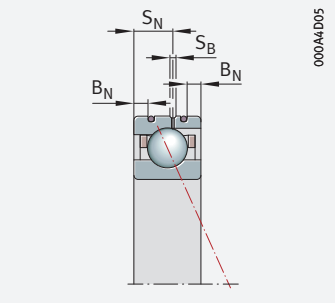
medias *https://www.schaeffler.de/std/1F9A*

[1] The limiting speeds are based on elastically preloaded single bearings.

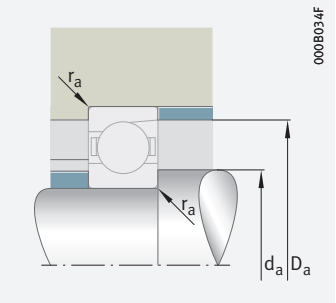
[2] Explanation of designations SP 1.

[3] L = light preload; M = moderate preload; H = high preload.

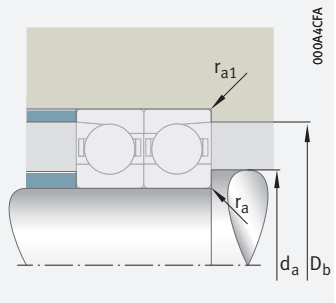
[4] Minimal quantity oil lubrication.



Design DLR



Mounting dimensions

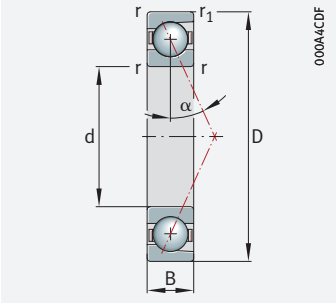


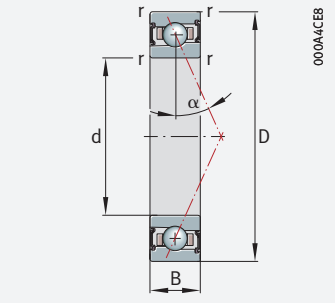
Mounting dimensions

Dimensions				Contact angle	Mounting dimensions				Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	B_N	S_N	S_B	α	d_a h12	D_a H12	r_a	r_{a1}	L	M	H	L	M	H	L	M	H
				°			max.	max.	N	N	N	N	N	N	N/µm	N/µm	N/µm
35	1,6	5,8	1,4	15	40	51,5	0,6	0,15	21	96	213	63	301	709	26,7	49,1	71
	1,6	5,8	1,4	25	40	51,5	0,6	0,15	33	158	359	95	463	1 081	66,7	117	161
	1,6	5,8	1,4	25	40	51,5	0,6	0,15	26	78	155	74	226	459	60,5	89,4	116
	2	5,9	1,4	17	40	51,5	0,6	0,15	34	89	186	98	264	569	33	47	63
	2	5,9	1,4	25	40	51,5	0,6	0,15	48	127	264	139	367	773	66	93	121
	2	5,9	1,4	17	40	51,5	0,6	0,15	30	79	166	88	235	506	32	46	62
	2	5,9	1,4	25	40	51,5	0,6	0,15	44	114	237	125	329	692	66	92	120
	2,8	8	1,4	15	41	56	1	0,3	46	175	372	138	558	1 255	32	55,5	78,9
	2,8	8	1,4	25	41	56	1	0,3	54	257	585	157	761	1 771	72,1	126	173
	2,8	8	1,4	25	41	56	1	0,3	35	105	210	101	307	623	67,3	99,5	129
	2,4	8,05	1,4	17	41	56	1	0,3	39	103	217	114	307	663	33	48	64
	2,4	8,05	1,4	25	41	56	1	0,3	57	148	308	162	428	901	68	95	124
	2,4	8,05	1,4	17	41	56	1	0,3	35	93	194	102	274	589	33	47	63
	2,4	8,05	1,4	25	41	56	1	0,3	51	133	276	145	383	806	68	95	123
40	2,2	6,6	1,4	15	45	58,5	0,6	0,15	39	156	337	116	494	1 127	33,5	59,2	84,7
	2,2	6,6	1,4	25	45	58,5	0,6	0,15	41	220	514	117	645	1 548	72,4	132	183
	2,2	6,6	1,4	25	45	58,5	0,6	0,15	27	82	164	78	238	484	66,4	98	127
	2,2	6,9	1,4	17	45	58,5	0,6	0,15	42	110	231	121	327	706	35	51	68
	2,2	6,9	1,4	25	45	58,5	0,6	0,15	60	157	327	172	456	960	72	101	132
	2,2	6,9	1,4	17	45	58,5	0,6	0,15	37	99	207	109	292	628	35	50	67
	2,2	6,9	1,4	25	45	58,5	0,6	0,15	54	141	294	155	408	858	72	100	131
	2,8	8,5	1,4	15	46	62	1	0,3	49	188	402	146	597	1 350	36,1	63,1	89,9
	2,8	8,5	1,4	25	46	62	1	0,3	55	271	622	159	797	1 875	80	142	195
	2,8	8,5	1,4	25	46	62	1	0,3	37	110	221	106	321	652	74,2	110	142
	2,6	8,55	1,4	17	46	62	1	0,3	44	117	245	129	348	751	37	54	72
	2,6	8,55	1,4	25	46	62	1	0,3	64	167	348	183	484	1 020	76	107	139
	2,6	8,55	1,4	17	46	62	1	0,3	40	105	220	116	311	668	37	53	71
	2,6	8,55	1,4	25	46	62	1	0,3	57	150	312	164	434	912	76	106	138

Super precision angular contact ball bearings

Ceramic balls
Steel rings
Design DLR



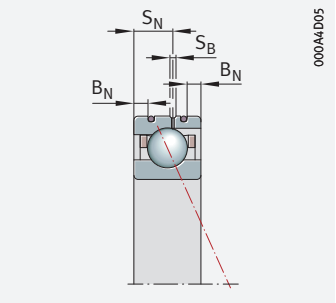


d = 45 – 50 mm

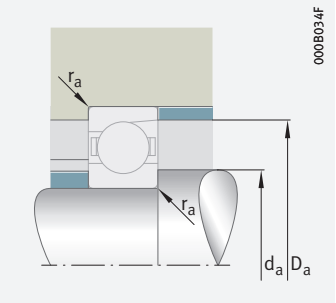
Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	≈ kg	
45	68	12	19,2	10,7	860	28 000	45 000	0,6	0,6	0,107	**HCB71909-CDLR-T-P4S**
	68	12	18,2	10,2	820	26 000	40 000	0,6	0,6	0,107	**HCB71909-EDLR-T-P4S**
	68	12	9,1	5,4	435	32 000	50 000	0,6	0,6	0,129	**HC71909-EDLR-T-P4S**
	68	12	12,3	6	485	36 300	53 100	0,6	0,3	0,11	**HCM71909-CDLR-T-P4S-XL**
	68	12	11,7	5,8	465	34 600	49 600	0,6	0,3	0,11	**HCM71909-EDLR-T-P4S-XL**
	68	12	29,5	8,5	430	37 200	58 500	0,6	0,3	0,11	**VCM71909-CDLR-T-P4S-XL**
	68	12	28	8,1	415	35 400	53 100	0,6	0,3	0,11	**VCM71909-EDLR-T-P4S-XL**
	75	16	28	14,3	1 150	26 000	40 000	1	1	0,191	**HCB7009-CDLR-T-P4S**
	75	16	26,5	13,6	1 090	24 000	38 000	1	1	0,191	**HCB7009-EDLR-T-P4S**
	75	16	11,6	6,8	550	30 000	48 000	1	1	0,248	**HC7009-EDLR-T-P4S**
	75	16	12,9	6,7	540	33 700	49 200	1	0,6	0,23	**HCM7009-CDLR-T-P4S-XL**
	75	16	12,3	6,4	520	32 000	46 000	1	0,6	0,23	**HCM7009-EDLR-T-P4S-XL**
	75	16	31	9,4	480	34 500	54 100	1	0,6	0,23	**VCM7009-CDLR-T-P4S-XL**
	75	16	29,5	9	455	32 800	49 200	1	0,6	0,23	**VCM7009-EDLR-T-P4S-XL**
50	72	12	19,6	11,4	920	26 000	40 000	0,6	0,6	0,102	**HCB71910-CDLR-T-P4S**
	72	12	18,6	10,8	870	24 000	36 000	0,6	0,6	0,102	**HCB71910-EDLR-T-P4S**
	72	12	9,4	5,8	470	30 000	48 000	0,6	0,6	0,13	**HC71910-EDLR-T-P4S**
	72	12	12,9	6,7	540	33 700	49 200	0,6	0,3	0,11	**HCM71910-CDLR-T-P4S-XL**
	72	12	12,3	6,4	520	32 000	46 000	0,6	0,3	0,11	**HCM71910-EDLR-T-P4S-XL**
	72	12	31	9,4	480	34 500	54 100	0,6	0,3	0,11	**VCM71910-CDLR-T-P4S-XL**
	72	12	29,5	9	455	32 800	49 200	0,6	0,3	0,11	**VCM71910-EDLR-T-P4S-XL**
	80	16	29	15,4	1 240	24 000	38 000	1	1	0,205	**HCB7010-CDLR-T-P4S**
	80	16	27,5	14,7	1 180	22 000	34 000	1	1	0,206	**HCB7010-EDLR-T-P4S**
	80	16	12,1	7,4	600	28 000	43 000	1	1	0,262	**HC7010-EDLR-T-P4S**
	80	16	13,1	7,1	570	31 600	46 200	1	0,6	0,26	**HCM7010-CDLR-T-P4S-XL**
	80	16	12,5	6,7	540	30 000	43 100	1	0,6	0,26	**HCM7010-EDLR-T-P4S-XL**
	80	16	31,5	9,9	500	32 400	50 800	1	0,6	0,26	**VCM7010-CDLR-T-P4S-XL**
	80	16	30	9,4	480	30 800	46 200	1	0,6	0,26	**VCM7010-EDLR-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

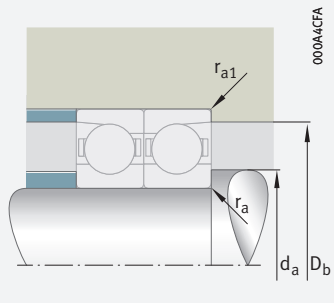
1) The limiting speeds are based on elastically preloaded single bearings.
2) Explanation of designations SP 1.
3) L = light preload; M = moderate preload; H = high preload.
4) Minimal quantity oil lubrication.



Design DLR



Mounting dimensions

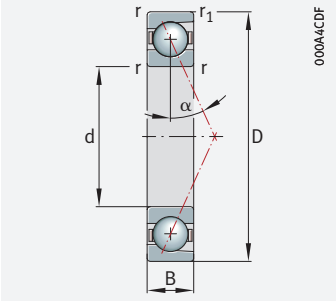


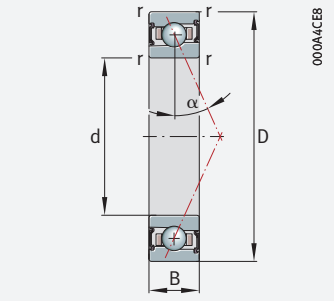
Mounting dimensions

Dimensions				Contact angle	Mounting dimensions				Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	B_N	S_N	S_B	α	d_a h12	D_a H12	r_a	r_{a1}	L	M	H	L	M	H	L	M	H
				°			max.	max.	N	N	N	N	N	N	N/µm	N/µm	N/µm
45	2,2	6,6	1,4	15	50	63,5	0,6	0,15	40	164	355	120	516	1 182	36,2	64,1	91,7
	2,2	6,6	1,4	25	50	63,5	0,6	0,15	42	233	547	121	682	1 643	78,5	144	200
	2,2	6,6	1,4	25	50	63,5	0,6	0,15	38	113	226	108	329	667	76,6	113	146
	2,2	6,9	1,4	17	50	63,5	0,6	0,15	47	124	260	136	368	795	39	57	76
	2,2	6,9	1,4	25	50	63,5	0,6	0,15	68	177	368	194	512	1 078	80	112	146
	2,2	6,9	1,4	17	50	63,5	0,6	0,15	42	111	232	122	329	707	39	56	75
	2,2	6,9	1,4	25	50	63,5	0,6	0,15	61	159	330	174	459	964	80	111	145
	3,4	9,3	1,4	15	51	69	1	0,3	71	261	549	212	827	1 843	41,9	71,9	102
	3,4	9,3	1,4	25	51	69	1	0,3	89	389	869	254	1 145	2 622	95,8	163	223
	3,4	9,3	1,4	25	51	69	1	0,3	48	143	286	137	417	848	84,4	125	161
	2,6	9,3	1,4	17	51	69	1	0,3	52	137	288	151	408	881	43	62	84
	2,6	9,3	1,4	25	51	69	1	0,3	75	196	407	214	567	1 194	88	123	161
	2,6	9,3	1,4	17	51	69	1	0,3	47	123	258	135	364	784	43	62	82
	2,6	9,3	1,4	25	51	69	1	0,3	67	176	365	192	508	1 068	88	123	160
50	2,2	6,6	1,4	15	55	67,5	0,6	0,15	41	167	362	121	525	1 205	37,5	66,4	95
	2,2	6,6	1,4	25	55	67,5	0,6	0,15	40	229	542	115	671	1 626	79,7	148	205
	2,2	6,6	1,4	25	55	67,5	0,6	0,15	39	116	231	110	336	682	80,9	119	154
	2,2	7	1,4	17	55	67,5	0,6	0,15	52	137	288	151	408	881	43	62	84
	2,2	7	1,4	25	55	67,5	0,6	0,15	75	196	407	214	567	1 194	88	123	161
	2,2	7	1,4	17	55	67,5	0,6	0,15	47	123	258	135	364	784	43	62	82
	2,2	7	1,4	25	55	67,5	0,6	0,15	67	176	365	192	508	1 068	88	123	160
	3,4	9,3	1,4	15	56	74	1	0,3	73	268	566	217	848	1 894	43,9	75,3	107
	3,4	9,3	1,4	25	56	74	1	0,3	90	400	895	259	1 175	2 697	100	171	234
	3,4	9,3	1,4	25	56	74	1	0,3	50	149	298	143	435	883	90	133	172
	2,6	9,3	1,4	17	56	74	1	0,3	55	144	303	159	430	928	45	65	88
	2,6	9,3	1,4	25	56	74	1	0,3	79	206	429	225	596	1 257	92	129	169
	2,6	9,3	1,4	17	56	74	1	0,3	49	129	271	143	384	825	45	64	86
	2,6	9,3	1,4	25	56	74	1	0,3	71	185	385	202	534	1 124	92	128	167

Super precision angular contact ball bearings

Ceramic balls
Steel rings
Design DLR





d = 55 – 60 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	≈ kg	
55	80	13	23,5	13,8	1 110	24 000	36 000	1	1	0,14	**HCB71911-CDLR-T-P4S**
	80	13	22,3	13,1	1 060	22 000	32 000	1	1	0,14	**HCB71911-EDLR-T-P4S**
	80	13	12,3	7,7	620	28 000	43 000	1	1	0,166	**HC71911-EDLR-T-P4S**
	80	13	18,5	9,5	760	30 400	44 500	1	0,6	0,13	**HCM71911-CDLR-T-P4S-XL**
	80	13	17,7	9,1	730	28 900	41 500	1	0,6	0,13	**HCM71911-EDLR-T-P4S-XL**
	80	13	44,5	13,3	680	31 200	48 900	1	0,6	0,13	**VCM71911-CDLR-T-P4S-XL**
	80	13	42,5	12,7	650	29 700	44 500	1	0,6	0,13	**VCM71911-EDLR-T-P4S-XL**
	90	18	39	21,2	1 710	22 000	34 000	1,1	1,1	0,302	**HCB7011-CDLR-T-P4S**
	90	18	37	20,1	1 620	20 000	30 000	1,1	1,1	0,302	**HCB7011-EDLR-T-P4S**
	90	18	17	10,4	840	26 000	40 000	1,1	1,1	0,378	**HC7011-EDLR-T-P4S**
	90	18	19,5	10,5	850	28 300	41 400	1,1	0,6	0,36	**HCM7011-CDLR-T-P4S-XL**
	90	18	18,6	10	810	26 900	38 700	1,1	0,6	0,36	**HCM7011-EDLR-T-P4S-XL**
	90	18	46,5	14,7	750	29 000	45 600	1,1	0,6	0,36	**VCM7011-CDLR-T-P4S-XL**
	90	18	44,5	14	720	27 600	41 400	1,1	0,6	0,36	**VCM7011-EDLR-T-P4S-XL**
60	85	13	24,7	15,3	1 230	22 000	34 000	1	1	0,151	**HCB71912-CDLR-T-P4S**
	85	13	23,4	14,5	1 170	20 000	30 000	1	1	0,151	**HCB71912-EDLR-T-P4S**
	85	13	12,7	8,3	670	26 000	40 000	1	1	0,18	**HC71912-EDLR-T-P4S**
	85	13	19,5	10,5	850	28 300	41 400	1	0,6	0,14	**HCM71912-CDLR-T-P4S-XL**
	85	13	18,6	10	810	26 900	38 700	1	0,6	0,14	**HCM71912-EDLR-T-P4S-XL**
	85	13	46,5	14,7	750	29 000	45 600	1	0,6	0,14	**VCM71912-CDLR-T-P4S-XL**
	85	13	44,5	14	720	27 600	41 400	1	0,6	0,14	**VCM71912-EDLR-T-P4S-XL**
	95	18	40	22,7	1 830	20 000	32 000	1,1	1,1	0,326	**HCB7012-CDLR-T-P4S**
	95	18	38	21,6	1 740	19 000	28 000	1,1	1,1	0,326	**HCB7012-EDLR-T-P4S**
	95	18	17,6	11,3	910	24 000	36 000	1,1	1,1	0,404	**HC7012-EDLR-T-P4S**
	95	18	19,8	11,1	890	26 500	38 800	1,1	0,6	0,39	**HCM7012-CDLR-T-P4S-XL**
	95	18	18,9	10,6	850	25 200	36 200	1,1	0,6	0,39	**HCM7012-EDLR-T-P4S-XL**
	95	18	47,5	15,5	790	27 100	42 600	1,1	0,6	0,39	**VCM7012-CDLR-T-P4S-XL**
	95	18	45,5	14,8	750	25 900	38 800	1,1	0,6	0,39	**VCM7012-EDLR-T-P4S-XL**

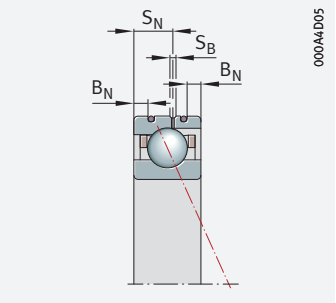
medias *https://www.schaeffler.de/std/1F9A*

[1] The limiting speeds are based on elastically preloaded single bearings.

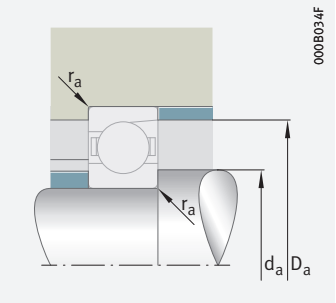
[2] Explanation of designations SP 1.

[3] L = light preload; M = moderate preload; H = high preload.

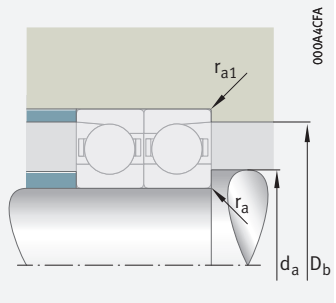
[4] Minimal quantity oil lubrication.



Design DLR



Mounting dimensions

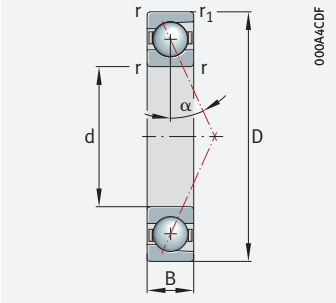


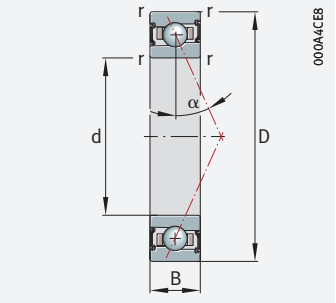
Mounting dimensions

Dimensions				Contact angle	Mounting dimensions				Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	B_N	S_N	S_B	α	d_a h12	D_a H12	r_a	r_{a1}	L	M	H	L	M	H	L	M	H
				°			max.	max.	N	N	N	N	N	N	N/µm	N/µm	N/µm
55	2,8	7,2	1,4	15	60	75,5	0,6	0,3	53	208	447	157	654	1 487	42,4	74,1	106
	2,8	7,2	1,4	25	60	75,5	0,6	0,3	57	296	686	164	867	2 058	93	167	230
	2,8	7,2	1,4	25	60	75,5	0,6	0,3	51	152	304	145	442	897	92,7	137	177
	2,8	7,6	1,4	17	60	75,5	0,6	0,3	73	194	406	213	576	1 243	49	71	95
	2,8	7,6	1,4	25	60	75,5	0,6	0,3	106	277	575	303	801	1 687	100	140	183
	2,8	7,6	1,4	17	60	75,5	0,6	0,3	66	174	363	191	514	1 105	49	70	94
	2,8	7,6	1,4	25	60	75,5	0,6	0,3	95	249	516	272	718	1 509	100	139	182
	4,3	9,7	1,4	15	62	83	1	0,6	102	366	765	305	1 158	2 559	51,9	87,9	124
	4,3	9,7	1,4	25	62	83	1	0,6	136	562	1 236	390	1 653	3 728	121	203	275
	4,3	9,7	1,4	25	62	83	1	0,6	70	210	421	201	613	1 244	105	155	201
	2,8	10,15	1,4	17	62	83	1	0,6	81	214	450	236	638	1 378	54	78	105
	2,8	10,15	1,4	25	62	83	1	0,6	117	306	637	335	887	1 869	110	154	201
	2,8	10,15	1,4	17	62	83	1	0,6	73	192	403	212	570	1 225	54	77	103
	2,8	10,15	1,4	25	62	83	1	0,6	105	275	572	301	794	1 671	109	153	200
60	2,8	7,2	1,4	15	65	80,5	0,6	0,3	54	214	462	159	671	1 530	45,1	79	112
	2,8	7,2	1,4	25	65	80,5	0,6	0,3	57	303	707	163	887	2 118	98,5	179	246
	2,8	7,2	1,4	25	65	80,5	0,6	0,3	52	155	311	148	452	917	97,7	144	186
	2,8	7,6	1,4	17	65	80,5	0,6	0,3	81	214	450	236	638	1 378	54	78	105
	2,8	7,6	1,4	25	65	80,5	0,6	0,3	117	306	637	335	887	1 869	110	154	201
	2,8	7,6	1,4	17	65	80,5	0,6	0,3	73	192	403	212	570	1 225	54	77	103
	2,8	7,6	1,4	25	65	80,5	1	0,6	105	275	572	301	794	1 671	109	153	200
	4,3	9,7	1,4	15	67	88	1	0,6	106	379	794	315	1 198	2 651	54,4	92,2	130
	4,3	9,7	1,4	25	67	88	1	0,6	136	569	1 256	391	1 673	3 782	126	211	286
	4,3	9,7	1,4	25	67	88	1	0,6	73	219	438	209	638	1 294	112	165	213
	2,8	10,15	1,4	17	67	88	1	0,6	86	226	474	249	673	1 453	57	81	110
	2,8	10,15	1,4	25	67	88	1	0,6	123	323	671	353	934	1 968	115	161	211
	2,8	10,15	1,4	17	67	88	1	0,6	77	203	424	223	601	1 292	56	81	108
	2,8	10,15	1,4	25	67	88	1	0,6	111	290	602	317	837	1 760	115	160	209

Super precision angular contact ball bearings

Ceramic balls
Steel rings
Design DLR





d = 65 – 70 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	≈ kg	
65	90	13	25	16,1	1 300	20 000	32 000	1	1	0,161	**HCB71913-CDLR-T-P4S**
	90	13	23,8	15,3	1 230	19 000	28 000	1	1	0,161	**HCB71913-EDLR-T-P4S**
	90	13	13	8,9	720	24 000	36 000	1	1	0,19	**HC71913-EDLR-T-P4S**
	90	13	19,8	11,1	890	26 500	38 800	1	0,6	0,15	**HCM71913-CDLR-T-P4S-XL**
	90	13	18,9	10,6	850	25 200	36 200	1	0,6	0,15	**HCM71913-EDLR-T-P4S-XL**
	90	13	47,5	15,5	790	27 100	42 600	1	0,6	0,15	**VCM71913-CDLR-T-P4S-XL**
	90	13	45,5	14,8	750	25 900	38 800	1	0,6	0,15	**VCM71913-EDLR-T-P4S-XL**
	100	18	41,5	24,3	1 960	19 000	30 000	1,1	1,1	0,343	**HCB7013-CDLR-T-P4S**
	100	18	39,5	23,1	1 860	17 000	26 000	1,1	1,1	0,344	**HCB7013-EDLR-T-P4S**
	100	18	18,2	12,2	980	22 000	34 000	1,1	1,1	0,427	**HC7013-EDLR-T-P4S**
	100	18	20,1	11,6	940	24 900	36 400	1,1	0,6	0,41	**HCM7013-CDLR-T-P4S-XL**
	100	18	19,2	11,1	890	23 700	34 000	1,1	0,6	0,41	**HCM7013-EDLR-T-P4S-XL**
	100	18	48	16,3	830	25 500	40 000	1,1	0,6	0,41	**VCM7013-CDLR-T-P4S-XL**
	100	18	46	15,5	790	24 300	36 400	1,1	0,6	0,41	**VCM7013-EDLR-T-P4S-XL**
70	100	16	34,5	22	1 770	19 000	28 000	1	1	0,268	**HCB71914-CDLR-T-P4S**
	100	16	32,5	20,8	1 680	17 000	26 000	1	1	0,268	**HCB71914-EDLR-T-P4S**
	100	16	16,8	11,7	940	22 000	34 000	1	1	0,322	**HC71914-EDLR-T-P4S**
	100	16	27	15	1 210	24 200	35 300	1	0,6	0,25	**HCM71914-CDLR-T-P4S-XL**
	100	16	26	14,3	1 150	23 000	33 000	1	0,6	0,25	**HCM71914-EDLR-T-P4S-XL**
	100	16	65	21	1 070	24 800	38 900	1	0,6	0,25	**VCM71914-CDLR-T-P4S-XL**
	100	16	62	20,1	1 020	23 600	35 300	1	0,6	0,25	**VCM71914-EDLR-T-P4S-XL**
	110	20	50	29,5	2 360	18 000	28 000	1,1	1,1	0,48	**HCB7014-CDLR-T-P4S**
	110	20	48	28	2 240	16 000	24 000	1,1	1,1	0,48	**HCB7014-EDLR-T-P4S**
	110	20	23,7	15,6	1 260	20 000	32 000	1,1	1,1	0,596	**HC7014-EDLR-T-P4S**
	110	20	27,5	15,8	1 270	22 800	33 400	1,1	0,6	0,56	**HCM7014-CDLR-T-P4S-XL**
	110	20	26,5	15,1	1 210	21 700	31 200	1,1	0,6	0,56	**HCM7014-EDLR-T-P4S-XL**
	110	20	66	22,1	1 130	23 400	36 700	1,1	0,6	0,56	**VCM7014-CDLR-T-P4S-XL**
	110	20	63	21,1	1 080	22 300	33 400	1,1	0,6	0,56	**VCM7014-EDLR-T-P4S-XL**

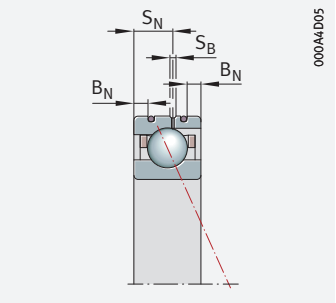
medias *https://www.schaeffler.de/std/1F9A*

[1] The limiting speeds are based on elastically preloaded single bearings.

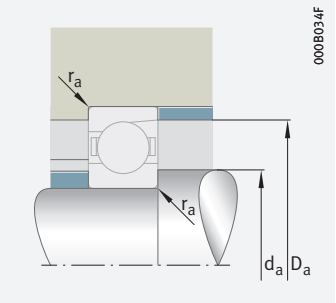
[2] Explanation of designations SP 1.

[3] L = light preload; M = moderate preload; H = high preload.

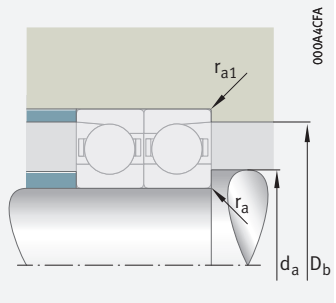
[4] Minimal quantity oil lubrication.



Design DLR



Mounting dimensions

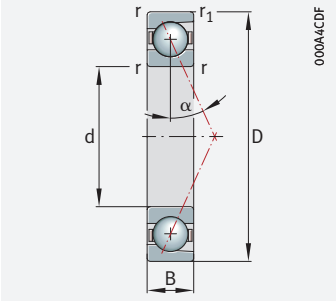


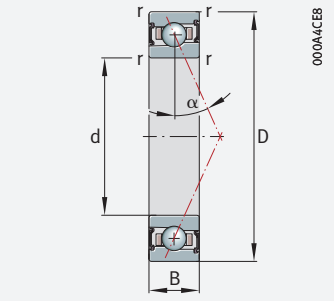
Mounting dimensions

Dimensions				Contact angle	Mounting dimensions				Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	B_N	S_N	S_B	α	d_a h12	D_a H12	r_a	r_{a1}	L	M	H	L	M	H	L	M	H
				°			max.	max.	N	N	N	N	N	N	N/µm	N/µm	N/µm
65	2,8	7,2	1,4	15	70	85,5	0,6	0,3	55	219	473	161	684	1 562	46,6	81,7	116
	2,8	7,2	1,4	25	70	85,5	0,6	0,3	58	309	723	165	904	2 165	102	185	255
	2,8	7,2	1,4	25	70	85,5	0,6	0,3	53	160	321	153	466	946	103	152	196
	2,8	7,6	1,4	17	70	85,5	0,6	0,3	86	226	474	249	673	1 453	57	81	110
	2,8	7,6	1,4	25	70	85,5	0,6	0,3	123	323	671	353	934	1 968	115	161	211
	2,8	7,6	1,4	17	70	85,5	0,6	0,3	77	203	424	223	601	1 292	56	81	108
	2,8	7,6	1,4	25	70	85,5	1	0,6	111	290	602	317	837	1 760	115	160	209
	4	10,4	1,4	15	72	93	1	0,6	107	385	808	318	1 213	2 688	56,4	95,6	135
	4	10,4	1,4	25	72	93	1	0,6	137	577	1 276	392	1 694	3 836	131	219	297
	4	10,4	1,4	25	72	93	1	0,6	74	223	445	213	647	1 313	118	173	224
	2,8	10,4	1,4	17	72	93	1	0,6	90	237	498	262	707	1 528	59	85	115
	2,8	10,4	1,4	25	72	93	1	0,6	129	339	705	371	981	2 067	120	169	220
	2,8	10,4	1,4	17	72	93	1	0,6	81	213	446	234	631	1 358	59	84	113
	2,8	10,4	1,4	25	72	93	1	0,6	116	304	632	333	879	1 849	120	168	218
70	3,1	9,3	1,4	15	76	94,5	0,6	0,3	83	312	665	245	980	2 200	55,5	95,3	135
	3,1	9,3	1,4	25	76	94,5	0,6	0,3	98	459	1 040	281	1 343	3 118	126	218	298
	3,1	9,3	1,4	25	76	94,5	0,6	0,3	69	207	414	198	602	1 221	117	173	223
	2,8	9,3	1,4	17	76	94,5	0,6	0,3	116	306	641	337	910	1 965	65	93	125
	2,8	9,3	1,4	25	76	94,5	0,6	0,3	167	437	909	478	1 265	2 665	132	184	241
	2,8	9,3	1,4	17	76	94,5	0,6	0,3	104	274	574	302	812	1 747	64	92	123
	2,8	9,3	1,4	25	76	94,5	0,6	0,3	150	393	816	429	1 133	2 383	131	183	239
	4	11,6	1,4	15	77	102	1	0,6	139	487	1 014	414	1 538	3 380	62,3	105	147
	4	11,6	1,4	25	77	102	1	0,6	188	749	1 633	540	2 203	4 915	147	242	326
	4	11,6	1,4	25	77	102	1	0,6	98	293	587	280	853	1 731	130	192	248
	3	11,6	1,4	17	77	102	1	0,6	122	322	675	355	958	2 069	68	97	131
	3	11,6	1,4	25	77	102	1	0,6	176	460	956	503	1 331	2 804	138	193	252
	3	11,6	1,4	17	77	102	1	0,6	110	289	605	318	855	1 839	67	96	129
	3	11,6	1,4	25	77	102	1,1	0,6	158	413	858	451	1 192	2 508	137	192	250

Super precision angular contact ball bearings

Ceramic balls
Steel rings
Design DLR





d = 75 – 80 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	≈ kg	
75	105	16	35	23,1	1 860	18 000	28 000	1	1	0,277	**HCB71915-CDLR-T-P4S**
	105	16	33	21,9	1 770	16 000	24 000	1	1	0,277	**HCB71915-EDLR-T-P4S**
	105	16	17,3	12,5	1 000	20 000	32 000	1	1	0,345	**HC71915-EDLR-T-P4S**
	105	16	27,5	15,8	1 270	22 800	33 400	1	0,6	0,27	**HCM71915-CDLR-T-P4S-XL**
	105	16	26,5	15,1	1 210	21 700	31 200	1	0,6	0,27	**HCM71915-EDLR-T-P4S-XL**
	105	16	66	22,1	1 130	23 400	36 700	1	0,6	0,27	**VCM71915-CDLR-T-P4S-XL**
	105	16	63	21,1	1 080	22 300	33 400	1	0,6	0,27	**VCM71915-EDLR-T-P4S-XL**
	115	20	52	31,5	2 500	17 000	26 000	1,1	1,1	0,5	**HCB7015-CDLR-T-P4S**
	115	20	49,5	29,5	2 390	15 000	24 000	1,1	1,1	0,5	**HCB7015-EDLR-T-P4S**
	115	20	24	16,2	1 310	19 000	30 000	1,1	1,1	0,624	**HC7015-EDLR-T-P4S**
	115	20	28	16,6	1 330	21 600	31 600	1,1	0,6	0,59	**HCM7015-CDLR-T-P4S-XL**
	115	20	27	15,8	1 270	20 600	29 500	1,1	0,6	0,59	**HCM7015-EDLR-T-P4S-XL**
	115	20	67	23,2	1 180	22 200	34 800	1,1	0,6	0,59	**VCM7015-CDLR-T-P4S-XL**
	115	20	64	22,1	1 130	21 100	31 600	1,1	0,6	0,59	**VCM7015-EDLR-T-P4S-XL**
80	110	16	36	24,3	1 960	17 000	26 000	1	1	0,295	**HCB71916-CDLR-T-P4S**
	110	16	34	23	1 850	15 000	24 000	1	1	0,295	**HCB71916-EDLR-T-P4S**
	110	16	19,2	14	1 130	19 000	30 000	1	1	0,342	**HC71916-EDLR-T-P4S**
	110	16	28	16,6	1 330	21 600	31 600	1	0,6	0,28	**HCM71916-CDLR-T-P4S-XL**
	110	16	27	15,8	1 270	20 600	29 500	1	0,6	0,28	**HCM71916-EDLR-T-P4S-XL**
	110	16	67	23,2	1 180	22 200	34 800	1	0,6	0,28	**VCM71916-CDLR-T-P4S-XL**
	110	16	64	22,1	1 130	21 100	31 600	1	0,6	0,28	**VCM71916-EDLR-T-P4S-XL**
	125	22	65	39	3 100	15 000	24 000	1,1	1,1	0,69	**HCB7016-CDLR-T-P4S**
	125	22	61	37,5	2 950	14 000	22 000	1,1	1,1	0,69	**HCB7016-EDLR-T-P4S**
	125	22	28,5	19,7	1 570	18 000	28 000	1,1	1,1	0,86	**HC7016-EDLR-T-P4S**
	125	22	34	21,8	1 730	20 000	29 300	1,1	0,6	0,81	**HCM7016-CDLR-T-P4S-XL**
	125	22	32,5	20,8	1 660	19 100	27 400	1,1	0,6	0,81	**HCM7016-EDLR-T-P4S-XL**
	125	22	82	30,5	1 540	20 500	31 900	1,1	0,6	0,81	**VCM7016-CDLR-T-P4S-XL**
	125	22	78	29	1 470	19 600	29 300	1,1	0,6	0,81	**VCM7016-EDLR-T-P4S-XL**

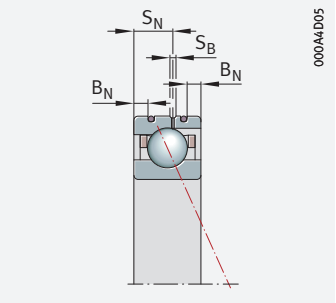
medias *https://www.schaeffler.de/std/1F9A*

[1] The limiting speeds are based on elastically preloaded single bearings.

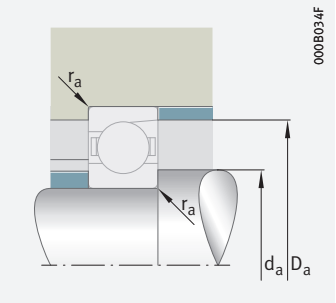
[2] Explanation of designations SP 1.

[3] L = light preload; M = moderate preload; H = high preload.

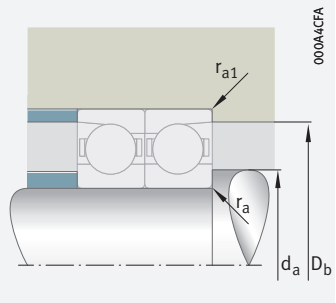
[4] Minimal quantity oil lubrication.



Design DLR



Mounting dimensions

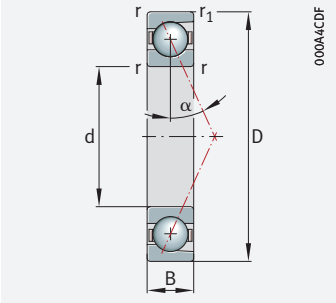


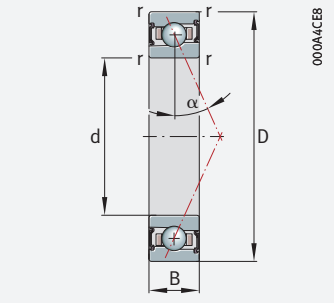
Mounting dimensions

Dimensions				Contact angle	Mounting dimensions				Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	B_N	S_N	S_B	α	d_a h12	D_a H12	r_a	r_{a1}	L	M	H	L	M	H	L	M	H
				°			max.	max.	N	N	N	N	N	N	N/µm	N/µm	N/µm
75	3,1	9,3	1,4	15	81	99,5	0,6	0,3	83	317	676	247	991	2 229	57,1	98,2	139
	3,1	9,3	1,4	25	81	99,5	0,6	0,3	95	454	1 034	273	1 328	3 094	128	223	305
	3,1	9,3	1,4	25	81	99,5	0,6	0,3	70	210	421	201	611	1 240	123	181	233
	2,8	9,3	1,4	17	81	99,5	0,6	0,3	122	322	675	355	958	2 069	68	97	131
	2,8	9,3	1,4	25	81	99,5	0,6	0,3	176	460	956	503	1 331	2 804	138	193	252
	2,8	9,3	1,4	17	81	99,5	0,6	0,3	110	289	605	318	855	1 839	67	96	129
	2,8	9,3	1,4	25	81	99,5	0,6	0,3	158	413	858	451	1 192	2 508	137	192	250
	4	11,6	1,4	15	82	107	1	0,6	145	508	1 059	431	1 603	3 524	65,4	110	154
	4	11,6	1,4	25	82	107	1	0,6	192	769	1 679	551	2 260	5 050	153	253	341
	4	11,6	1,4	25	82	107	1	0,6	99	298	597	285	868	1 761	134	197	255
	3	11,6	1,4	17	82	107	1	0,6	128	338	709	373	1 006	2 173	71	102	137
	3	11,6	1,4	25	82	107	1	0,6	184	483	1 003	528	1 396	2 943	144	202	263
	3	11,6	1,4	17	82	107	1	0,6	115	303	635	334	898	1 932	70	101	135
	3	11,6	1,4	25	82	107	1	0,6	166	433	900	474	1 251	2 632	143	200	261
80	3,1	9,3	1,4	15	86	104	0,6	0,3	84	321	686	249	1 004	2 259	58,8	101	143
	3,1	9,3	1,4	25	86	104	0,6	0,3	95	459	1 049	273	1 344	3 137	132	230	315
	3,1	9,3	1,4	25	86	104	0,6	0,3	79	236	473	226	686	1 392	130	192	248
	2,8	9,3	1,4	17	86	104	0,6	0,3	128	338	709	373	1 006	2 173	71	102	137
	2,8	9,3	1,4	25	86	104	0,6	0,3	184	483	1 003	528	1 396	2 943	144	202	263
	2,8	9,3	1,4	17	86	104	0,6	0,3	115	303	635	334	898	1 932	70	101	135
	2,8	9,3	1,4	25	86	104	0,6	0,3	166	433	900	474	1 251	2 632	143	200	261
	4,7	12,2	2,2	15	88	117	1	0,6	186	640	1 327	554	2 020	4 415	74	123	173
	4,7	12,2	2,2	25	88	117	1	0,6	252	977	2 113	726	2 872	6 354	175	284	383
	4,7	12,2	2,2	25	88	117	1	0,6	117	352	704	336	1 023	2 075	146	215	278
	3,3	12,35	2,2	17	88	117	1	0,6	169	447	941	495	1 348	2 936	81	118	161
	3,3	12,35	2,2	25	88	117	1	0,6	243	638	1 328	698	1 855	3 929	164	231	304
	3,3	12,35	2,2	17	88	117	1	0,6	152	401	842	443	1 200	2 604	81	117	158
	3,3	12,35	2,2	25	88	117	1,1	0,6	218	572	1 191	627	1 661	3 509	163	230	301

Super precision angular contact ball bearings

Ceramic balls
Steel rings
Design DLR





d = 85 – 90 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	≈ kg	
85	120	18	47	32	2 550	15 000	24 000	1,1	1,1	0,43	**HCB71917-CDLR-T-P4S**
	120	18	44,5	30	2 410	14 000	22 000	1,1	1,1	0,43	**HCB71917-EDLR-T-P4S**
	120	18	20	15,3	1 220	18 000	28 000	1,1	1,1	0,535	**HC71917-EDLR-T-P4S**
	120	18	31,5	18,5	1 470	20 000	29 300	1,1	0,6	0,43	**HCM71917-CDLR-T-P4S-XL**
	120	18	30	17,6	1 400	19 100	27 400	1,1	0,6	0,43	**HCM71917-EDLR-T-P4S-XL**
	120	18	75	26	1 300	20 500	32 200	1,1	0,6	0,43	**VCM71917-CDLR-T-P4S-XL**
	120	18	72	24,7	1 240	19 600	29 300	1,1	0,6	0,43	**VCM71917-EDLR-T-P4S-XL**
	130	22	67	41,5	3 250	15 000	22 000	1,1	1,1	0,72	**HCB7017-CDLR-T-P4S**
	130	22	63	39,5	3 100	13 000	20 000	1,1	1,1	0,72	**HCB7017-EDLR-T-P4S**
	130	22	29	20,5	1 590	17 000	26 000	1,1	1,1	0,893	**HC7017-EDLR-T-P4S**
	130	22	35,5	23,8	1 850	19 100	28 000	1,1	0,6	0,85	**HCM7017-CDLR-T-P4S-XL**
	130	22	34	22,7	1 760	18 200	26 100	1,1	0,6	0,85	**HCM7017-EDLR-T-P4S-XL**
	130	22	85	33,5	1 640	19 600	29 100	1,1	0,6	0,85	**VCM7017-CDLR-T-P4S-XL**
	130	22	81	32	1 560	18 700	28 000	1,1	0,6	0,85	**VCM7017-EDLR-T-P4S-XL**
90	125	18	48	33,5	2 600	15 000	22 000	1,1	1,1	0,445	**HCB71918-CDLR-T-P4S**
	125	18	45,5	31,5	2 470	13 000	20 000	1,1	1,1	0,445	**HCB71918-EDLR-T-P4S**
	125	18	22	16,9	1 310	17 000	26 000	1,1	1,1	0,55	**HC71918-EDLR-T-P4S**
	125	18	33	20,1	1 560	19 100	28 000	1,1	0,6	0,45	**HCM71918-CDLR-T-P4S-XL**
	125	18	31,5	19,2	1 490	18 200	26 100	1,1	0,6	0,45	**HCM71918-EDLR-T-P4S-XL**
	125	18	79	28	1 390	19 600	30 600	1,1	0,6	0,45	**VCM71918-CDLR-T-P4S-XL**
	125	18	75	27	1 320	18 700	28 000	1,1	0,6	0,45	**VCM71918-EDLR-T-P4S-XL**
	140	24	78	49	3 700	14 000	22 000	1,5	1,5	0,93	**HCB7018-CDLR-T-P4S**
	140	24	74	46,5	3 500	12 000	19 000	1,5	1,5	0,93	**HCB7018-EDLR-T-P4S**
	140	24	34	24	1 810	16 000	24 000	1,5	1,5	1,17	**HC7018-EDLR-T-P4S**
	140	24	39,5	26,5	1 980	17 900	26 100	1,5	1	1,1	**HCM7018-CDLR-T-P4S-XL**
	140	24	37,5	25	1 890	17 000	24 400	1,5	1	1,1	**HCM7018-EDLR-T-P4S-XL**
	140	24	95	37	1 750	18 300	27 600	1,5	1	1,1	**VCM7018-CDLR-T-P4S-XL**
	140	24	90	35	1 670	17 400	26 100	1,5	1	1,1	**VCM7018-EDLR-T-P4S-XL**

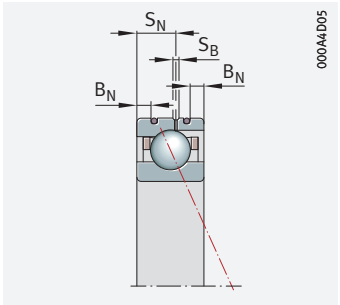
medias *https://www.schaeffler.de/std/1F9A*

[1] The limiting speeds are based on elastically preloaded single bearings.

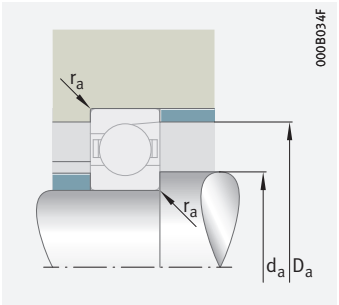
[2] Explanation of designations SP 1.

[3] L = light preload; M = moderate preload; H = high preload.

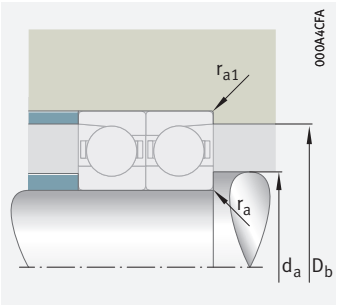
[4] Minimal quantity oil lubrication.



Design DLR



Mounting dimensions

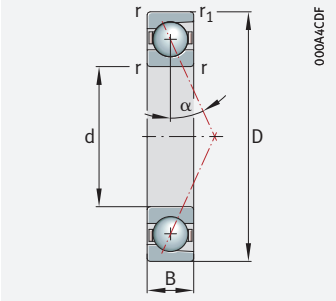


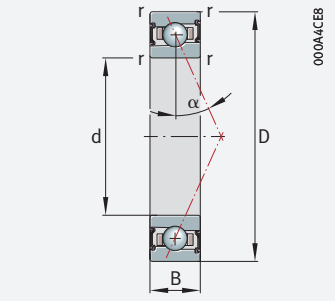
Mounting dimensions

Dimensions				Contact angle	Mounting dimensions				Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	B_N	S_N	S_B	α	d_a h12	D_a H12	r_a	r_{a1}	L	M	H	L	M	H	L	M	H
				°			max.	max.	N	N	N	N	N	N	N/µm	N/µm	N/µm
85	4	10,4	2,2	15	92	114	0,6	0,6	117	428	906	346	1 341	2 985	67,4	114	161
	4	10,4	2,2	25	92	114	0,6	0,6	143	627	1 403	409	1 837	4 197	154	262	356
	4	10,4	2,2	25	92	114	0,6	0,6	82	247	493	236	716	1 452	140	206	265
	3,1	10,4	1,4	17	92	114	0,6	0,6	142	376	788	414	1 118	2 414	73	105	142
	3,1	10,4	1,4	25	92	114	0,6	0,6	205	538	1 118	588	1 556	3 278	149	209	273
	3,1	10,4	1,4	17	92	114	0,6	0,6	128	337	706	371	998	2 146	73	104	139
	3,1	10,4	1,4	25	92	114	0,6	0,6	185	483	1 003	528	1 394	2 932	148	208	270
	4,7	12,2	2,2	15	93	122	1	0,6	189	653	1 356	562	2 058	4 501	76,9	128	179
	4,7	12,2	2,2	25	93	122	1	0,6	256	997	2 159	736	2 927	6 484	181	296	398
	4,7	12,2	2,2	25	93	122	1	0,6	120	359	718	343	1 042	2 115	150	221	286
	3,3	12,35	2,2	17	93	122	1	0,6	184	488	1 026	540	1 470	3 203	88	128	175
	3,3	12,35	2,2	25	93	122	1	0,6	265	695	1 448	761	2 022	4 283	178	251	330
	3,3	12,35	2,2	17	93	122	1	0,6	165	437	918	483	1 309	2 841	88	127	171
	3,3	12,35	2,2	25	93	122	1	0,6	238	624	1 298	683	1 811	3 826	177	249	327
90	4	10,4	2,2	15	97	119	0,6	0,6	118	434	919	349	1 357	3 023	69,4	118	165
	4	10,4	2,2	25	97	119	0,6	0,6	147	648	1 450	421	1 897	4 337	160	272	369
	4	10,4	2,2	25	97	119	0,6	0,6	90	269	538	257	781	1 584	144	212	273
	3,1	10,4	2,2	17	97	119	0,6	0,6	155	410	859	452	1 220	2 633	80	114	154
	3,1	10,4	2,2	25	97	119	0,6	0,6	224	586	1 219	641	1 696	3 574	162	227	296
	3,1	10,4	2,2	17	97	119	0,6	0,6	139	367	769	405	1 089	2 341	79	113	151
	3,1	10,4	2,2	25	97	119	0,6	0,6	201	526	1 093	575	1 520	3 196	161	225	294
	5,5	14,5	2,2	15	100	131	1,5	0,6	230	781	1 613	685	2 464	5 361	82,3	136	191
	5,5	14,5	2,2	25	100	131	1,5	0,6	319	1 201	2 577	916	3 528	7 745	195	316	423
	5,5	14,5	2,2	25	100	131	1,5	0,6	141	423	845	404	1 228	2 490	163	241	310
	4	14,5	2,2	17	100	131	1,5	0,6	205	542	1 140	599	1 632	3 557	91	133	181
	4	14,5	2,2	25	100	131	1,5	0,6	295	772	1 608	846	2 247	4 759	184	260	341
	4	14,5	2,2	17	100	131	1,5	0,6	184	485	1 020	536	1 454	3 155	91	131	177
	4	14,5	2,2	25	100	131	1,5	0,6	265	693	1 443	759	2 012	4 250	183	258	338

Super precision angular contact ball bearings

Ceramic balls
Steel rings
Design DLR





d = 95 – 100 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	≈ kg	
95	130	18	49	35	2 650	14 000	22 000	1,1	1,1	0,462	**HCB71919-CDLR-T-P4S**
	130	18	46	33	2 500	13 000	19 000	1,1	1,1	0,463	**HCB71919-EDLR-T-P4S**
	130	18	22,5	17,9	1 360	16 000	24 000	1,1	1,1	0,57	**HC71919-EDLR-T-P4S**
	130	18	33,5	21	1 600	18 300	26 700	1,1	0,6	0,47	**HCM71919-CDLR-T-P4S-XL**
	130	18	32	20,1	1 520	17 400	24 900	1,1	0,6	0,47	**HCM71919-EDLR-T-P4S-XL**
	130	18	80	29,5	1 420	18 700	28 100	1,1	0,6	0,47	**VCM71919-CDLR-T-P4S-XL**
	130	18	76	28	1 350	17 800	26 700	1,1	0,6	0,47	**VCM71919-EDLR-T-P4S-XL**
	145	24	81	52	3 800	13 000	20 000	1,5	1,5	0,98	**HCB7019-CDLR-T-P4S**
	145	24	77	49,5	3 650	12 000	18 000	1,5	1,5	0,98	**HCB7019-EDLR-T-P4S**
	145	24	34,5	25	1 840	15 000	24 000	1,5	1,5	1,22	**HC7019-EDLR-T-P4S**
	145	24	42	29,5	2 180	17 100	25 000	1,5	1	1,2	**HCM7019-CDLR-T-P4S-XL**
	145	24	40	28,5	2 080	16 300	23 400	1,5	1	1,2	**HCM7019-EDLR-T-P4S-XL**
	145	24	101	41,5	1 930	17 500	25 400	1,5	1	1,2	**VCM7019-CDLR-T-P4S-XL**
	145	24	97	39,5	1 840	16 700	25 000	1,5	1	1,2	**VCM7019-EDLR-T-P4S-XL**
100	140	20	60	43	3 150	13 000	20 000	1,1	1,1	0,64	**HCB71920-CDLR-T-P4S**
	140	20	57	40,5	3 000	12 000	18 000	1,1	1,1	0,64	**HCB71920-EDLR-T-P4S**
	140	20	27	21,2	1 560	15 000	24 000	1,1	1,1	0,8	**HC71920-EDLR-T-P4S**
	140	20	38,5	24,6	1 810	17 100	25 000	1,1	0,6	0,67	**HCM71920-CDLR-T-P4S-XL**
	140	20	36,5	23,5	1 730	16 300	23 400	1,1	0,6	0,67	**HCM71920-EDLR-T-P4S-XL**
	140	20	92	34,5	1 600	17 500	26 600	1,1	0,6	0,67	**VCM71920-CDLR-T-P4S-XL**
	140	20	88	33	1 530	16 700	25 000	1,1	0,6	0,67	**VCM71920-EDLR-T-P4S-XL**
	150	24	83	55	3 950	13 000	19 000	1,5	1,5	1,01	**HCB7020-CDLR-T-P4S**
	150	24	79	52	3 750	11 000	17 000	1,5	1,5	1,01	**HCB7020-EDLR-T-P4S**
	150	24	34,5	26	1 860	15 000	22 000	1,5	1,5	1,27	**HC7020-EDLR-T-P4S**
	150	24	43	31	2 220	16 400	23 500	1,5	1	1,2	**HCM7020-CDLR-T-P4S-XL**
	150	24	41	29,5	2 120	15 600	22 400	1,5	1	1,2	**HCM7020-EDLR-T-P4S-XL**
	150	24	103	43	1 970	16 800	23 500	1,5	1	1,2	**VCM7020-CDLR-T-P4S-XL**
	150	24	98	41	1 880	16 000	23 500	1,5	1	1,2	**VCM7020-EDLR-T-P4S-XL**

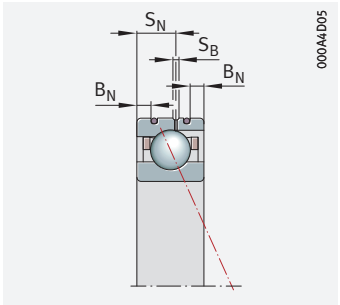
medias *https://www.schaeffler.de/std/1F9A*

[1] The limiting speeds are based on elastically preloaded single bearings.

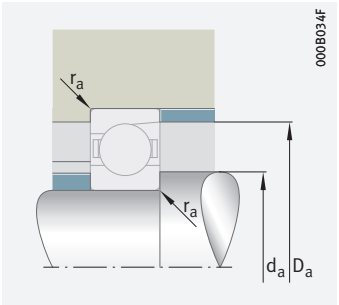
[2] Explanation of designations SP 1.

[3] L = light preload; M = moderate preload; H = high preload.

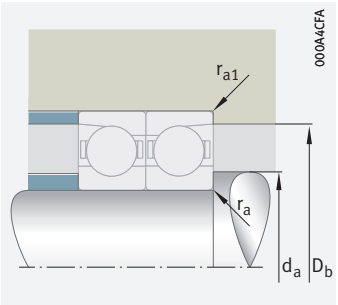
[4] Minimal quantity oil lubrication.



Design DLR



Mounting dimensions

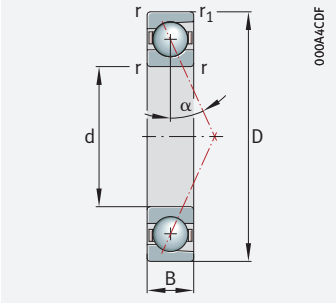


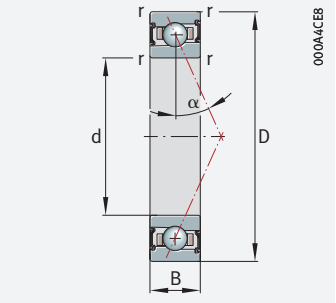
Mounting dimensions

Dimensions				Contact angle	Mounting dimensions				Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	B_N	S_N	S_B	α	d_a h12	D_a H12	r_a	r_{a1}	L	M	H	L	M	H	L	M	H
				°			max.	max.	N	N	N	N	N	N	N/µm	N/µm	N/µm
95	4	10,4	2,2	15	102	124	0,6	0,6	119	440	932	352	1 373	3 061	71,3	121	170
	4	10,4	2,2	25	102	124	0,6	0,6	148	656	1 470	423	1 918	4 393	164	280	380
	4	10,4	2,2	25	102	124	0,6	0,6	92	276	552	263	801	1 623	150	221	285
	3,1	10,4	2,2	17	102	124	0,6	0,6	162	428	898	472	1 275	2 752	83	119	160
	3,1	10,4	2,2	25	102	124	0,6	0,6	234	612	1 272	670	1 771	3 732	168	236	308
	3,1	10,4	2,2	17	102	124	0,6	0,6	146	384	804	423	1 137	2 446	82	118	158
	3,1	10,4	2,2	25	102	124	0,6	0,6	210	550	1 142	601	1 587	3 338	167	234	305
	5,5	14,5	2,2	15	105	136	1,5	0,6	233	794	1 643	693	2 499	5 442	85,3	141	197
	5,5	14,5	2,2	25	105	136	1,5	0,6	322	1 220	2 622	924	3 581	7 871	203	328	439
	5,5	14,5	2,2	25	105	136	1,5	0,6	141	423	845	404	1 227	2 488	167	246	317
	4	14,5	2,2	17	105	136	1,5	0,6	231	610	1 284	675	1 839	4 007	102	149	203
	4	14,5	2,2	25	105	136	1,5	0,6	332	869	1 811	952	2 530	5 359	207	292	383
	4	14,5	2,2	17	105	136	1,5	0,6	207	547	1 149	604	1 638	3 555	102	147	199
	4	14,5	2,2	25	105	136	1,5	0,6	298	780	1 624	854	2 265	4 786	206	289	379
100	4	12	2,2	15	107	133	0,6	0,6	160	572	1 201	473	1 789	3 950	80,4	135	189
	4	12	2,2	25	107	133	0,6	0,6	204	850	1 876	584	2 489	5 611	187	311	421
	4	12	2,2	25	107	133	0,6	0,6	109	328	656	313	951	1 927	162	239	307
	3,4	12	2,2	17	107	133	0,6	0,6	190	500	1 049	551	1 489	3 217	89	129	173
	3,4	12	2,2	25	107	133	0,6	0,6	273	715	1 487	782	2 070	4 362	182	255	333
	3,4	12	2,2	17	107	133	0,6	0,6	170	448	939	494	1 329	2 860	89	127	170
	3,4	12	2,2	25	107	133	0,6	0,6	245	642	1 334	702	1 855	3 901	181	253	330
	5,5	14,5	2,2	15	110	141	1,5	0,6	241	823	1 703	717	2 587	5 636	89,1	148	206
	5,5	14,5	2,2	25	110	141	1,5	0,6	333	1 266	2 723	957	3 715	8 170	212	343	459
	5,5	14,5	2,2	25	110	141	1,5	0,6	144	431	863	412	1 252	2 539	171	253	326
	4	14,5	2,2	17	110	141	1,5	0,6	240	635	1 336	703	1 915	4 174	106	154	210
	4	14,5	2,2	25	110	141	1,5	0,6	345	905	1 885	991	2 633	5 578	215	302	397
	4	14,5	2,2	17	110	141	1,5	0,6	215	569	1 196	629	1 706	3 702	105	152	206
	4	14,5	2,2	25	110	141	1,5	0,6	310	812	1 691	889	2 358	4 982	213	300	393

Super precision angular contact ball bearings

Ceramic balls
Steel rings
Design DLR



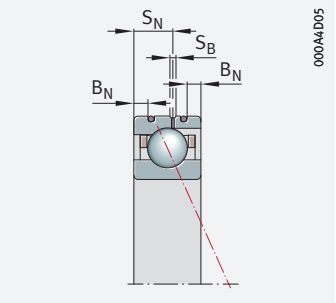


d = 105 – 110 mm

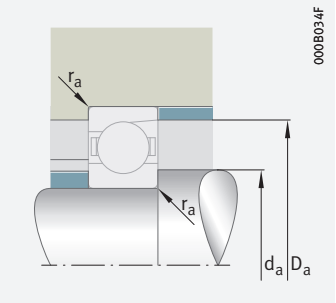
Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds[1]		Dimensions		Mass	Designation[2]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[4]	r	r_1	m	
			kN	kN	N	min^{-1}	min^{-1}	min.	min.	≈ kg	
105	145	20	60	43	3 100	13 000	19 000	1,1	1,1	0,68	**HCB71921-CDLR-T-P4S**
	145	20	57	41	2 950	11 000	17 000	1,1	1,1	0,68	**HCB71921-EDLR-T-P4S**
	145	20	27,5	22,4	1 610	15 000	22 000	1,1	1,1	0,82	**HC71921-EDLR-T-P4S**
	145	20	39	25,5	1 850	16 400	24 000	1,1	0,6	0,69	**HCM71921-CDLR-T-P4S-XL**
	145	20	37	24,4	1 760	15 600	22 400	1,1	0,6	0,69	**HCM71921-EDLR-T-P4S-XL**
	145	20	94	36	1 640	16 800	24 700	1,1	0,6	0,69	**VCM71921-CDLR-T-P4S-XL**
	145	20	89	34	1 560	16 000	24 000	1,1	0,6	0,69	**VCM71921-EDLR-T-P4S-XL**
	160	26	85	58	4 100	12 000	18 000	2	2	1,36	**HCB7021-CDLR-T-P4S**
	160	26	81	55	3 850	11 000	16 000	2	2	1,36	**HCB7021-EDLR-T-P4S**
	160	26	45	33	2 300	14 000	22 000	2	2	1,56	**HC7021-EDLR-T-P4S**
	160	26	53	38	2 650	15 500	22 700	2	1	1,5	**HCM7021-CDLR-T-P4S-XL**
	160	26	51	36	2 550	14 800	21 200	2	1	1,5	**HCM7021-EDLR-T-P4S-XL**
	160	26	128	53	2 350	15 900	23 400	2	1	1,5	**VCM7021-CDLR-T-P4S-XL**
	160	26	122	51	2 240	15 100	22 700	2	1	1,5	**VCM7021-EDLR-T-P4S-XL**
110	150	20	61	45	3 200	12 000	19 000	1,1	1,1	0,69	**HCB71922-CDLR-T-P4S**
	150	20	58	42,5	3 000	11 000	17 000	1,1	1,1	0,69	**HCB71922-EDLR-T-P4S**
	150	20	32	26	1 820	14 000	22 000	1,1	1,1	0,82	**HC71922-EDLR-T-P4S**
	150	20	39,5	26,5	1 880	15 800	23 000	1,1	0,6	0,72	**HCM71922-CDLR-T-P4S-XL**
	150	20	38	25,5	1 800	15 000	21 600	1,1	0,6	0,72	**HCM71922-EDLR-T-P4S-XL**
	150	20	95	37,5	1 670	16 200	23 000	1,1	0,6	0,72	**VCM71922-CDLR-T-P4S-XL**
	150	20	91	35,5	1 590	15 400	23 000	1,1	0,6	0,72	**VCM71922-EDLR-T-P4S-XL**
	170	28	112	74	5 000	12 000	18 000	2	2	1,59	**HCB7022-CDLR-T-P4S**
	170	28	106	70	4 750	11 000	16 000	2	2	1,59	**HCB7022-EDLR-T-P4S**
	170	28	45,5	34	2 330	13 000	20 000	2	2	2,02	**HC7022-EDLR-T-P4S**
	170	28	70	34	2 290	14 000	22 000	2	2	2,02	**XC7022-EDLR-T-P4S**
	170	28	54	39,5	2 700	14 700	21 500	2	1	1,9	**HCM7022-CDLR-T-P4S-XL**
	170	28	51	37,5	2 550	14 000	20 000	2	1	1,9	**HCM7022-EDLR-T-P4S-XL**
	170	28	129	55	2 290	15 000	21 500	2	1	2,09	**VCM7022-CDLR-T-P4S-XL**
	170	28	123	52	2 180	14 300	21 500	2	1	2,09	**VCM7022-EDLR-T-P4S-XL**

medias *https://www.schaeffler.de/std/1F9A*

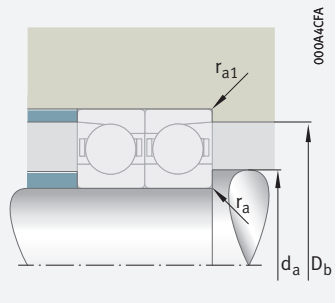
[1] The limiting speeds are based on elastically preloaded single bearings.
[2] Explanation of designations SP 1.
[3] L = light preload; M = moderate preload; H = high preload.
[4] Minimal quantity oil lubrication.



Design DLR



Mounting dimensions

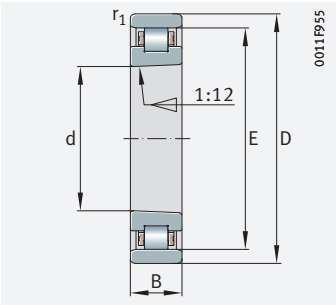


Mounting dimensions

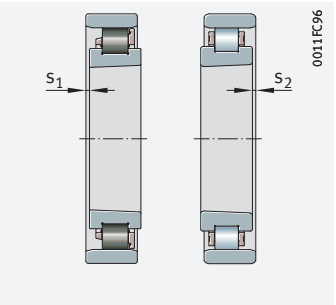
Dimensions				Contact angle	Mounting dimensions				Preload force[3] F_V			Lift-off force[3] K_{aE}			Axial rigidity[3] c_a		
d	B_N	S_N	S_B	α	d_a h12	D_a H12	r_a	r_{a1}	L	M	H	L	M	H	L	M	H
				°			max.	max.	N	N	N	N	N	N	N/µm	N/µm	N/µm
105	4	12	2,2	15	112	138	0,6	0,6	157	564	1 185	466	1 763	3 895	80	134	188
	4	12	2,2	25	112	138	0,6	0,6	204	850	1 876	584	2 489	5 611	187	311	421
	4	12	2,2	25	112	138	0,6	0,6	113	338	676	323	980	1 987	170	250	321
	3,4	12	2,2	17	112	138	0,6	0,6	198	521	1 093	575	1 553	3 354	93	134	180
	3,4	12	2,2	25	112	138	0,6	0,6	285	745	1 549	815	2 157	4 546	189	265	346
	3,4	12	2,2	17	112	138	0,6	0,6	177	467	979	515	1 385	2 981	92	132	177
	3,4	12	2,2	25	112	138	0,6	0,6	256	669	1 390	732	1 933	4 065	188	263	343
	5,5	15,5	2,2	15	116	150	2	1	244	836	1 732	725	2 623	5 718	92,1	153	213
	5,5	15,5	2,2	25	116	150	2	1	336	1 285	2 768	966	3 768	8 297	219	355	476
	5,5	15,5	2,2	25	116	150	2	1	184	552	1 104	527	1 602	3 250	188	277	357
	4,2	15,5	2,2	17	116	150	2	1	294	778	1 638	861	2 347	5 116	113	165	225
	4,2	15,5	2,2	25	116	150	2	1	422	1 107	2 306	1 213	3 222	6 827	229	323	424
	4,2	15,5	2,2	17	116	150	2	1	264	697	1 465	770	2 090	4 537	112	163	220
	4,2	15,5	2,2	25	116	150	2	1	379	994	2 069	1 088	2 885	6 097	228	320	420
110	4	12	2,2	15	117	143	0,6	0,6	158	570	1 199	468	1 777	3 931	82,1	138	193
	4	12	2,2	25	117	143	0,6	0,6	208	871	1 923	596	2 547	5 747	193	322	435
	4	12	2,2	25	117	143	0,6	0,6	131	393	787	375	1 141	2 312	178	262	337
	3,4	12	2,2	17	117	143	0,6	0,6	206	542	1 138	598	1 616	3 491	96	139	187
	3,4	12	2,2	25	117	143	0,6	0,6	296	775	1 612	848	2 244	4 730	196	275	359
	3,4	12	2,2	17	117	143	0,6	0,6	185	486	1 019	536	1 442	3 103	96	137	184
	3,4	12	2,2	25	117	143	0,6	0,6	266	696	1 446	761	2 010	4 230	195	273	356
	6	16,2	2,2	15	121	159	2	1	337	1 126	2 314	1 004	3 540	7 655	103	169	234
	6	16,2	2,2	25	121	159	2	1	490	1 779	3 778	1 409	5 224	11 341	248	395	527
	6	16,2	2,2	25	121	159	2	1	187	561	1 121	535	1 627	3 299	193	284	366
	6	16,2	2,2	25	121	159	2	1	187	561	1 121	535	1 627	3 299	193	284	366
	5,2	16,2	2,2	17	121	159	2	1	307	813	1 711	900	2 452	5 346	118	171	234
	5,2	16,2	2,2	25	121	159	2	1	441	1 156	2 408	1 266	3 365	7 129	238	335	441
	5,2	16,2	2,2	17	121	159	2	1	276	728	1 530	805	2 184	4 742	117	169	229
	5,2	16,2	2,2	25	121	159	2	1	396	1 038	2 160	1 136	3 012	6 367	237	333	436

Super precision cylindrical roller bearings

Single row
Steel or ceramic rollers



N10 steel rollers



Axial displacement

d = 30 – 55 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds		Mass	Designation[1]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[2]	m	X-life ➤ *1188*
			N	N	N	min^{-1}	min^{-1}	≈ kg	
30	55	13	17 500	15 600	2 270	21 700	25 500	0,12	**N1006-D-K-TVP-SP-XL**
	55	13	20 200	20 400	2 650	33 500	39 500	0,12	**N1006-K-PVPA1-SP**
	55	13	23 900	19 300	1 920	36 500	43 000	0,11	**HCN1006-K-PVPA1-SP**
35	62	14	23 600	20 900	3 350	18 700	22 000	0,16	**N1007-D-K-TVP-SP-XL**
	62	14	19 900	20 900	2 700	30 000	35 000	0,16	**N1007-C-K-PVPA1-SP**
	62	14	23 500	19 700	1 970	32 500	38 500	0,14	**HCN1007-C-K-PVPA1-SP**
40	68	15	27 000	26 000	4 200	17 100	20 100	0,2	**N1008-D-K-TVP-SP-XL**
	68	15	27 500	29 000	3 650	26 500	31 000	0,19	**N1008-K-PVPA1-SP**
	68	15	32 000	27 500	2 750	29 000	34 000	0,16	**HCN1008-K-PVPA1-SP**
45	75	16	34 500	32 500	5 100	15 200	17 800	0,24	**N1009-D-K-TVP-SP-XL**
	75	16	29 000	32 500	4 100	24 400	28 500	0,24	**N1009-C-K-PVPA1-SP**
	75	16	34 500	31 000	3 100	26 500	31 000	0,22	**HCN1009-C-K-PVPA1-SP**
50	80	16	36 500	36 500	5 700	14 200	16 800	0,27	**N1010-D-K-TVP-SP-XL**
	80	16	31 000	36 500	4 600	22 800	27 000	0,27	**N1010-C-K-PVPA1-SP**
	80	16	36 500	34 500	3 450	24 900	29 500	0,23	**HCN1010-C-K-PVPA1-SP**
55	90	18	48 000	48 500	7 900	12 600	14 800	0,4	**N1011-D-K-TVP-SP-XL**
	90	18	40 500	48 000	6 400	20 200	23 800	0,4	**N1011-K-PVPA1-SP**
	90	18	48 000	45 500	4 750	22 100	26 000	0,34	**HCN1011-K-PVPA1-SP**

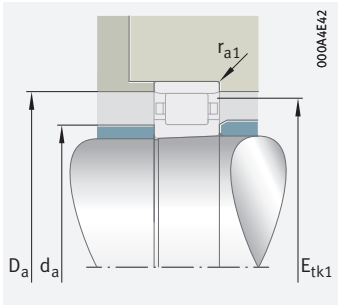
medias *https://www.schaeffler.de/std/1F9A*

[1] The bearings are also available by agreement in the following designs:
- With cylindrical bore (without suffix K), ordering example: N1006-D-TVP-SP-XL

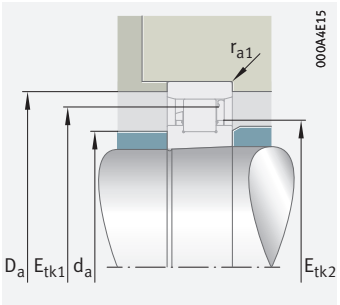
Series HCN10 is available by agreement in the following design from d = 30 mm to d = 120 mm:
- With half the number of rollers for higher limiting speeds (suffix H193), ordering example: HCN1024-K-PVPA1-SP-H193

[2] Minimal quantity oil lubrication.

[3] Axial displacement of outer ring from central position.



Mounting dimensions

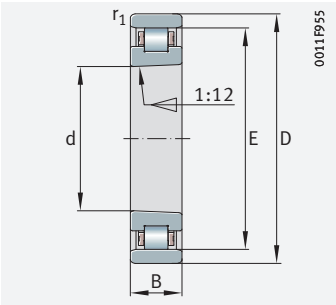


Mounting dimensions for bearings with PVPA1 cage

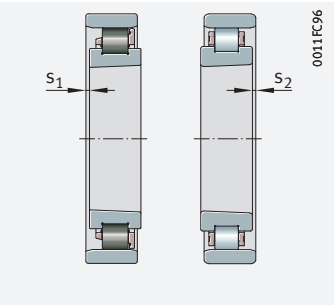
Dimensions					Mounting dimensions				
d	r_1 min.	E	s_1 [3]	s_2 [3]	d_a h12	D_a H12	E_{tk1} nom.	E_{tk2} nom.	r_{a1} max.
30	0,6	48,5	2,8	2,8	38,5	49,5	47,5	–	0,6
	0,6	48,5	0,85	2,2	36,5	49,4	47	39,7	0,6
	0,6	48,5	0,85	2,2	36,5	49,4	47	39,7	0,6
35	0,6	55	2,8	2,8	43	56	53,9	–	0,6
	0,6	55	0,9	2,4	43	56,1	53,4	45,8	0,6
	0,6	55	0,9	2,4	43	56,1	53,4	45,8	0,6
40	0,6	61	3,1	3,1	49	62,1	59,8	–	0,6
	0,6	61	0,95	2,5	47	62,1	59,3	50,8	0,6
	0,6	61	0,95	2,5	47	62,1	59,3	50,8	0,6
45	0,6	67,5	3,1	3,1	53,5	68,6	66,2	–	0,6
	0,6	67,5	1,2	2,5	53,5	68,7	65,6	56,9	0,6
	0,6	67,5	1,2	2,5	53,5	68,7	65,6	56,9	0,6
50	0,6	72,5	3,1	3,1	58,5	73,6	71,2	–	0,6
	0,6	72,5	1,15	2,7	58,5	73,7	70,6	61,9	0,6
	0,6	72,5	1,15	2,7	58,5	73,7	70,6	61,9	0,6
55	1	81	3,4	3,4	65	82,2	79,3	–	1
	1	80,5	1,4	3	64,5	81,8	78,5	68,8	1
	1	80,5	1,4	3	64,5	81,8	78,5	68,8	1

Super precision cylindrical roller bearings

Single row
Steel or ceramic rollers



N10 steel rollers



Axial displacement

d = 60 – 85 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds		Mass	Designation[1]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[2]	m	X-life ➤ *1188*
			N	N	N	min^{-1}	min^{-1}	≈ kg	
60	95	18	51 000	53 000	8 700	11 900	14 000	0,43	**N1012-D-K-TVP-SP-XL**
	95	18	43 000	53 000	7 100	19 200	22 600	0,42	**N1012-K-PVPA1-SP**
	95	18	51 000	50 000	5 300	21 000	24 700	0,37	**HCN1012-K-PVPA1-SP**
65	100	18	53 000	58 000	9 500	11 400	13 400	0,45	**N1013-D-K-TVP-SP-XL**
	100	18	45 000	58 000	7 700	18 200	21 400	0,45	**N1013-C-K-PVPA1-SP**
	100	18	53 000	55 000	5 700	19 900	23 400	0,4	**HCN1013-C-K-PVPA1-SP**
70	110	20	66 000	72 000	10 600	10 200	12 000	0,64	**N1014-D-K-TVP-SP-XL**
	110	20	63 000	77 000	9 400	16 000	18 800	0,61	**N1014-K-PVPA1-SP**
	110	20	72 000	71 000	7 700	17 500	20 600	0,52	**HCN1014-K-PVPA1-SP**
75	115	20	65 000	73 000	10 700	9 800	11 500	0,67	**N1015-D-K-TVP-SP-XL**
	115	20	66 000	85 000	10 300	15 300	18 000	0,65	**N1015-K-PVPA1-SP**
	115	20	76 000	78 000	8 500	16 800	19 700	0,56	**HCN1015-K-PVPA1-SP**
80	125	22	81 000	91 000	13 900	9 000	10 600	0,9	**N1016-D-K-TVP-SP-XL**
	125	22	77 000	99 000	12 900	14 000	16 500	0,88	**N1016-K-PVPA1-SP**
	125	22	91 000	93 000	10 500	15 300	18 100	0,76	**HCN1016-K-PVPA1-SP**
85	130	22	80 000	91 000	13 800	8 700	10 200	0,95	**N1017-D-K-TVP-SP-XL**
	130	22	76 000	99 000	12 800	13 500	15 900	1	**N1017-K-PVPA1-SP**
	130	22	90 000	94 000	10 500	14 800	17 400	0,89	**HCN1017-K-PVPA1-SP**

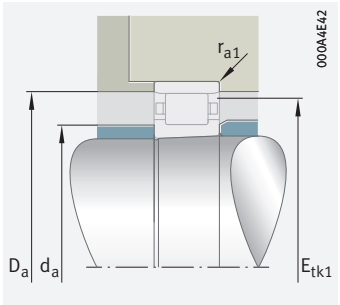
medias *https://www.schaeffler.de/std/1F9A*

[1] The bearings are also available by agreement in the following designs:
- With cylindrical bore (without suffix K),
  ordering example: N1006-D-TVP-SP-XL

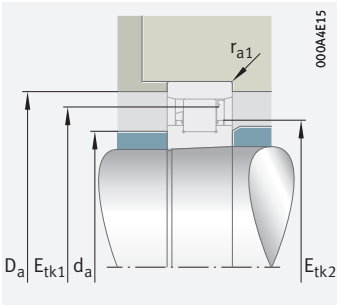
Series HCN10 is available by agreement in the following design from d = 30 mm to d = 120 mm:
- With half the number of rollers for higher limiting speeds (suffix H193),
  ordering example: HCN1024-K-PVPA1-SP-H193

[2] Minimal quantity oil lubrication.

[3] Axial displacement of outer ring from central position.



Mounting dimensions

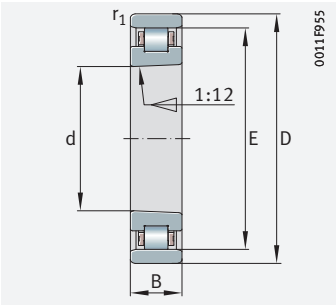


Mounting dimensions for bearings with PVPA1 cage

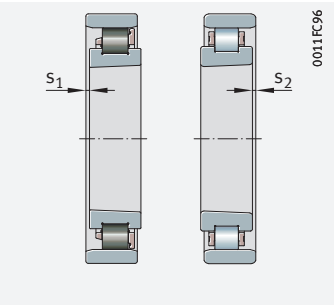
Dimensions					Mounting dimensions				
d	r_1 min.	E	s_1 [3]	s_2 [3]	d_a h12	D_a H12	E_{tk1} nom.	E_{tk2} nom.	r_{a1} max.
60	1	86,1	3,4	3,4	70,1	87,3	84,4	–	1
	1	85,5	1,25	3	69,5	86,8	83,5	73,8	1
	1	85,5	1,25	3	69,5	86,8	83,5	73,8	1
65	1	91	3,4	3,4	75	92,2	89,3	–	1
	1	91	1,4	2,5	75	92,3	88,5	78,7	1
	1	91	1,4	2,5	75	92,3	88,5	78,7	1
70	1	100	3,8	3,8	82	101,3	98,2	–	1
	1	100	1,25	3,3	80	101,3	97,5	85,4	1
	1	100	1,25	3,3	80	101,3	97,5	85,4	1
75	1	105	3,8	3,8	87	106,3	103,2	–	1
	1	105	1	3	85	106,3	102,5	90,4	1
	1	105	1	3	85	106,3	102,5	90,4	1
80	1	113	4,1	4,1	93	114,4	111,4	–	1
	1	113,5	1,1	3,5	91,5	115	110,8	97,4	1
	1	113,5	1,1	3,5	91,5	115	110,8	97,4	1
85	1	118	4,1	4,1	98	119,4	116,3	–	1
	1	118,5	1,5	2,7	96,5	120	115,8	102,4	1
	1	118,5	1,5	2,7	96,5	120	115,8	102,4	1

Super precision cylindrical roller bearings

Single row
Steel or ceramic rollers



N10 steel rollers



Axial displacement

d = 90 – 120 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds		Mass	Designation[1]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[2]	m	X-life ➤ *1188*
			N	N	N	min^{-1}	min^{-1}	≈ kg	
90	140	24	95 000	108 000	16 800	8 000	9 400	1,23	**N1018-D-K-TVP-SP-XL**
	140	24	91 000	119 000	15 500	12 500	14 700	1,2	**N1018-K-PVPA1-SP**
	140	24	107 000	113 000	12 500	13 700	16 100	1,06	**HCN1018-K-PVPA1-SP**
95	145	24	99 000	117 000	18 000	7 700	9 100	1,29	**N1019-D-K-TVP-SP-XL**
	145	24	96 000	130 000	16 700	12 100	14 200	1,26	**N1019-K-PVPA1-SP**
	145	24	113 000	123 000	13 500	13 200	15 600	1,2	**HCN1019-K-PVPA1-SP**
100	150	24	99 000	118 000	17 800	7 500	8 800	1,34	**N1020-D-K-TVP-SP-XL**
	150	24	95 000	130 000	16 500	11 700	13 800	1,29	**N1020-K-PVPA1-SP**
	150	24	112 000	123 000	13 400	12 800	15 100	1,2	**HCN1020-K-PVPA1-SP**
105	160	26	132 000	154 000	24 500	6 800	8 000	1,67	**N1021-D-K-TVP-SP-XL**
	160	26	112 000	154 000	19 800	10 900	12 900	1,66	**N1021-K-PVPA1-SP**
	160	26	131 000	145 000	15 000	11 900	14 100	1,6	**HCN1021-K-PVPA1-SP**
110	170	28	153 000	180 000	28 500	6 400	7 500	2,06	**N1022-D-K-TVP-SP-XL**
	170	28	141 000	191 000	24 800	10 000	11 800	2,02	**N1022-K-PVPA1-SP**
	170	28	166 000	180 000	18 800	11 000	12 900	1,9	**HCN1022-K-PVPA1-SP**
120	180	28	160 000	196 000	30 500	6 000	7 100	2,22	**N1024-D-K-TVP-SP-XL**
	180	28	148 000	208 000	26 500	9 500	11 200	2,18	**N1024-K-PVPA1-SP**
	180	28	174 000	196 000	20 100	10 400	12 200	2,05	**HCN1024-K-PVPA1-SP**

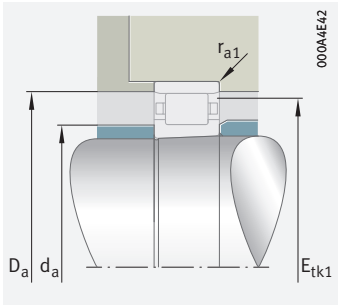
medias *https://www.schaeffler.de/std/1F9A*

1) The bearings are also available by agreement in the following designs:
- With cylindrical bore (without suffix K), ordering example: N1006-D-TVP-SP-XL

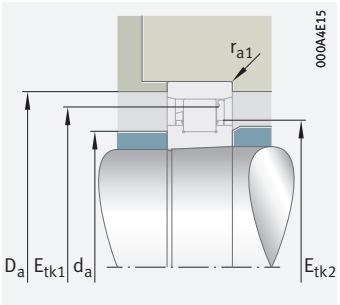
Series HCN10 is available by agreement in the following design from d = 30 mm to d = 120 mm:
- With half the number of rollers for higher limiting speeds (suffix H193), ordering example: HCN1024-K-PVPA1-SP-H193

2) Minimal quantity oil lubrication.

3) Axial displacement of outer ring from central position.



Mounting dimensions

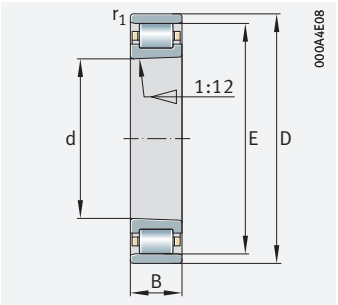


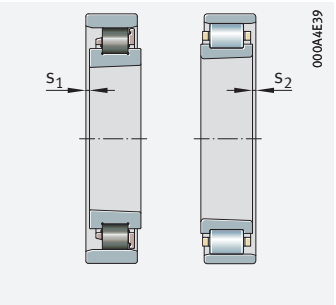
Mounting dimensions for bearings with PVPA1 cage

Dimensions					Mounting dimensions				
d	r_1 min.	E	s_1 [3]	s_2 [3]	d_a h12	D_a H12	E_{tk1} nom.	E_{tk2} nom.	r_{a1} max.
90	1,1	127	4,4	4,4	105	128,5	124,9	–	1
	1,1	127	1,2	3,7	103	128,6	124	109,4	1
	1,1	127	1,2	3,7	103	128,6	124	109,4	1
95	1,1	132	4,4	4,4	110	133,5	129,8	–	1
	1,1	132	1,2	3,7	108	133,6	129	114,4	1
	1,1	132	1,2	3,7	108	133,6	129	114,4	1
100	1,1	137	4,4	4,4	115	138,5	134,8	–	1
	1,1	137	1,1	3,5	113	138,6	134	119,4	1
	1,1	137	1,1	3,5	113	138,6	134	119,4	1
105	1,1	146	4,5	4,5	120	147,5	143,5	–	1
	1,1	145,5	0,6	3,2	119,5	147,2	142,3	126,5	1
	1,1	145,5	0,6	3,2	119,5	147,2	142,3	126,5	1
110	1,1	155	4,8	4,8	127	156,6	152,4	–	1
	1,1	155	1	4	125	156,7	151,3	133,1	1
	1,1	155	1	4	125	156,7	151,3	133,1	1
120	1,1	165	4,8	4,8	137	166,6	162,4	–	1
	1,1	165	1	4	135	166,7	161,3	143,1	1
	1,1	165	1	4	135	166,7	161,3	143,1	1

Super precision cylindrical roller bearings

Single row
Steel rollers





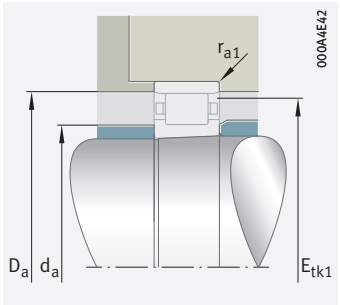
Axial displacement

d = 130 – 200 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds		Mass	Designation[1)2)]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[3)]	m	X-life ➤ *1188*
			N	N	N	min^{-1}	min^{-1}	≈ kg	
130	200	33	179 000	250 000	32 000	4 800	5 600	3,72	**N1026-K-M1-SP**
140	210	33	183 000	265 000	33 000	4 550	5 400	3,85	**N1028-K-M1-SP**
150	225	35	210 000	310 000	38 500	4 250	5 000	4,81	**N1030-K-M1-SP**
160	240	38	245 000	355 000	44 000	3 900	4 600	5,76	**N1032-K-M1-SP**
170	260	42	295 000	435 000	52 000	3 600	4 250	7,77	**N1034-K-M1-SP**
180	280	46	360 000	520 000	65 000	3 300	3 850	10,2	**N1036-K-M1-SP**
190	290	46	370 000	550 000	67 000	3 200	3 750	10,6	**N1038-K-M1-SP**
200	310	51	395 000	600 000	72 000	3 000	3 500	13,7	**N1040-K-M1-SP**

medias *https://www.schaeffler.de/std/1F9A*

1) The bearings are also available by agreement in the following designs:
   - With cylindrical bore (without suffix K), ordering example: N1026-M1-SP
2) Bearings with a larger diameter are available by agreement.
3) Minimal quantity oil lubrication.
4) Axial displacement of outer ring from central position.

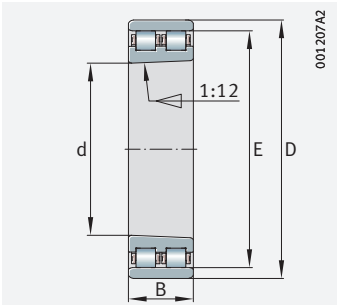


Mounting dimensions

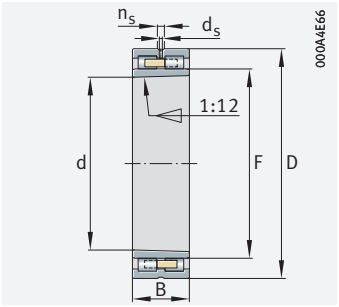
Dimensions					Mounting dimensions			
d	r_1 min.	E	s_1 [4]	s_2 [4]	d_a h12	D_a H12	E_{tk1} nom.	r_{a1} max.
130	1,1	182	4,2	4,2	148	184,1	177,8	1
140	1,1	192	4,2	4,2	158	194,1	187,8	1
150	1,5	205,5	4,4	4,4	169,5	207,8	201	1,5
160	1,5	220	4,6	4,6	180	222,4	215	1,5
170	2,1	237	5	5	193	239,7	231,5	2,1
180	2,1	255	5,6	5,6	205	257,8	248,8	2,1
190	2,1	265	5,6	5,6	215	267,8	258,8	2,1
200	2,1	281	6,4	6,4	229	284,3	274,5	2,1

Super precision cylindrical roller bearings

Double row
Non-locating bearings



NN30..-D-K-TVP



NNU49

d = 30 – 120 mm

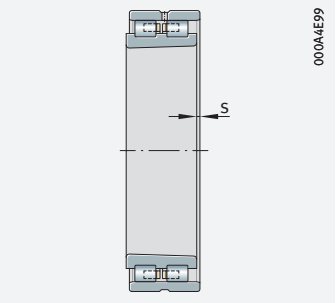
Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds		Mass	Designation[1]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[2]	m	X-life ➤ *1188*
			N	N	N	min^{-1}	min^{-1}	≈ kg	
30	55	19	30 000	31 000	4 550	20 600	24 200	0,18	**NN3006-D-K-TVP-SP-XL**
35	62	20	40 500	41 500	6 700	17 800	20 900	0,24	**NN3007-D-K-TVP-SP-XL**
40	68	21	46 500	52 000	8 400	16 200	19 100	0,28	**NN3008-D-K-TVP-SP-XL**
45	75	23	59 000	65 000	10 200	14 400	16 900	0,36	**NN3009-D-K-TVP-SP-XL**
50	80	23	63 000	73 000	11 300	13 500	15 900	0,39	**NN3010-D-K-TVP-SP-XL**
55	90	26	82 000	97 000	15 800	11 900	14 100	0,59	**NN3011-D-K-TVP-SP-XL**
60	95	26	87 000	106 000	17 400	11 300	13 300	0,63	**NN3012-D-K-TVP-SP-XL**
65	100	26	91 000	116 000	19 000	10 800	12 700	0,67	**NN3013-D-K-TVP-SP-XL**
70	110	30	113 000	145 000	21 200	9 700	11 400	0,98	**NN3014-D-K-TVP-SP-XL**
75	115	30	112 000	146 000	21 400	9 300	11 000	1,02	**NN3015-D-K-TVP-SP-XL**
80	125	34	139 000	182 000	28 000	8 500	10 000	1,42	**NN3016-D-K-TVP-SP-XL**
85	130	34	138 000	183 000	27 500	8 200	9 700	1,48	**NN3017-D-K-TVP-SP-XL**
90	140	37	162 000	216 000	33 500	7 600	8 900	1,93	**NN3018-D-K-TVP-SP-XL**
95	145	37	170 000	234 000	36 000	7 300	8 600	2,03	**NN3019-D-K-TVP-SP-XL**
100	140	40	128 000	255 000	33 500	5 700	6 700	1,88	**NNU4920-S-K-M-SP**
	150	37	169 000	235 000	35 500	7 100	8 300	2,09	**NN3020-D-K-TVP-SP-XL**
105	145	40	130 000	260 000	34 500	5 500	6 500	1,93	**NNU4921-S-K-M-SP**
	160	41	226 000	310 000	49 000	6 500	7 600	2,68	**NN3021-D-K-TVP-SP-XL**
110	150	40	132 000	270 000	35 000	5 400	6 300	2,01	**NNU4922-S-K-M-SP**
	170	45	260 000	360 000	57 000	6 000	7 100	3,41	**NN3022-D-K-TVP-SP-XL**
120	165	45	175 000	340 000	41 000	4 750	5 600	2,78	**NNU4924-S-K-M-SP**
	180	46	275 000	390 000	61 000	5 700	6 700	3,72	**NN3024-D-K-TVP-SP-XL**

medias *https://www.schaeffler.de/std/1F9A*

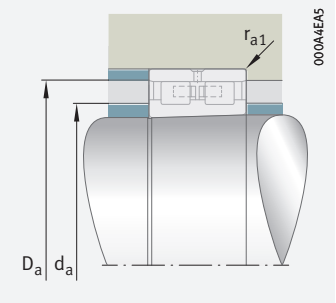
[1] The bearings are also available with a cylindrical bore (without suffix K), ordering example: NN3006-D-TVP-SP-XL.

[2] Minimal quantity oil lubrication.

[3] Axial displacement of outer ring from central position.



Axial displacement

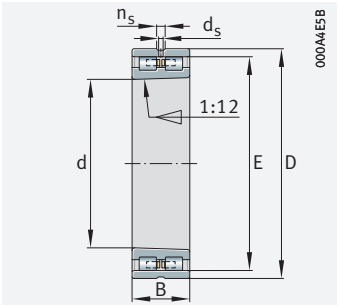


Mounting dimensions

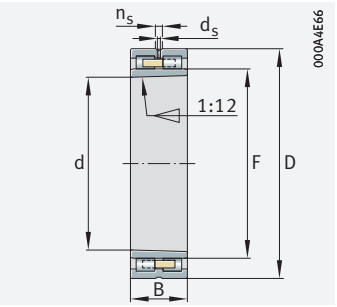
Dimensions							Mounting dimensions		
d	r_1 min.	$s^{3)}$	E	F	n_s	d_s	d_a h12	D_a H12	r_{a1} max.
30	1	1,7	48,5	–	–	–	38,5	50	1
35	1	1,4	55	–	–	–	43	56,5	1
40	1	1,7	61	–	–	–	49	62,6	1
45	1	1,7	67,5	–	–	–	53,5	69,2	1
50	1	1,7	72,5	–	–	–	58,5	74,2	1
55	1,1	1,9	81	–	–	–	65	82,9	1
60	1,1	1,9	86,1	–	–	–	70,1	88	1
65	1,1	1,9	91	–	–	–	75	92,9	1
70	1,1	2,3	100	–	–	–	82	102,3	1
75	1,1	2,3	105	–	–	–	87	107,3	1
80	1,1	2,5	113	–	–	–	93	115,6	1
85	1,1	2,5	118	–	–	–	98	120,6	1
90	1,5	2,5	127	–	–	–	105	129,8	1,5
95	1,5	2,5	132	–	–	–	110	134,8	1,5
100	1,1	2	–	113	3,2	6,5	112	129	1
	1,5	2,5	137	–	–	–	115	139,8	1,5
105	1,1	2	–	118	3,2	6,5	117	134	1
	2	2,6	146	–	–	–	120	149	2
110	1,1	2	–	123	3,2	6,5	122	139	1
	2	2,9	155	–	–	–	127	158,3	2
120	1,1	2,3	–	134,5	3,2	6,5	133,4	154,5	1
	2	3,1	165	–	–	–	137	168,4	2

Super precision cylindrical roller bearings

Double row
Non-locating bearings



NN30



NNU49

d = 130 – 300 mm

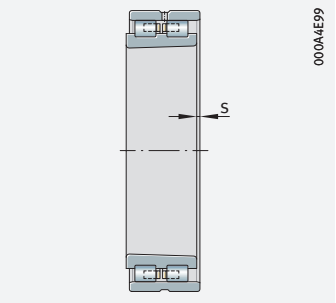
Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds		Mass	Designation[1]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[2]	m	
			N	N	N	min^{-1}	min^{-1}	≈ kg	
130	180	50	188 000	385 000	45 500	4 450	5 300	3,81	**NNU4926-S-K-M-SP**
	200	52	295 000	500 000	63 000	4 100	4 800	5,84	**NN3026-AS-K-M-SP**
140	190	50	190 000	400 000	46 000	4 250	5 000	4,04	**NNU4928-S-K-M-SP**
	210	53	300 000	520 000	64 000	3 900	4 600	6,22	**NN3028-AS-K-M-SP**
150	210	60	330 000	650 000	82 000	3 550	4 200	6,1	**NNU4930-S-K-M-SP**
	225	56	335 000	590 000	73 000	3 650	4 250	7,59	**NN3030-AS-K-M-SP**
160	220	60	335 000	680 000	84 000	3 400	4 000	6,46	**NNU4932-S-K-M-SP**
	240	60	375 000	670 000	82 000	3 400	4 000	9,23	**NN3032-AS-K-M-SP**
170	230	60	340 000	700 000	86 000	3 300	3 850	6,9	**NNU4934-S-K-M-SP**
	260	67	450 000	800 000	97 000	3 100	3 650	12,5	**NN3034-AS-K-M-SP**
180	250	69	405 000	860 000	104 000	3 000	3 550	9,96	**NNU4936-S-K-M-SP**
	280	74	570 000	1 000 000	118 000	2 850	3 300	16,4	**NN3036-AS-K-M-SP**
190	260	69	410 000	880 000	106 000	2 900	3 450	10,6	**NNU4938-S-K-M-SP**
	290	75	580 000	1 040 000	122 000	2 750	3 200	17,3	**NN3038-AS-K-M-SP**
200	280	80	490 000	1 040 000	125 000	2 700	3 200	14,7	**NNU4940-S-K-M-SP**
	310	82	660 000	1 190 000	142 000	2 550	3 000	22,2	**NN3040-AS-K-M-SP**
220	300	80	510 000	1 140 000	133 000	2 550	3 000	16,3	**NNU4944-S-K-M-SP**
	340	90	810 000	1 450 000	166 000	2 290	2 700	29,1	**NN3044-AS-K-M-SP**
240	320	80	530 000	1 210 000	138 000	2 400	2 800	17,1	**NNU4948-S-K-M-SP**
	360	92	840 000	1 580 000	177 000	2 170	2 550	31,5	**NN3048-AS-K-M-SP**
260	360	100	750 000	1 690 000	190 000	2 070	2 430	30,4	**NNU4952-S-K-M-SP**
	400	104	1 070 000	2 010 000	223 000	1 930	2 280	46,2	**NN3052-AS-K-M-SP**
280	380	100	770 000	1 790 000	198 000	1 970	2 320	32,5	**NNU4956-S-K-M-SP**
	420	106	1 090 000	2 090 000	228 000	1 850	2 170	49,7	**NN3056-AS-K-M-SP**
300	420	118	1 040 000	2 380 000	265 000	1 740	2 040	48,6	**NNU4960-S-K-M-SP**
	460	118	1 270 000	2 400 000	260 000	1 670	1 970	68,5	**NN3060-AS-K-M-SP**

medias *https://www.schaeffler.de/std/1F9A*

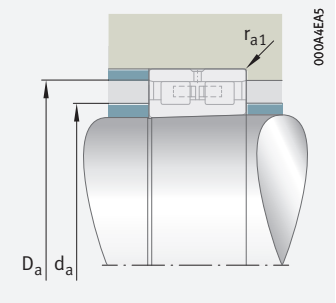
[1] The bearings are also available with a cylindrical bore (without suffix K), ordering example: NN3006-D-TVP-SP-XL.

[2] Minimal quantity oil lubrication.

[3] Axial displacement of outer ring from central position.



Axial displacement

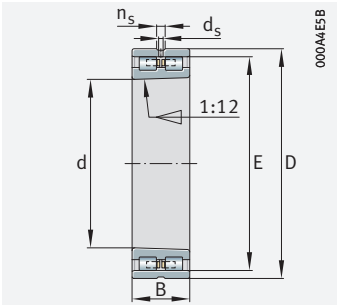


Mounting dimensions

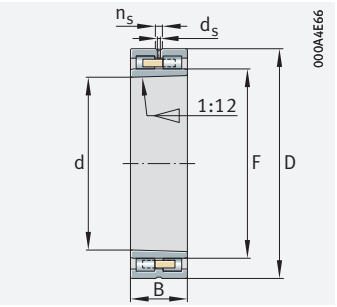
Dimensions							Mounting dimensions		
d	r_1 min.	$s^{3)}$	E	F	n_s	d_s	d_a h12	D_a H12	r_{a1} max.
130	1,5	2,7	–	146	3,2	6,5	144,7	166	1,5
	2	3,1	182	–	4,8	9,5	150	186	2
140	1,5	2,7	–	156	3,2	6,5	155,1	176	1,5
	2	3,4	192	–	4,8	9,5	160	196	2
150	2	2,7	–	168,5	3,2	6,5	167,2	196,5	2
	2,1	3,8	206	–	4,8	9,5	172	210	2,1
160	2	2,7	–	178,5	3,2	6,5	177,2	206,5	2
	2,1	4,3	219	–	4,8	9,5	183	224	2,1
170	2	2,7	–	188,5	3,2	6,5	187,2	216,5	2
	2,1	4,6	236	–	4,8	9,5	196	241	2,1
180	2	3,2	–	202	4,8	9,5	200,5	232	2
	2,1	4,8	255	–	6,3	12,2	209	260	2,1
190	2	3,2	–	212	4,8	9,5	210,5	242	2
	2,1	4,8	265	–	6,3	12,2	219	271	2,1
200	2,1	4,3	–	225	6,3	12,2	223	259	2,1
	2,1	5,7	282	–	6,3	12,2	232	288	2,1
220	2,1	4,3	–	245	6,3	12,2	243	279	2,1
	3	5,7	310	–	8	15	254	317	2,5
240	2,1	4,3	–	265	6,3	12,2	263	299	2,1
	3	6,1	330	–	8	15	274	337	2,5
260	2,1	5,4	–	292	8	15	289,4	334	2,1
	4	6,6	364	–	8	15	300	372	3
280	2,1	5,4	–	312	8	15	309,4	354	2,1
	4	6,9	384	–	8	15	320	392	3
300	3	6,3	–	339	9,5	17,7	336	389	2,5
	4	7,5	418	–	9,5	17,7	346	427	3

Super precision cylindrical roller bearings

Double row
Non-locating bearings



NN30



NNU49

d = 320 – 500 mm

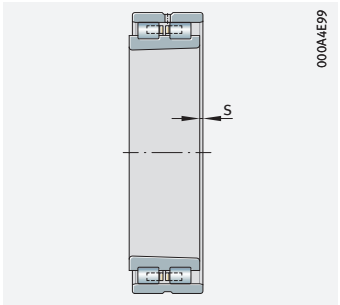
Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds		Mass	Designation[1]
d	D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	n_G oil[2]	m	
			N	N	N	min^{-1}	min^{-1}	≈ kg	
320	440	118	1 070 000	2 550 000	275 000	1 670	1 960	52,5	**NNU4964-S-K-M-SP**
	480	121	1 330 000	2 600 000	275 000	1 610	1 890	73,8	**NN3064-AS-K-M-SP**
340	460	118	1 100 000	2 650 000	290 000	1 600	1 890	55,7	**NNU4968-S-K-M-SP**
	520	133	1 640 000	3 250 000	340 000	1 470	1 730	99,3	**NN3068-AS-K-M-SP**
360	480	118	1 130 000	2 800 000	300 000	1 540	1 820	57,3	**NNU4972-S-K-M-SP**
	540	134	1 670 000	3 350 000	350 000	1 420	1 670	104	**NN3072-AS-K-M-SP**
380	520	140	1 440 000	3 600 000	375 000	1 380	1 620	86,9	**NNU4976-S-K-M-SP**
	560	135	1 700 000	3 500 000	355 000	1 370	1 620	110	**NN3076-AS-K-M-SP**
400	540	140	1 490 000	3 800 000	390 000	1 330	1 570	91	**NNU4980-S-K-M-SP**
	600	148	2 150 000	4 450 000	445 000	1 260	1 480	143	**NN3080-AS-K-M-SP**
420	560	140	1 530 000	4 000 000	405 000	1 290	1 520	94,4	**NNU4984-S-K-M-SP**
	620	150	2 140 000	4 450 000	440 000	1 220	1 440	150	**NN3084-AS-K-M-SP**
440	600	160	2 040 000	5 200 000	530 000	1 150	1 360	130	**NNU4988-S-K-M-SP**
	650	157	2 430 000	5 100 000	500 000	1 160	1 360	172	**NN3088-AS-K-M-SP**
460	620	160	2 110 000	5 500 000	560 000	1 120	1 320	134	**NNU4992-S-K-M-SP**
	680	163	2 600 000	5 400 000	510 000	1 100	1 300	197	**NN3092-AS-K-M-SP**
480	650	170	2 350 000	6 100 000	610 000	1 060	1 250	158	**NNU4996-S-K-M-SP**
	700	165	2 700 000	5 800 000	540 000	1 070	1 260	208	**NN3096-AS-K-M-SP**
500	670	170	2 330 000	6 100 000	600 000	1 030	1 220	163	**NNU49/500-S-K-M-SP**
	720	167	2 700 000	5 800 000	530 000	1 050	1 230	214	**NN30/500-AS-K-M-SP**

medias *https://www.schaeffler.de/std/1F9A*

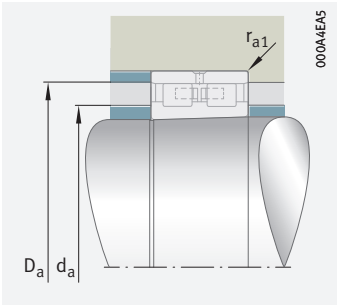
[1] The bearings are also available with a cylindrical bore (without suffix K), ordering example: NN3006-D-TVP-SP-XL.

[2] Minimal quantity oil lubrication.

[3] Axial displacement of outer ring from central position.



Axial displacement

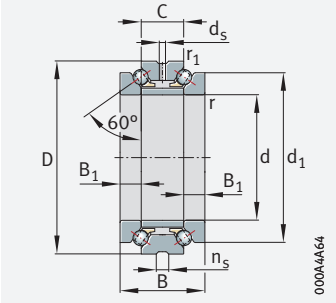


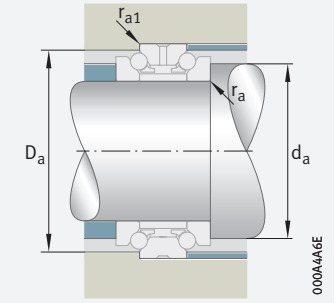
Mounting dimensions

Dimensions							Mounting dimensions		
d	r_1 min.	$s^{3)}$	E	F	n_s	d_s	d_a h12	D_a H12	r_{a1} max.
320	3	6,3	–	359	9,5	17,7	356	409	2,5
	4	8	438	–	9,5	17,7	366	447	3
340	3	6,3	–	379	9,5	17,7	376	429	2,5
	5	8,8	473	–	9,5	17,7	393	483	4
360	3	6,3	–	399	9,5	17,7	396	449	2,5
	5	8,8	493	–	9,5	17,7	413	503	4
380	4	7,2	–	426	9,5	17,7	422,6	482	3
	5	9,1	513	–	9,5	17,7	433	523	4
400	4	7,2	–	446	9,5	17,7	442,6	502	3
	5	9,5	549	–	9,5	17,7	459	560	4
420	4	7,2	–	466	9,5	17,7	462,6	522	3
	5	10	569	–	9,5	17,7	479	580	4
440	4	6,8	–	490	9,5	17,7	486,8	558	3
	6	10,2	597	–	12,5	23,5	501	609	5
460	4	6,8	–	510	9,5	17,7	506,8	578	3
	6	10,9	624	–	12,5	23,5	524	636	5
480	5	7,2	–	534	9,5	17,7	530,6	606	4
	6	11,2	644	–	12,5	23,5	544	656	5
500	5	7,2	–	554	9,5	17,7	550,6	626	4
	6	11,7	664	–	12,5	23,5	564	677	5

Super precision axial angular contact ball bearings 2344

Double direction





Mounting dimensions

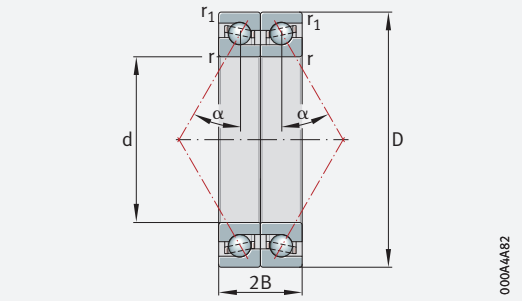
d = 30 – 280 mm

Main dimensions				Basic load ratings		Fatigue limit load	Limiting speeds		Mass	Designation
d	D	B	C	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_G oil	m	
				N	N	N	min^{-1}	min^{-1}	≈ kg	
30	55	32	16	15 300	36 000	3 350	11 000	16 000	0,29	**234406-M-SP**
35	62	34	17	18 900	47 000	4 350	9 500	14 000	0,38	**234407-M-SP**
40	68	36	18	22 900	59 000	5 400	8 500	12 000	0,463	**234408-M-SP**
45	75	38	19	25 000	67 000	6 200	7 500	10 000	0,579	**234409-M-SP**
50	80	38	19	26 000	72 000	6 600	7 000	9 500	0,629	**234410-M-SP**
55	90	44	22	36 500	99 000	9 200	6 300	8 500	0,944	**234411-M-SP**
60	95	44	22	36 000	98 000	9 100	6 000	8 000	1,01	**234412-M-SP**
65	100	44	22	38 500	111 000	10 300	5 600	7 500	1,08	**234413-M-SP**
70	110	48	24	46 000	134 000	12 400	5 300	7 000	1,49	**234414-M-SP**
75	115	48	24	47 500	144 000	13 300	5 000	6 700	1,57	**234415-M-SP**
80	125	54	27	56 000	175 000	15 900	4 500	6 000	2,16	**234416-M-SP**
85	130	54	27	57 000	181 000	16 100	4 500	6 000	2,25	**234417-M-SP**
90	140	60	30	66 000	213 000	18 200	4 000	5 300	2,92	**234418-M-SP**
95	145	60	30	66 000	219 000	18 400	4 000	5 300	3,04	**234419-M-SP**
100	150	60	30	67 000	226 000	18 600	3 800	5 000	3,17	**234420-M-SP**
105	160	66	33	74 000	250 000	20 000	3 600	4 800	4,07	**234421-M-SP**
110	170	72	36	98 000	325 000	25 000	3 400	4 500	5,19	**234422-M-SP**
120	180	72	36	101 000	345 000	26 000	3 200	4 300	5,56	**234424-M-SP**
130	200	84	42	128 000	440 000	31 500	2 800	3 800	8,28	**234426-M-SP**
140	210	84	42	132 000	470 000	32 500	2 600	3 600	8,78	**234428-M-SP**
150	225	90	45	142 000	520 000	35 000	2 600	3 600	10,8	**234430-M-SP**
160	240	96	48	168 000	600 000	39 000	2 400	3 400	12,9	**234432-M-SP**
170	260	108	54	207 000	740 000	46 500	2 200	3 200	17,7	**234434-M-SP**
180	280	120	60	235 000	840 000	51 000	2 000	3 000	23,4	**234436-M-SP**
190	290	120	60	244 000	900 000	53 000	1 900	2 800	24,7	**234438-M-SP**
200	310	132	66	285 000	1 060 000	61 000	1 800	2 600	31,5	**234440-M-SP**
220	340	144	72	340 000	1 330 000	73 000	1 600	2 200	41,7	**234444-M-SP**
240	360	144	72	350 000	1 420 000	75 000	1 500	2 000	43,8	**234448-M-SP**
260	400	164	82	400 000	1 680 000	85 000	1 400	1 900	64,5	**234452-M-SP**
280	420	164	82	415 000	1 790 000	88 000	1 300	1 800	69	**234456-M-SP**

medias *https://www.schaeffler.de/std/1F9A*

Dimensions							Mounting dimensions			
d	d_1	B_1	r min.	r_1 min.	d_s	n_s	d_a h12	D_a H12	r_a max.	r_{a1} max.
30	47	8	1	0,15	3,2	4,8	40,5	50,5	1	0,15
35	53	8,5	1	0,15	3,2	4,8	46,5	57	1	0,15
40	58,5	9	1	0,15	3,2	4,8	51,5	63,5	1	0,15
45	65	9,5	1	0,15	3,2	4,8	57,5	70	1	0,15
50	70	9,5	1	0,15	3,2	4,8	62,5	75	1	0,15
55	78	11	1,1	0,3	3,2	6,5	69	84,5	1,1	0,3
60	83	11	1,1	0,3	3,2	6,5	74	89,5	1,1	0,3
65	88	11	1,1	0,3	3,2	6,5	79	94,5	1,1	0,3
70	97	12	1,1	0,3	3,2	6,5	86,5	103,5	1,1	0,3
75	102	12	1,1	0,3	3,2	6,5	91,5	108,5	1,1	0,3
80	110	13,5	1,1	0,3	3,2	6,5	98,5	117	1,1	0,3
85	115	13,5	1,1	0,3	4,8	9,5	103,5	122	1,1	0,3
90	123	15	1,5	0,3	4,8	9,5	110,5	130,5	1,5	0,3
95	128	15	1,5	0,3	4,8	9,5	115,5	135,5	1,5	0,3
100	133	15	1,5	0,3	4,8	9,5	120,5	140,5	1,5	0,3
105	142	16,5	2	0,6	4,8	9,5	128	150	2	0,6
110	150	18	2	0,6	4,8	9,5	134,5	160	2	0,6
120	160	18	2	0,6	4,8	9,5	144,5	170	2	0,6
130	177	21	2	0,6	6,3	12,2	159	188	2	0,6
140	187	21	2,1	0,6	6,3	12,2	169	198	2,1	0,6
150	200	22,5	2,1	0,6	8	15	181	211,5	2,1	0,6
160	212	24	2,1	0,6	8	15	192,5	226	2,1	0,6
170	230	27	2,1	0,6	8	15	206,5	245	2,1	0,6
180	248	30	2,1	0,6	8	15	221	263	2,1	0,6
190	258	30	2,1	0,6	8	15	231	273	2,1	0,6
200	274	33	2,1	0,6	8	15	245	291,5	2,1	0,6
220	304	36	3	1,1	9,5	17,7	269	318	3	1
240	322	36	3	1,1	9,5	17,7	289	338	3	1
260	354	41	4	1,5	9,5	17,7	317,5	374,5	4	1,5
280	374	41	4	1,5	9,5	17,7	337,5	394,5	4	1,5

Super precision angular contact ball bearings BAX



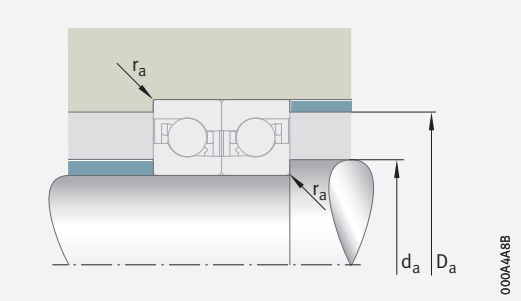
d = 50 – 110 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds		Mass	Designation
d	D	2B	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_G oil	m	
			N	N	N	min^{-1}	min^{-1}	≈ kg	
50	80	28,5	20 300	38 000	3 500	13 000	18 000	0,5	**BAX50-F-T-P4S-DBL**
	80	28,5	25 000	49 500	4 600	11 000	15 000	0,5	**BAX50-H-T-P4S-DBL**
55	90	33	24 200	46 000	4 300	11 000	16 000	0,74	**BAX55-F-T-P4S-DBL**
	90	33	30 000	61 000	5 600	9 500	14 000	0,74	**BAX55-H-T-P4S-DBL**
60	95	33	24 700	49 000	4 550	11 000	15 000	0,8	**BAX60-F-T-P4S-DBL**
	95	33	30 500	64 000	5 900	9 000	13 000	0,8	**BAX60-H-T-P4S-DBL**
65	100	33	26 000	54 000	5 000	10 000	14 000	0,84	**BAX65-F-T-P4S-DBL**
	100	33	32 000	70 000	6 500	8 500	12 000	0,84	**BAX65-H-T-P4S-DBL**
70	110	36	30 000	64 000	5 900	9 000	13 000	1,18	**BAX70-F-T-P4S-DBL**
	110	36	37 000	83 000	7 700	7 500	11 000	1,18	**BAX70-H-T-P4S-DBL**
75	115	36	30 500	67 000	6 200	8 500	12 000	1,24	**BAX75-F-T-P4S-DBL**
	115	36	37 500	87 000	8 000	7 500	10 000	1,24	**BAX75-H-T-P4S-DBL**
80	125	40,5	40 000	88 000	8 000	8 000	11 000	1,68	**BAX80-F-T-P4S-DBL**
	125	40,5	49 500	115 000	10 500	6 700	9 500	1,68	**BAX80-H-T-P4S-DBL**
85	130	40,5	41 000	92 000	8 200	7 500	11 000	1,98	**BAX85-F-T-P4S-DBL**
	130	40,5	50 000	120 000	10 700	6 300	9 000	1,98	**BAX85-H-T-P4S-DBL**
90	140	45	49 500	108 000	9 300	7 000	10 000	2,3	**BAX90-F-T-P4S-DBL**
	140	45	61 000	141 000	12 100	6 000	8 500	2,3	**BAX90-H-T-P4S-DBL**
95	145	45	51 000	113 000	9 500	6 700	9 500	2,4	**BAX95-F-T-P4S-DBL**
	145	45	62 000	147 000	12 500	5 600	8 000	2,4	**BAX95-H-T-P4S-DBL**
100	150	45	52 000	118 000	9 800	6 300	9 000	2,58	**BAX100-F-T-P4S-DBL**
	150	45	63 000	154 000	12 800	5 600	8 000	2,58	**BAX100-H-T-P4S-DBL**
105	160	49,5	52 000	124 000	10 000	6 000	8 500	3,2	**BAX105-F-T-P4S-DBL**
	160	49,5	64 000	162 000	13 000	5 300	7 500	3,2	**BAX105-H-T-P4S-DBL**
110	170	54	64 000	150 000	11 700	5 600	8 000	4,12	**BAX110-F-T-P4S-DBL**
	170	54	78 000	195 000	15 300	4 800	7 000	4,12	**BAX110-H-T-P4S-DBL**

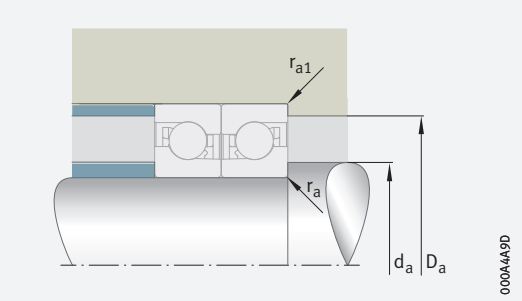
medias *https://www.schaeffler.de/std/1F9A*

[1] Light preload.

[2] Moderate preload.



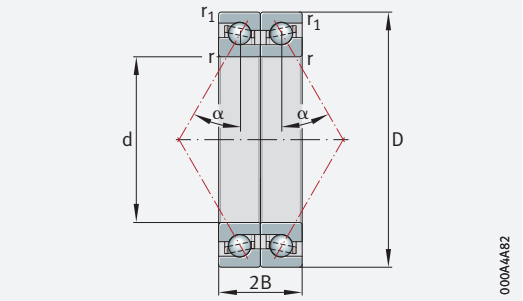
Mounting dimensions



Mounting dimensions

Dimensions			Contact angle	Mounting dimensions				Preload force F_V		Lift-off force K_{aE}		Axial rigidity c_a	
d	r	r_1	α	d_a h12	D_a H12	r_a	r_{a1}	L[1]	M[2]	L[1]	M[2]	L[1]	M[2]
	min.	min.	°			max.	max.	N	N	N	N	N/µm	N/µm
50	0,6	0,6	30	57	73	0,6	0,6	84	416	240	1 214	123	216
	0,6	0,6	40	57	73	0,6	0,6	107	595	304	1 711	200	361
55	0,6	0,6	30	63,5	81,5	0,6	0,6	88	436	251	1 269	129	226
	0,6	0,6	40	63,5	81,5	0,6	0,6	144	741	410	2 131	229	401
60	0,6	0,6	30	68,5	86,5	0,6	0,6	110	517	315	1 508	143	247
	0,6	0,6	40	68,5	86,5	0,6	0,6	143	747	407	2 147	235	415
65	0,6	0,6	30	73,5	91,5	0,6	0,6	120	554	343	1 615	156	268
	0,6	0,6	40	73,5	91,5	0,6	0,6	155	792	441	2 276	256	448
70	0,6	0,6	30	80,5	99,5	0,6	0,6	149	661	426	1 928	173	293
	0,6	0,6	40	80,5	99,5	0,6	0,6	194	944	552	2 713	284	489
75	0,6	0,6	30	85,5	104,5	0,6	0,6	149	668	426	1 947	178	302
	0,6	0,6	40	85,5	104,5	0,6	0,6	194	955	552	2 744	292	504
80	0,6	0,6	30	91	113,5	0,6	0,6	217	903	621	2 633	206	342
	0,6	0,6	40	91	113,5	0,6	0,6	297	1 323	845	3 803	345	577
85	0,6	0,6	30	96	118,5	0,6	0,6	220	922	630	2 688	213	354
	0,6	0,6	40	96	118,5	0,6	0,6	297	1 332	845	3 828	354	594
90	0,6	0,6	30	102	128	0,6	0,6	300	1 181	860	3 447	234	381
	0,6	0,6	40	102	128	0,6	0,6	406	1 700	1 156	4 888	389	637
95	0,6	0,6	30	107	133	0,6	0,6	296	1 188	848	3 465	239	392
	0,6	0,6	40	107	133	0,6	0,6	400	1 711	1 139	4 918	398	657
100	0,6	0,6	30	112	138	0,6	0,6	299	1 206	856	3 516	247	404
	0,6	0,6	40	112	138	0,6	0,6	404	1 740	1 150	5 000	410	678
105	1	1	30	119,5	145,5	1	1	297	1 216	850	3 543	253	416
	1	1	40	119,5	145,5	1	1	396	1 737	1 127	4 989	418	695
110	1	1	30	125,5	154,5	1	1	380	1 495	1 088	4 357	278	451
	1	1	40	125,5	154,5	1	1	524	2 178	1 491	6 258	466	760

Super precision angular contact ball bearings BAX



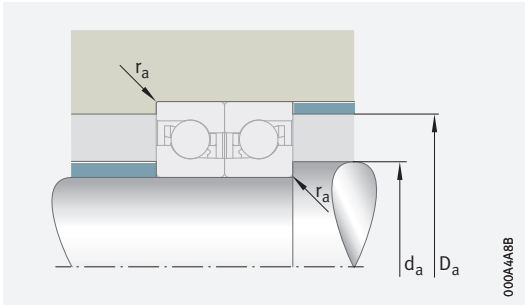
d = 120 – 200 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speeds		Mass	Designation
d	D	2B	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_G oil	m	
			N	N	N	min^{-1}	min^{-1}	≈ kg	
120	180	54	66 000	163 000	12 300	5 300	7 500	4,42	**BAX120-F-T-P4S-DBL**
	180	54	81 000	212 000	16 100	4 500	6 300	4,42	**BAX120-H-T-P4S-DBL**
130	200	63	90 000	217 000	15 700	4 800	7 000	6,54	**BAX130-F-T-P4S-DBL**
	200	63	111 000	285 000	20 400	4 000	6 000	6,54	**BAX130-H-T-P4S-DBL**
140	210	63	94 000	237 000	16 600	4 500	6 700	6,96	**BAX140-F-T-P4S-DBL**
	210	63	115 000	310 000	21 700	3 800	5 600	6,96	**BAX140-H-T-P4S-DBL**
150	225	67,5	101 000	255 000	17 300	4 300	6 000	8,2	**BAX150-F-T-P4S-DBL**
	225	67,5	124 000	335 000	22 500	3 600	5 300	8,2	**BAX150-H-T-P4S-DBL**
160	240	72	111 000	290 000	19 000	4 000	5 600	10,6	**BAX160-F-T-P4S-DBL**
	240	72	136 000	380 000	24 700	3 400	4 800	10,6	**BAX160-H-T-P4S-DBL**
170	260	81	143 000	370 000	23 200	3 800	5 300	13,4	**BAX170-F-T-P4S-DBL**
	260	81	175 000	480 000	30 500	3 200	4 500	13,4	**BAX170-H-T-P4S-DBL**
180	280	90	177 000	450 000	27 500	3 400	5 000	17,8	**BAX180-F-T-P4S-DBL**
	280	90	218 000	590 000	36 000	3 000	4 300	17,8	**BAX180-H-T-P4S-DBL**
190	290	90	181 000	470 000	28 000	3 400	4 800	18,6	**BAX190-F-T-P4S-DBL**
	290	90	222 000	610 000	36 500	2 800	4 000	18,6	**BAX190-H-T-P4S-DBL**
200	310	99	183 000	495 000	28 500	3 200	4 500	24	**BAX200-F-T-P4S-DBL**
	310	99	225 000	640 000	37 500	2 600	3 800	24	**BAX200-H-T-P4S-DBL**

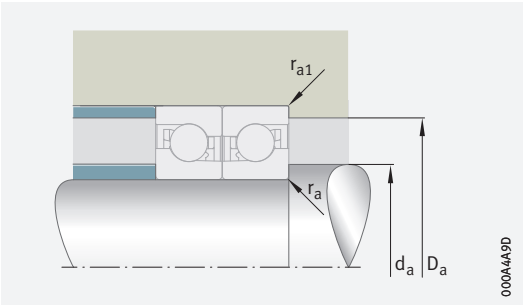
medias *https://www.schaeffler.de/std/1F9A*

[1] Light preload.

[2] Moderate preload.



Mounting dimensions



Mounting dimensions

Dimensions			Contact angle	Mounting dimensions				Preload force F_V		Lift-off force K_{aE}		Axial rigidity c_a	
d	r	r_1	α	d_a h12	D_a H12	r_a	r_{a1}	L[1]	M[2]	L[1]	M[2]	L[1]	M[2]
	min.	min.	°			max.	max.	N	N	N	N	N/µm	N/µm
120	1	1	30	135,5	164,5	1	1	392	1 554	1 122	4 525	296	481
	1	1	40	135,5	164,5	1	1	543	2 275	1 545	6 535	496	811
130	1	1	30	147,5	182,5	1	1	603	2 235	1 729	6 518	338	538
	1	1	40	147,5	182,5	1	1	850	3 280	2 421	9 429	570	907
140	1	1	30	157,5	192,5	1	1	621	2 317	1 779	6 752	360	573
	1	1	40	157,5	192,5	1	1	865	3 372	2 463	9 688	604	965
150	1,1	1,1	30	169	206	1,1	1,1	674	2 494	1 931	7 266	375	596
	1,1	1,1	40	169	206	1,1	1,1	938	3 623	2 670	10 408	630	1 003
160	1,1	1,1	30	180,5	219,5	1,1	1,1	752	2 764	2 154	8 049	405	641
	1,1	1,1	40	180,5	219,5	1,1	1,1	1 052	4 028	2 995	11 569	681	1 080
170	1,1	1,1	30	192,5	237,5	1,1	1,1	1 016	3 609	2 912	10 517	448	702
	1,1	1,1	40	192,5	237,5	1,1	1,1	1 447	5 305	4 121	15 244	758	1 185
180	1,1	1,1	30	204	255,5	1,1	1,1	1 329	4 610	3 811	13 438	498	775
	1,1	1,1	40	204	255,5	1,1	1,1	1 910	6 798	5 441	19 538	846	1 310
190	1,1	1,1	30	214	265,5	1,1	1,1	1 082	4 261	3 096	12 394	477	773
	1,1	1,1	40	214	265,5	1,1	1,1	1 503	6 245	4 276	17 927	801	1 306
200	1,1	1,1	30	229	280,5	1,1	1,1	1 089	4 312	3 116	12 537	490	796
	1,1	1,1	40	229	280,5	1,1	1,1	1 501	6 286	4 270	18 039	822	1 343

2 Bearings for screw drives

2.1 General features

✎ *Design variants*

Bearings for screw drives are available as:

- axial angular contact ball bearings
  - double row, for screw mounting ➤ *1293* | *1*
  - double row, not for screw mounting ➤ *1293* | *2*
  - single row, for any combination ➤ *1293* | *3*
  - angular contact ball bearing unit, for screw mounting ➤ *1293* | *4*
  - double row or triple row, flange with flattened areas, for screw mounting ➤ *1294* | *5*
- needle roller/axial cylindrical roller bearings
  - for screw mounting
  - not for screw mounting
- with accessories
  - seal carrier assembly
  - precision locknuts
  - sockets
  - free-of-charge calculation using BEARINX-online Easy Ballscrew

Product catalogue

The standard range of these bearings is described in detail in Technical Product Information TPI 123, Bearings for Screw Drives, and in our electronic product catalogue ***medias*** *professional*.

✎ *Downloading TPI 123*

Technical Product Information TPI 123 is available from Schaeffler at *https://www.schaeffler.de/std/1D5A*.

✎ ***medias***

The following link will take you to the Schaeffler electronic product selection and information system: *https://medias.schaeffler.com*.

✎ *App for services*

The app “PrecisionDesk” offers extensive services for rotary and linear bearings of a super precision design and assists fitters and engineers in the selection and mounting of bearings. Further information on PrecisionDesk ➤ *1404*, download *https://www.schaeffler.de/std/1D59*.

Calculations on screw drive bearing arrangements can be carried out free of charge using BEARINX-online Easy Ballscrew.

2.2 Axial angular contact ball bearings

Bearing design

✎ *Precision bearings for screw drive bearing arrangements*

Axial angular contact ball bearings are precision bearings for screw drive bearing arrangements. Depending on the series, they can support radial forces as well as axial forces in one or both directions. Contact seals protect the rolling element system against contamination and moisture. For higher speeds, non-contact minimal gap seals can be used.

✎ *With and without fixing holes*

The bearings are available with and without fixing holes in the outer ring. Bearings with holes are screw mounted directly on the adjacent construction. This solution is particularly economical since there is then no need for the locating bore that would otherwise be required or for the bearing cover with the associated matching work.

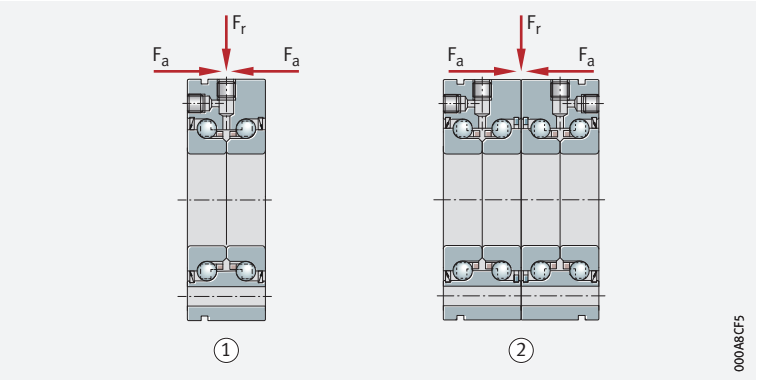
✎ *Available with less stringent tolerances*

For some areas of application, a bearing arrangement of lower precision is often sufficient. For this purpose, bearings with less stringent tolerances are available.

1
Axial angular contact ball bearings, double row, with fixing holes

① *With lip seals or minimal gap seals ZKLF..-2RS, ZKLF..-2Z, ZKLF..-2RS-PE*

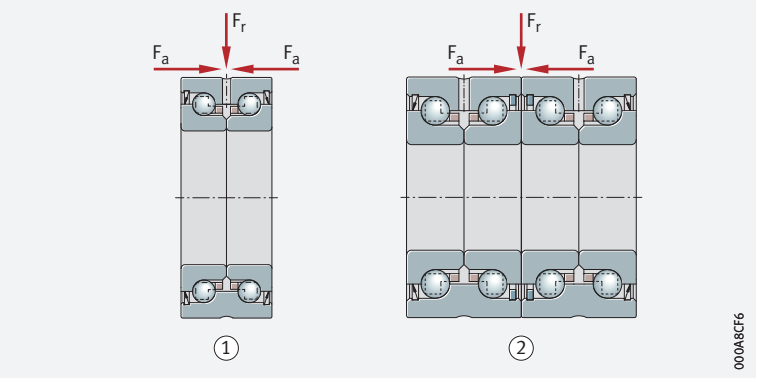
② *Matched pair ZKLF..-2RS-2AP*



2
Axial angular contact ball bearings, double row, without fixing holes

① *With lip seals or minimal gap seals ZKLN..-2RS, ZKLN..-2Z, ZKLN..-2RS-PE*

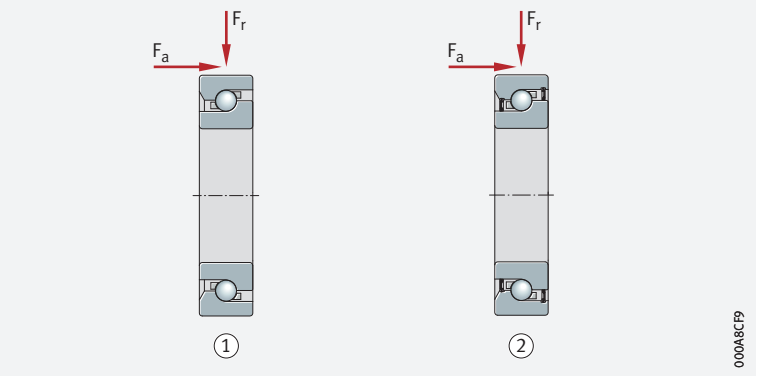
② *Matched pair ZKLN..-2RS-2AP*



3
Axial angular contact ball bearings, single row, for any combination

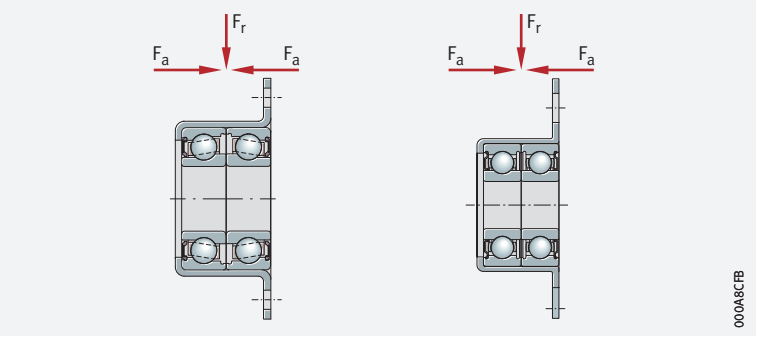
① *Without seals 7602, 7603, BSB, BSB..-SU*

② *With seals 7602..-2RS, 7603..-2RS, BSB..-2RS, BSB..-2Z-SU*



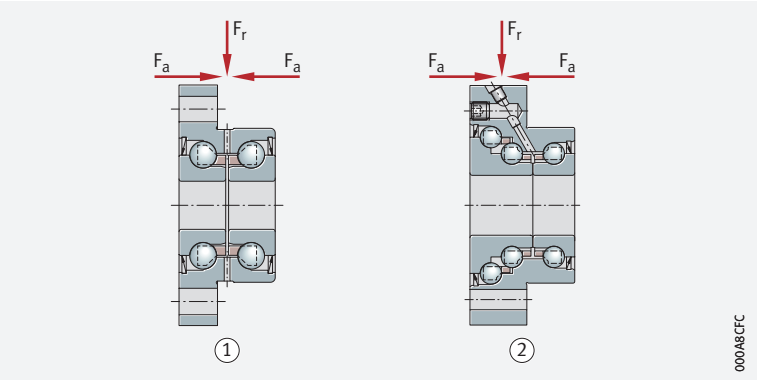
4
Angular contact ball bearing unit, with fixing holes

Lip seals or gap seals ZKLR..-2RS, ZKLR..-2Z



5
Axial angular contact ball bearings, double or triple row, flange with flattened areas, with fixing holes

① *Double row, lip seals or minimal gap seals ZKLFA..-2RS, ZKLFA..-2Z*
② *Triple row, lip seals DKLFA..-2RS*



For special requirements

Screw drive bearing arrangements are subjected to requirements that often cannot be optimally fulfilled by the design construction of conventional bearings.

Wide product range

For the design of bearing arrangements that have high accuracy, high load carrying capacity, high rigidity, low friction, are easy to fit and maintenance-free or low-maintenance and are suitable for the highly dynamic operating conditions of threaded spindles, there is a wide range of INA and FAG axial angular contact ball bearings. With this product range, solutions can be found to all the technical and economic demands placed on the bearing arrangements of feed spindles ➤ *1300*.

Single row and multiple row designs

Axial angular contact ball bearings are available as single, double or triple row ready-to-fit units. They are self-retaining and comprise thick-walled, geometrically stable outer rings, ball and cage assemblies and one-piece or two-piece inner rings. In several series, the outer ring has through holes for simple flange mounting of the bearing to the adjacent construction. The bearing rings are matched to each other such that a defined preload is achieved when the rings are clamped in place using a precision locknut.

Axial and radial load capacity

Due to the 60° contact angle, the bearings can support high axial forces as well as radial forces.

In X or O arrangement

In arrangements of multiple row angular contact ball bearings, a distinction is made between O, X and tandem arrangements in relation to the arrangement of contact angles. The arrangement of contact angles has an essential influence on the tilting rigidity of the bearing position.

The characteristics of the O arrangement are:
- high tilting rigidity
- higher critical whirling speed of the threaded spindle due to the high tilting rigidity of the bearing position
- longer rating life under additional radial loads due, for example, to a belt drive

The characteristics of the X arrangement are:
- low tilting rigidity
- lower critical whirling speed of the threaded spindle
- shorter rating life under additional radial loads due, for example, to a belt drive

X-life premium quality

Axial angular contact ball bearings ZKLF, ZKLN and BSB..-SU-XL are supplied in the X-life design.

As a result of increased raceway accuracy and raceway quality, there is a significant reduction in the stress conditions present on the rolling elements and raceways under the same load, compared to the standard bearings. The improved quality gives reduced friction in the bearing and lower bearing temperatures; running resistance is lower, less strain is placed on the lubricant and the grease operating life and, where applicable, necessary relubrication intervals are extended. As a result of the lower frictional energy, there is a simultaneous increase in the energy efficiency of the bearing arrangement.

Higher basic load ratings and limiting speeds with X-life

The basic dynamic load ratings C_a of axial angular contact ball bearings in the X-life design are 10% higher than those of the previous standard designs. This leads to a longer rating life L_{10} or can be used to allow higher loads on the bearing arrangement while achieving the same rating life. The lower bearing friction and associated reduction in heat generation in the bearing permit significantly higher limiting speeds $n_{G\ grease}$.

Temperature range

Limiting values

The operating temperature of the bearings is limited by:

- the dimensional stability of the bearing rings and rolling elements
- the cage
- the lubricant
- the seals

Possible operating temperatures of axial angular contact ball bearings ➤ *1295*| *1*.

1 *Permissible temperature range*

Operating temperature	Axial angular contact ball bearings	
	from	to
	–30 °C	+120 °C

The operating temperature influences the dynamic bearing characteristics. The values given in the product tables are based on a room temperature of +20 °C.

Cages

The axial angular contact ball bearings have plastic cages. The cage design is not indicated in the suffix.

In axial angular contact ball bearings 7602, 7603 and BSB, the polyamide cages are indicated by the suffix TVP or T.

Suffixes

For a description of the suffixes used in this chapter ➤ *1295*| *2* and ***medias*** interchange *https://www.schaeffler.de/std/1D52*.

2 *Suffixes and corresponding descriptions*

Suffix	Description of suffix	
PE	Bearing design with less stringent tolerances	Standard
T, TVP	Polyamide cage	
2AP	Axial angular contact ball bearings, matched pair (ZKLN, ZKLF)	
2RS	Contact seal on both sides (lip seal)	
2Z	Minimal gap seal on both sides	
L055	Greased with high performance grease Arcanol MULTITOP	
SU	Universal bearing; single bearings can be used in sets in any combination required	
HC	Hybrid Ceramic, rings made from rolling bearing steel, balls made from ceramic	Special design, available by agreement

2.3 Needle roller/axial cylindrical roller bearings

Bearing design

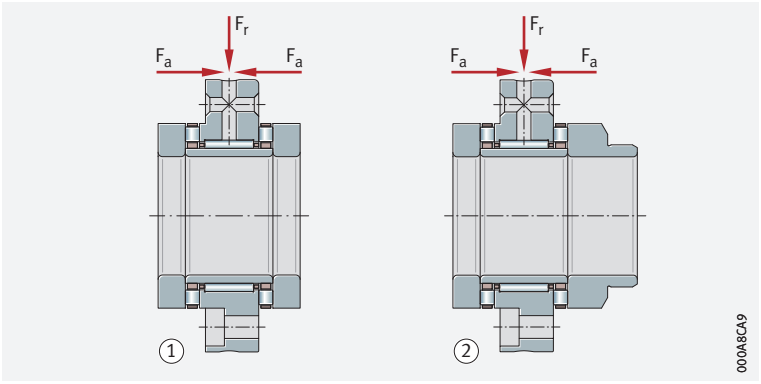
Double direction

These precision bearings are double direction axial cylindrical roller bearings with a radial bearing component.

With and without fixing holes

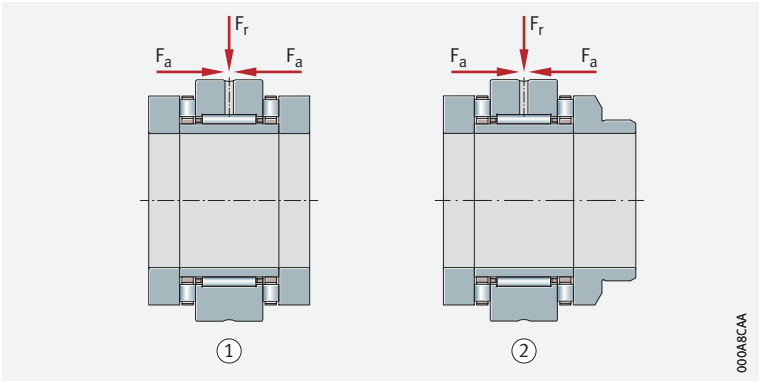
The bearings are available with and without fixing holes in the outer ring. Bearings with holes are screw mounted directly on the adjacent construction. The large contact surface and the small pitch of the holes allow a connection to the adjacent construction that is extremely rigid and with low tendency to settling. There is therefore no need for the bearing cover that would otherwise be required to hold the bearing, and the matching work required.

If the axial abutment of the shaft locating washer is not sufficient or a seal raceway is required, bearings with a stepped shaft locating washer extended on one side are suitable.



6 *Needle roller/axial cylindrical roller bearings, for screw mounting*

① *ZARF*
② *With stepped shaft locating washer extended on one side ZARF..-L*



7 *Needle roller/axial cylindrical roller bearings, not for screw mounting*

① *ZARN*
② *With stepped shaft locating washer extended on one side ZARN..-L*

Features

Needle roller/axial cylindrical roller bearings comprise an outer ring with radial and axial raceways, shaft locating washers, an inner ring, a radial needle roller and cage assembly and axial cylindrical roller and cage assemblies. The bearings are available with or without fixing holes.

Capable of supporting radial and axial loads

In addition to radial forces, the bearings can also support axial forces from both directions and tilting moments.

Preload and internal clearance

The outer ring, inner ring and axial cages are matched to each other such that the bearing is axially clearance-free after preloading by means of an INA precision locknut. The radial internal clearance corresponds to Group 2 in accordance with ISO 5753-1 (DIN 620-4).

Bearings for screw mounting

Screw mounting of the outer ring: cover and matching work can be dispensed with

Needle roller/axial cylindrical roller bearings ZARF(-L) have holes in the outer ring. These are used for screw mounting directly on the adjacent construction or in a radial locating bore. Due to screw mounting of the outer ring, the cover that would otherwise be required and the matching work can therefore be dispensed with. The bearings are preloaded against the shaft shoulder by means of a locknut AM or ZM(A).

With seal carrier assembly

In the interests of a simpler design, a seal carrier assembly DRS is recommended. The seal carrier assembly is centred on the outer ring and seals the bearing against external influences.

Bearings not for screw mounting

Mounting in the housing bore

Bearings ZARN(-L) are mounted in the housing bore and the outer ring is located using a cover. They are preloaded against the shaft shoulder by means of a locknut AM or ZM(A).

With stepped shaft locating washer

ZARN/F..-L has a stepped shaft locating washer extended on one side. These series are used in preference where the shaft locating washer is not adequately supported axially by the shaft shoulder or the bearing unit cannot be sealed on the outside surface of the normal shaft locating washer due to space conditions in the adjacent construction.

Heavy series

ZARN/F(-L) is also available in a heavy series. This series has a larger cross-section for the same shaft diameter and therefore higher basic load ratings.

Temperature range

Limiting values

The operating temperature of the bearings is limited by:

- the dimensional stability of the bearing rings and rolling elements
- the lubricant
- the seals

Possible operating temperatures of needle roller/axial cylindrical roller bearings ➤ *1297* | ▦ *3*.

▦ *3*
Permissible temperature range

Operating temperature	Needle roller/axial cylindrical roller bearings	
	from	to
	–30 °C	+120 °C

Suffixes

For a description of the suffixes used in this chapter ➤ *1297* | ▦ *4* and ***medias*** interchange *https://www.schaeffler.de/std/1D52*.

▦ *4*
Suffixes and corresponding descriptions

Suffix	Description of suffix	
L	Stepped shaft locating washer extended on one side	Standard
TVP	Axial bearing cages made from glass fibre reinforced polyamide PA66	

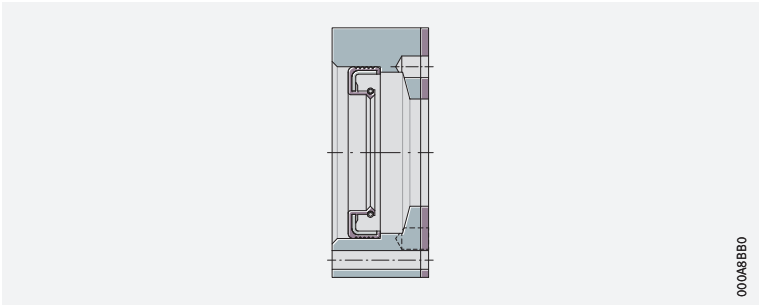
2.4 Accessories

Seal carrier assemblies

✎ *Complete sealing sets*

Seal carrier assemblies DRS are complete sealing sets ➤*1298*|🗀*8* that are screw mounted on the outer ring of needle roller/axial cylindrical roller bearings ZARF(-L). They are precisely centred in this position and seal the bearings against external influences ➤*1298*|🗀*9*.

🗀**8**
Seal carrier assembly DRS



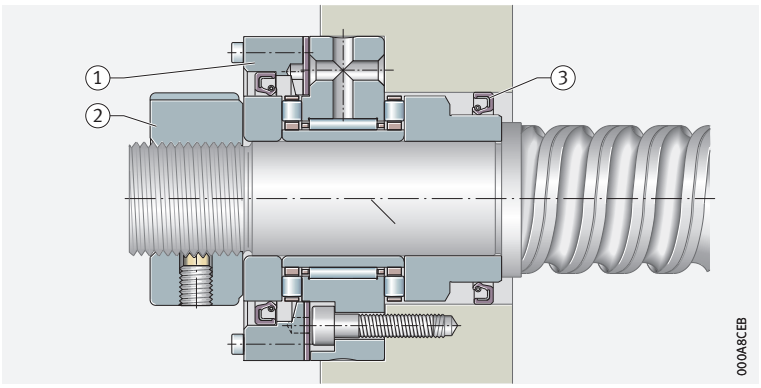
✎ *Components of DRS*

The sealing elements are supplied as a complete set of individual parts and comprise:

- a seal flange
- a rotary shaft seal to DIN 3760, with an elastomer part made from NBR
- a gasket
- hexagonal socket head screws for fixing the carrier to the central washer of the bearing

🗀**9**
Needle roller/axial cylindrical roller bearing ZARF..-L with seal carrier assembly

① *Seal carrier assembly DRS*
② *Precision locknut ZM or ZMA*
③ *Rotary shaft seal to DIN 3760*



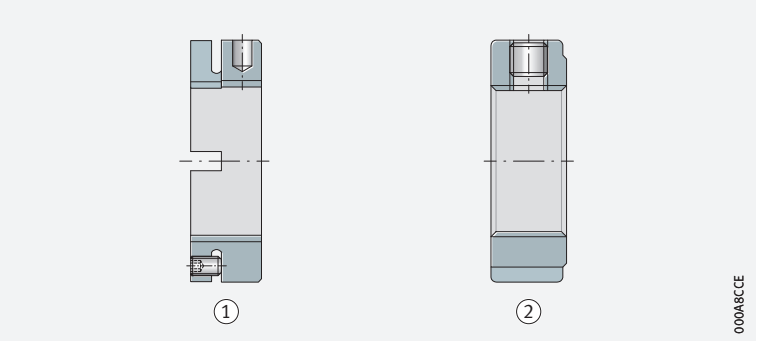
Precision locknuts

Precision locknuts are used in the axial preloading of bearings for screw drives

Precision locknuts are used to achieve a defined axial preload in bearings for screw drives. They are also used where high axial forces must be supported and high axial runout accuracy and rigidity are required.

10
Precision locknuts

① *For axial clamping AM*
② *For radial clamping ZM or ZMA*

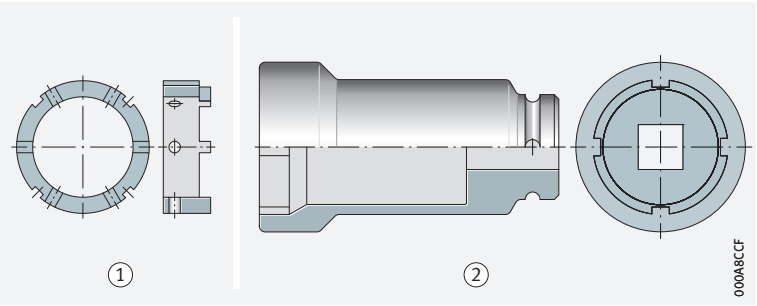


Sockets

For simple tightening and loosening of precision locknuts ZM on shafts, the sockets LOCKNUT-SOCKET-KM ➤ *1299* | *11* are suitable. In combination with the socket AMS, this socket is also suitable for precision locknuts AM. They require less space on the circumference of the locknut than hook wrenches and allow the use of torque wrenches.

11
FAG sockets for precision locknuts ZM and sockets AMS

① *Socket AMS*
② *Socket LOCKNUT-SOCKET-KM*

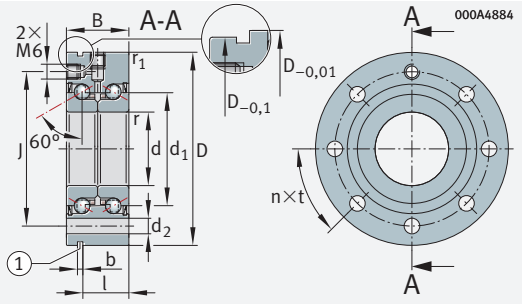


Secure sockets using a locking pin and rubber washer

For increased reliability, FAG sockets should be secured using a locking pin and rubber washer. They therefore have a hole for the locking pin and a groove for the rubber washer. The locking pin and rubber washer are included in the scope of delivery.

Axial angular contact ball bearings

With fixing holes



ZKLF..-2RS, ZKLF..-2Z (d ≦ 50 mm)

d = 12 – 20 mm

Main dimensions			Dimensions			Designation
d	D	B	d_1	r min.	r_1 min.	
12 0/–0,005	55 0/–0,010	25 0/–0,25	25	0,3	0,6	**ZKLF1255-2RS-XL**
0/–0,005	55 0/–0,010	25 0/–0,25	25	0,3	0,6	**ZKLF1255-2Z-XL**
15 0/–0,005	60 0/–0,010	25 0/–0,25	28	0,3	0,6	**ZKLF1560-2RS-XL**
0/–0,005	60 0/–0,010	25 0/–0,25	28	0,3	0,6	**ZKLF1560-2Z-XL**
17 0/–0,005	62 0/–0,010	25 0/–0,25	30	0,3	0,6	**ZKLF1762-2RS-XL**
0/–0,005	62 0/–0,010	25 0/–0,25	30	0,3	0,6	**ZKLF1762-2Z-XL**
20 0/–0,005	68 0/–0,010	28 0/–0,25	34,5	0,3	0,6	**ZKLF2068-2RS-XL**
0/–0,005	68 0/–0,010	28 0/–0,25	34,5	0,3	0,6	**ZKLF2068-2Z-XL**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Mass	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	m ≈ kg	
12	18 600	24 700	1 500	9 200	3 800	0,16	0,37	**ZKLF1255-2RS-XL**
	18 600	24 700	1 500	12 000	7 600	0,08	0,37	**ZKLF1255-2Z-XL**
15	19 600	28 000	1 700	8 200	3 500	0,2	0,43	**ZKLF1560-2RS-XL**
	19 600	28 000	1 700	10 800	7 000	0,1	0,43	**ZKLF1560-2Z-XL**
17	20 700	31 000	1 890	7 600	3 300	0,24	0,45	**ZKLF1762-2RS-XL**
	20 700	31 000	1 890	10 100	6 600	0,12	0,45	**ZKLF1762-2Z-XL**
20	28 500	47 000	2 850	6 600	3 000	0,3	0,61	**ZKLF2068-2RS-XL**
	28 500	47 000	2 850	8 700	5 400	0,15	0,61	**ZKLF2068-2Z-XL**

medias *https://www.schaeffler.de/std/1F9A*

① Extraction slot. ② Adjacent construction, bearing screw mounted on flat surface.
③ Adjacent construction, bearing screw mounted in bore. ④ Only valid in assembled condition.

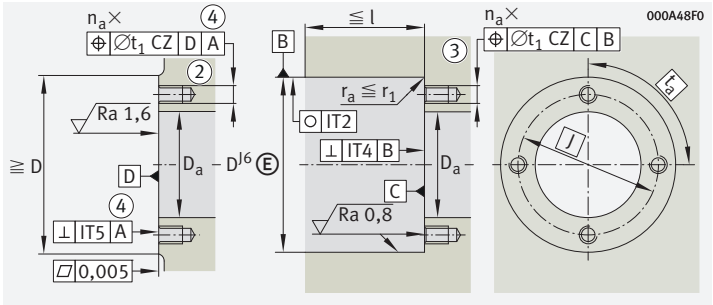
1) Screws 10.9 not included in scope of delivery. Tightening torque according to manufacturer's data. Number of holes in adjacent construction corresponds to n_a.

2) Based on rotating inner ring.

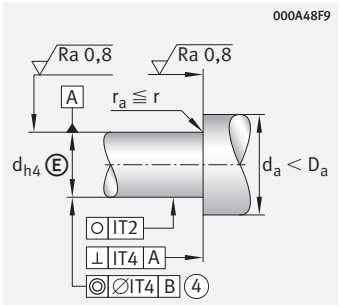
3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

4) The required axial locknut force must be observed when using other locknuts.

5) Only valid in conjunction with INA precision locknuts. Observe the guidelines on locating/locating bearing arrangements TPI 123.



Housing design



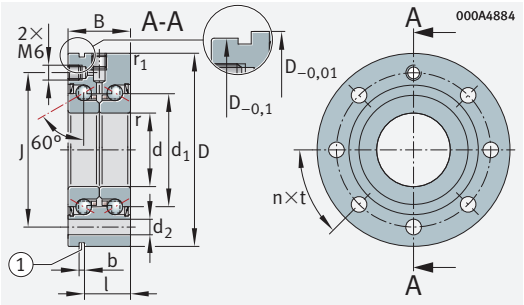
Shaft design (threaded spindle)

Dimensions					Pitch		Mounting dimensions			Fixing screws[1] DIN EN ISO 4762		
d	J	d_2	b	l	n	t °	D_a max.	d_a min.	t_1	Size	n_a	t_a °
12	42	6,8	3	17	3	120	33	16	0,1	M6	3	120
	42	6,8	3	17	3	120	33	16	0,1	M6	3	120
15	46	6,8	3	17	3	120	35	20	0,1	M6	3	120
	46	6,8	3	17	3	120	35	20	0,1	M6	3	120
17	48	6,8	3	17	6	60	37	23	0,1	M6	3	120
	48	6,8	3	17	6	60	37	23	0,1	M6	3	120
20	53	6,8	3	19	8	45	43	25	0,1	M6	4	90
	53	6,8	3	19	8	45	43	25	0,1	M6	4	90

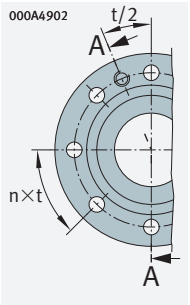
	Rigidity axial	Tilting rigidity	Mass moment of inertia[2]	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4]
					for radial clamping	for axial clamping	Tightening torque[5]	axial
d	c_{aL}	c_{kL}	M_m				M_A	
	N/µm	Nm/mrad	kg · cm²	µm			Nm	N
12	375	50	0,068	2	ZM12	–	8	5 307
	375	50	0,068	2	ZM12	–	8	5 307
15	400	65	0,102	2	ZM15	AM15	10	5 484
	400	65	0,102	2	ZM15	AM15	10	5 484
17	450	80	0,132	2	ZM17	AM17	15	7 514
	450	80	0,132	2	ZM17	AM17	15	7 514
20	650	140	0,273	2	ZM20	AM20	18	8 258
	650	140	0,273	2	ZM20	AM20	18	8 258

Axial angular contact ball bearings

With fixing holes



ZKLF..-2RS, ZKLF..-2Z (d ≦ 50 mm)



ZKLF30100

d = 25 – 35 mm

Main dimensions			Dimensions			Designation
d	D	B	d_1	r min.	r_1 min.	
25 0/−0,005	75 0/−0,010	28 0/−0,25	40,5	0,3	0,6	**ZKLF2575-2RS-XL**
0/−0,005	75 0/−0,010	28 0/−0,25	40,5	0,3	0,6	**ZKLF2575-2Z-XL**
30 0/−0,005	80 0/−0,010	28 0/−0,25	45,5	0,3	0,6	**ZKLF3080-2RS-XL**
0/−0,005	80 0/−0,010	28 0/−0,25	45,5	0,3	0,6	**ZKLF3080-2Z-XL**
0/−0,005	100 0/−0,010	38 0/−0,25	51	0,3	0,6	**ZKLF30100-2RS-XL**[2]
0/−0,005	100 0/−0,010	38 0/−0,25	51	0,3	0,6	**ZKLF30100-2Z-XL**[2]
35 0/−0,005	90 0/−0,010	34 0/−0,25	52	0,3	0,6	**ZKLF3590-2RS-XL**
0/−0,005	90 0/−0,010	34 0/−0,25	52	0,3	0,6	**ZKLF3590-2Z-XL**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Mass	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	m ≈ kg	
25	30 500	55 000	3 350	5 700	2 600	0,4	0,72	**ZKLF2575-2RS-XL**
	30 500	55 000	3 350	7 500	4 700	0,2	0,72	**ZKLF2575-2Z-XL**
30	32 000	64 000	3 850	5 000	2 200	0,5	0,78	**ZKLF3080-2RS-XL**
	32 000	64 000	3 850	6 700	4 300	0,25	0,78	**ZKLF3080-2Z-XL**
	65 000	108 000	6 500	4 500	2 100	0,8	1,63	**ZKLF30100-2RS-XL**[2]
	65 000	108 000	6 500	5 600	4 000	0,4	1,63	**ZKLF30100-2Z-XL**[2]
35	45 000	89 000	5 400	4 400	2 000	0,6	1,13	**ZKLF3590-2RS-XL**
	45 000	89 000	5 400	5 800	3 800	0,3	1,13	**ZKLF3590-2Z-XL**

medias *https://www.schaeffler.de/std/1F9A*

① Extraction slot. ② Adjacent construction, bearing screw mounted on flat surface.
③ Adjacent construction, bearing screw mounted in bore. ④ Only valid in assembled condition.

1) Screws 10.9 not included in scope of delivery. Tightening torque according to manufacturer's data. Number of holes in adjacent construction corresponds to n_a.

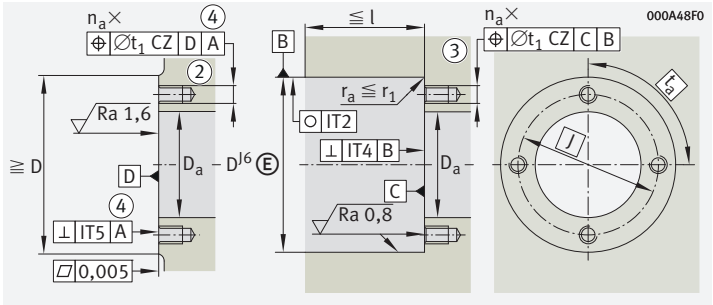
2) Heavy series.

3) Based on rotating inner ring.

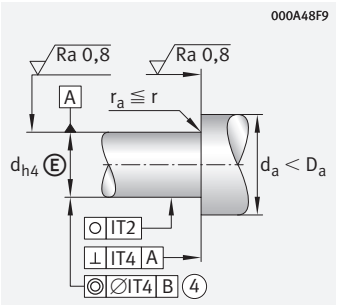
4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts. Observe the guidelines on locating/locating bearing arrangements TPI 123.



Housing design



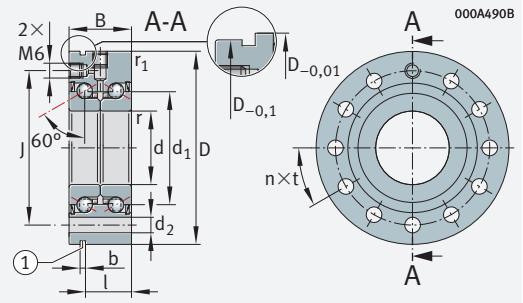
Shaft design (threaded spindle)

Dimensions					Pitch		Mounting dimensions			Fixing screws[1] DIN EN ISO 4762		
d	J	d_2	b	l	n	t °	D_a max.	d_a min.	t_1	Size	n_a	t_a °
25	58	6,8	3	19	8	45	48	32	0,1	M6	4	90
	58	6,8	3	19	8	45	48	32	0,1	M6	4	90
30	63	6,8	3	19	12	30	53	40	0,1	M6	6	60
	63	6,8	3	19	12	30	53	40	0,1	M6	6	60
	80	8,8	3	30	8	45	64	47	0,2	M8	8	45
	80	8,8	3	30	8	45	64	47	0,2	M8	8	45
35	75	8,8	3	25	8	45	62	45	0,2	M8	4	90
	75	8,8	3	25	8	45	62	45	0,2	M8	4	90

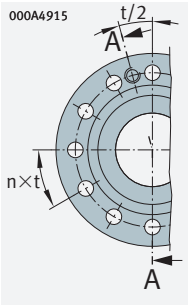
	Rigidity axial	Tilting rigidity	Mass moment of inertia[3]	Axial runout[3]	Recommended INA precision locknuts[4]			Required locknut force[5]
					for radial clamping	for axial clamping	Tightening torque[6]	axial
d	c_{aL}	c_{kL}	M_m				M_A	
	N/µm	Nm/mrad	kg · cm²	µm			Nm	N
25	750	200	0,486	2	ZM25	AM25	25	9 123
	750	200	0,486	2	ZM25	AM25	25	9 123
30	850	300	0,73	2,5	ZM30	AM30	32	9 947
	850	300	0,73	2,5	ZM30	AM30	32	9 947
	950	400	1,91	2,5	ZMA30/52	AM30	65	19 509
	950	400	1,91	2,5	ZMA30/52	AM30	65	19 509
35	900	400	1,51	2,5	ZM35	AM35/58	40	10 770
	900	400	1,51	2,5	ZM35	AM35/58	40	10 770

Axial angular contact ball bearings

With fixing holes



ZKLF..-2RS, ZKLF..-2Z (d ≦ 50 mm)



ZKLF40115
ZKLF50140

d = 40 – 50 mm

Main dimensions			Dimensions			Designation
d	D	B	d_1	r min.	r_1 min.	
40 0/–0,005	100 0/–0,010	34 0/–0,25	58	0,3	0,6	**ZKLF40100-2RS-XL**
0/–0,005	100 0/–0,010	34 0/–0,25	58	0,3	0,6	**ZKLF40100-2Z-XL**
0/–0,005	115 0/–0,010	46 0/–0,25	65	0,6	0,6	**ZKLF40115-2RS-XL**[2]
0/–0,005	115 0/–0,010	46 0/–0,25	65	0,6	0,6	**ZKLF40115-2Z-XL**[2]
50 0/–0,005	115 0/–0,010	34 0/–0,25	72	0,3	0,6	**ZKLF50115-2RS-XL**
0/–0,005	115 0/–0,010	34 0/–0,25	72	0,3	0,6	**ZKLF50115-2Z-XL**
0/–0,005	140 0/–0,010	54 0/–0,25	80	0,6	0,6	**ZKLF50140-2RS-XL**[2]
0/–0,005	140 0/–0,010	54 0/–0,25	80	0,6	0,6	**ZKLF50140-2Z-XL**[2]

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Mass	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	m ≈ kg	
40	47 500	101 000	6 100	4 000	1 800	0,7	1,46	**ZKLF40100-2RS-XL**
	47 500	101 000	6 100	5 200	3 300	0,35	1,46	**ZKLF40100-2Z-XL**
	79 000	149 000	9 100	3 500	1 600	1,3	2,2	**ZKLF40115-2RS-XL**[2]
	79 000	149 000	9 100	4 400	3 100	0,65	2,2	**ZKLF40115-2Z-XL**[2]
50	51 000	126 000	7 700	3 200	1 500	0,9	1,86	**ZKLF50115-2RS-XL**
	51 000	126 000	7 700	4 200	3 000	0,45	1,86	**ZKLF50115-2Z-XL**
	125 000	250 000	15 200	2 900	1 200	2,6	4,7	**ZKLF50140-2RS-XL**[2]
	125 000	250 000	15 200	3 500	2 500	1,3	4,7	**ZKLF50140-2Z-XL**[2]

medias *https://www.schaeffler.de/std/1F9A*

① Extraction slot. ② Adjacent construction, bearing screw mounted on flat surface.
③ Adjacent construction, bearing screw mounted in bore. ④ Only valid in assembled condition.

1) Screws 10.9 not included in scope of delivery. Tightening torque according to manufacturer's data. Number of holes in adjacent construction corresponds to n_a.

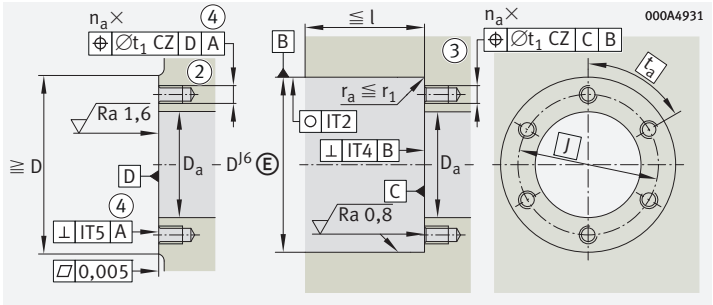
2) Heavy series.

3) Based on rotating inner ring.

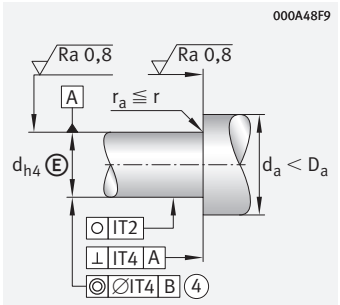
4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts. Observe the guidelines on locating/locating bearing arrangements TPI 123.



Housing design



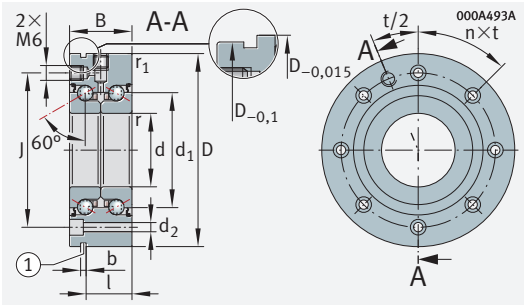
Shaft design (threaded spindle)

Dimensions					Pitch		Mounting dimensions			Fixing screws[1] DIN EN ISO 4762		
d	J	d_2	b	l	n	t °	D_a max.	d_a min.	t_1	Size	n_a	t_a °
40	80	8,8	3	25	8	45	67	50	0,2	M8	4	90
	80	8,8	3	25	8	45	67	50	0,2	M8	4	90
	94	8,8	3	36	12	30	80	56	0,2	M8	12	30
	94	8,8	3	36	12	30	80	56	0,2	M8	12	30
50	94	8,8	3	25	12	30	82	63	0,2	M8	6	60
	94	8,8	3	25	12	30	82	63	0,2	M8	6	60
	113	11	3	45	12	30	98	63	0,2	M10	12	30
	113	11	3	45	12	30	98	63	0,2	M10	12	30

	Rigidity axial	Tilting rigidity	Mass moment of inertia[3]	Axial runout[3]	Recommended INA precision locknuts[4]			Required locknut force[5]
					for radial clamping	for axial clamping	Tightening torque[6]	axial
d	c_{aL}	c_{kL}	M_m				M_A	
	N/µm	Nm/mrad	kg · cm^2	µm			Nm	N
40	1 000	550	2,26	2,5	ZM40	AM40	55	13 412
	1 000	550	2,26	2,5	ZM40	AM40	55	13 412
	1 200	750	5,5	2,5	ZMA40/62	AM40	110	25 185
	1 200	750	5,5	2,5	ZMA40/62	AM40	110	25 815
50	1 250	1 000	5,24	2,5	ZM50	AM50	85	16 280
	1 250	1 000	5,24	2,5	ZM50	AM50	85	16 280
	1 400	1 500	15,2	2,5	ZMA50/75	AM50	150	28 451
	1 400	1 500	15,2	2,5	ZMA50/75	AM50	150	28 451

Axial angular contact ball bearings

With fixing holes



ZKLF..-2Z (60 mm ≦ d ≦ 100 mm)

d = 60 – 100 mm

Main dimensions				Dimensions			Designation
d		D	B	d_1	r min.	r_1 min.	
60	0/–0,008	145 0/–0,015	45 0/–0,25	85	0,6	0,6	**ZKLF60145-2Z-XL**
70	0/–0,008	155 0/–0,015	45 0/–0,25	95	0,6	0,6	**ZKLF70155-2Z-XL**
80	0/–0,008	165 0/–0,015	45 0/–0,25	105	0,6	0,6	**ZKLF80165-2Z-XL**
90	0/–0,008	190 0/–0,015	55 0/–0,25	120	0,6	0,6	**ZKLF90190-2Z-XL**
100	0/–0,008	200 0/–0,015	55 0/–0,25	132	0,6	0,6	**ZKLF100200-2Z-XL**
	0/–0,008	230 0/–0,015	85 0/–0,25	146	0,6	0,6	**ZKLF100230-2Z**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Mass	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	m ≈ kg	
60	93 000	214 000	13 000	4 000	3 000	1	4,3	**ZKLF60145-2Z-XL**
70	97 000	241 000	14 600	3 800	2 800	1,2	4,9	**ZKLF70155-2Z-XL**
80	100 000	265 000	15 800	3 600	2 700	1,4	5,3	**ZKLF80165-2Z-XL**
90	149 000	395 000	21 900	3 500	2 300	2,3	8,7	**ZKLF90190-2Z-XL**
100	154 000	435 000	23 000	3 300	2 150	2,6	9,3	**ZKLF100200-2Z-XL**
	295 000	790 000	30 000	2 900	2 000	3	17,6	**ZKLF100230-2Z**

medias *https://www.schaeffler.de/std/1F9A*

① Extraction slot. ② Adjacent construction, bearing screw mounted on flat surface.
③ Adjacent construction, bearing screw mounted in bore. ④ Only valid in assembled condition.

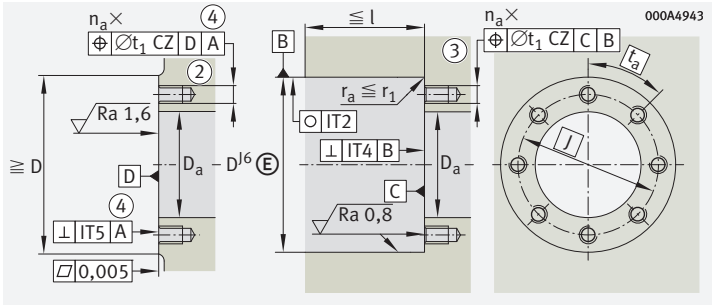
1) Screws 10.9 not included in scope of delivery. Tightening torque according to manufacturer's data. Number of holes in adjacent construction corresponds to n_a.

2) Based on rotating inner ring.

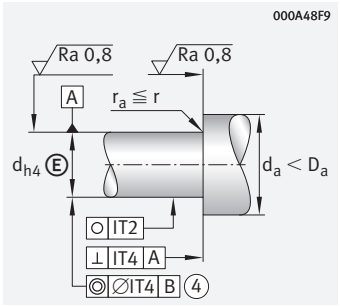
3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

4) The required axial locknut force must be observed when using other locknuts.

5) Only valid in conjunction with INA precision locknuts. Observe the guidelines on locating/locating bearing arrangements TPI 123.



Housing design



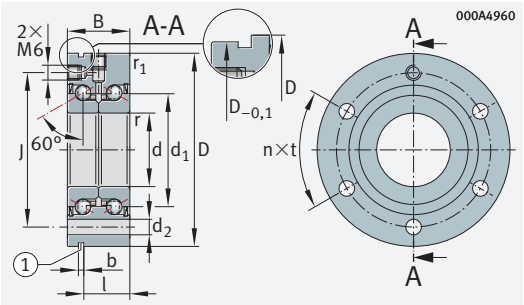
Shaft design (threaded spindle)

Dimensions					Pitch		Mounting dimensions			Fixing screws[1] DIN EN ISO 4762		
d	J	d_2	b	l	n	t °	D_a max.	d_a min.	t_1	Size	n_a	t_a °
60	120	8,8	3	35	8	45	100	82	0,2	M8	8	45
70	130	8,8	3	35	8	45	110	92	0,2	M8	8	45
80	140	8,8	3	35	8	45	120	102	0,2	M8	8	45
90	165	11	3	45	8	45	138	116	0,2	M10	8	45
100	175	11	3	45	8	45	150	128	0,2	M10	8	45
	200	14	3	73	12	30	175	130	0,4	M12	12	30

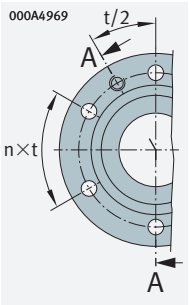
	Rigidity axial	Tilting rigidity	Mass moment of inertia[2]	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4]
					for radial clamping	for axial clamping	Tightening torque[5]	axial
d	c_{aL}	c_{kL}	M_m				M_A	
	N/µm	Nm/mrad	kg · cm²	µm			Nm	N
60	1 300	1 650	13,7	3	ZMA60/98	AM60	100	16 700
70	1 450	2 250	19,8	3	ZMA70/110	AM70	130	19 031
80	1 600	3 000	27,6	3	ZMA80/120	AM80	160	20 604
90	1 700	4 400	59,9	3	ZMA90/130	AM90	200	22 731
100	1 900	5 800	85,3	3	ZMA100/140	AM100	250	25 624
	2 450	8 200	185	3	–	AM100	500	52 000

Axial angular contact ball bearings

With fixing holes
Less stringent tolerances



ZKLF..-2RS-PE



ZKLF12, ZKLF15

d = 12 – 50 mm

Main dimensions			Dimensions			Designation
d	D	B	d_1	r min.	r_1 min.	
12 0/–0,010	55 0/–0,013	25 0/–0,25	25	0,3	0,6	**ZKLF1255-2RS-PE**
15 0/–0,010	60 0/–0,013	25 0/–0,25	28	0,3	0,6	**ZKLF1560-2RS-PE**
17 0/–0,010	62 0/–0,013	25 0/–0,25	30	0,3	0,6	**ZKLF1762-2RS-PE**
20 0/–0,010	68 0/–0,013	28 0/–0,25	34,5	0,3	0,6	**ZKLF2068-2RS-PE**
25 0/–0,010	75 0/–0,013	28 0/–0,25	40,5	0,3	0,6	**ZKLF2575-2RS-PE**
30 0/–0,010	80 0/–0,013	28 0/–0,25	45,5	0,3	0,6	**ZKLF3080-2RS-PE**
35 0/–0,010	90 0/–0,015	34 0/–0,25	52	0,3	0,6	**ZKLF3590-2RS-PE**
40 0/–0,010	100 0/–0,015	34 0/–0,25	58	0,3	0,6	**ZKLF40100-2RS-PE**
50 0/–0,010	115 0/–0,015	34 0/–0,25	72	0,3	0,6	**ZKLF50115-2RS-PE**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Mass	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	m ≈ kg	
12	16 900	24 700	1 130	9 200	3 800	0,16	0,37	**ZKLF1255-2RS-PE**
15	17 900	28 000	1 280	8 200	3 500	0,2	0,43	**ZKLF1560-2RS-PE**
17	18 800	31 000	1 420	7 600	3 300	0,24	0,45	**ZKLF1762-2RS-PE**
20	26 000	47 000	2 130	6 600	3 000	0,3	0,61	**ZKLF2068-2RS-PE**
25	27 500	55 000	2 500	5 700	2 600	0,4	0,72	**ZKLF2575-2RS-PE**
30	29 000	64 000	2 900	5 000	2 200	0,5	0,78	**ZKLF3080-2RS-PE**
35	41 000	89 000	4 050	4 400	2 000	0,6	1,13	**ZKLF3590-2RS-PE**
40	43 000	101 000	4 600	4 000	1 800	0,7	1,46	**ZKLF40100-2RS-PE**
50	46 500	126 000	5 800	3 200	1 500	0,9	1,86	**ZKLF50115-2RS-PE**

medias *https://www.schaeffler.de/std/1F9A*

① Extraction slot. ② Adjacent construction, bearing screw mounted on flat surface.
③ Adjacent construction, bearing screw mounted in bore. ④ Only valid in assembled condition.

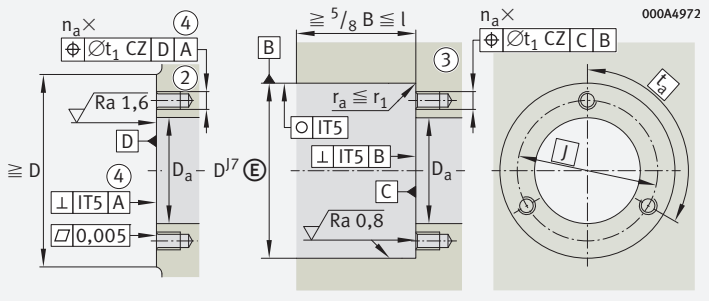
1) Screws 10.9 not included in scope of delivery. Tightening torque according to manufacturer's data. Number of holes in adjacent construction corresponds to n_a.

2) Based on rotating inner ring.

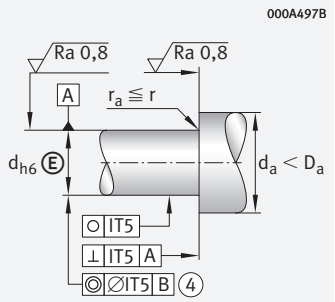
3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

4) The required axial locknut force must be observed when using other locknuts.

5) Only valid in conjunction with INA precision locknuts. Observe the guidelines on locating/locating bearing arrangements TPI 123.



Housing design



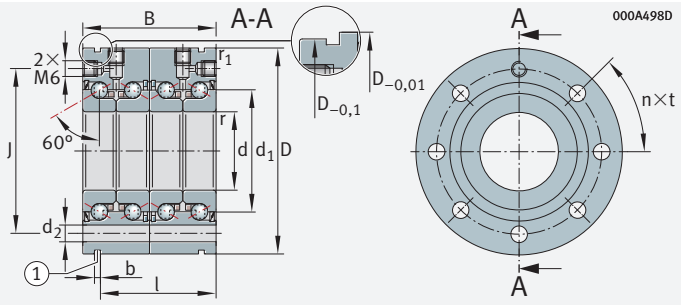
Shaft design (threaded spindle)

Dimensions					Pitch		Mounting dimensions			Fixing screws[1] DIN EN ISO 4762		
d	J	d_2	b	l	n	t °	D_a max.	d_a min.	t_1	Size	n_a	t_a °
12	42	6,8	3	17	3	120	33	16	0,1	M6	3	120
15	46	6,8	3	17	3	120	35	20	0,1	M6	3	120
17	48	6,8	3	17	6	60	37	23	0,1	M6	3	120
20	53	6,8	3	19	8	45	43	25	0,1	M6	4	90
25	58	6,8	3	19	8	45	48	32	0,1	M6	4	90
30	63	6,8	3	19	12	30	53	40	0,1	M6	6	60
35	75	8,8	3	25	8	45	62	45	0,2	M8	4	90
40	80	8,8	3	25	8	45	67	50	0,2	M8	4	90
50	94	8,8	3	25	12	30	82	63	0,2	M8	6	60

	Rigidity axial	Tilting rigidity	Mass moment of inertia[2]	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4]
					for radial clamping	for axial clamping	Tightening torque[5]	axial
d	c_{aL}	c_{kL}	M_m				M_A	
	N/µm	Nm/mrad	kg · cm²	µm			Nm	N
12	375	50	0,068	5	ZM12	–	8	5 307
15	400	65	0,102	5	ZM15	AM15	10	5 484
17	450	80	0,132	5	ZM17	AM17	15	7 514
20	650	140	0,273	5	ZM20	AM20	18	8 258
25	750	200	0,486	5	ZM25	AM25	25	9 123
30	850	300	0,73	5	ZM30	AM30	32	9 947
35	900	400	1,51	5	ZM35	AM35/58	40	10 770
40	1 000	550	2,26	5	ZM40	AM40	55	13 412
50	1 250	1 000	5,24	5	ZM50	AM50	85	16 280

Axial angular contact ball bearings

With fixing holes
Matched pair



ZKLF..-2RS-2AP

d = 17 – 50 mm

Main dimensions			Dimensions			Designation
d	D	B	d_1	r min.	r_1 min.	
17 0/–0,005	62 0/–0,010	50 0/–0,25	30	0,3	0,6	**ZKLF1762-2RS-2AP-XL**
20 0/–0,005	68 0/–0,010	56 0/–0,25	34,5	0,3	0,6	**ZKLF2068-2RS-2AP-XL**
25 0/–0,005	75 0/–0,010	56 0/–0,25	40,5	0,3	0,6	**ZKLF2575-2RS-2AP-XL**
30 0/–0,005	80 0/–0,010	56 0/–0,25	45,5	0,3	0,6	**ZKLF3080-2RS-2AP-XL**
35 0/–0,005	90 0/–0,010	68 0/–0,25	52	0,3	0,6	**ZKLF3590-2RS-2AP-XL**
40 0/–0,005	100 0/–0,010	68 0/–0,25	58	0,3	0,6	**ZKLF40100-2RS-2AP-XL**
50 0/–0,005	115 0/–0,010	68 0/–0,25	72	0,3	0,6	**ZKLF50115-2RS-2AP-XL**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Mass	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	m ≈ kg	
17	33 500	62 000	3 800	7 600	3 300	0,36	0,9	**ZKLF1762-2RS-2AP-XL**
20	46 000	94 000	5 700	6 600	3 000	0,45	1,22	**ZKLF2068-2RS-2AP-XL**
25	49 000	111 000	6 700	5 700	2 600	0,6	1,44	**ZKLF2575-2RS-2AP-XL**
30	52 000	127 000	7 700	5 000	2 200	0,75	1,56	**ZKLF3080-2RS-2AP-XL**
35	73 000	177 000	10 800	4 400	2 000	0,9	2,26	**ZKLF3590-2RS-2AP-XL**
40	77 000	202 000	12 300	4 000	1 800	1,05	2,92	**ZKLF40100-2RS-2AP-XL**
50	83 000	250 000	15 300	3 200	1 500	1,35	3,72	**ZKLF50115-2RS-2AP-XL**

medias *https://www.schaeffler.de/std/1F9A*

① Extraction slot. ② Adjacent construction, bearing screw mounted on flat surface.
③ Adjacent construction, bearing screw mounted in bore. ④ Only valid in assembled condition.

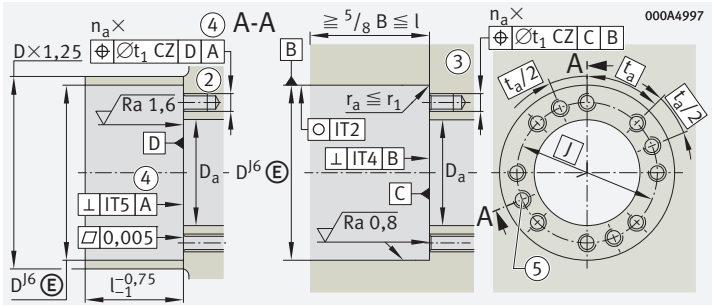
1) Screws 10.9 not included in scope of delivery. Tightening torque according to manufacturer's data. Number of holes in adjacent construction corresponds to n_a.

2) Based on rotating inner ring.

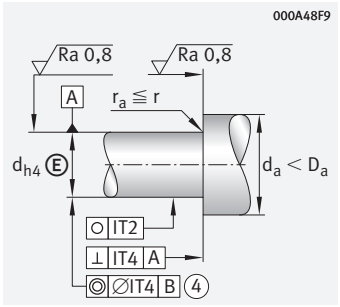
3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

4) The required axial locknut force must be observed when using other locknuts.

5) Only valid in conjunction with INA precision locknuts. Observe the guidelines on locating/locating bearing arrangements TPI 123.



Housing design



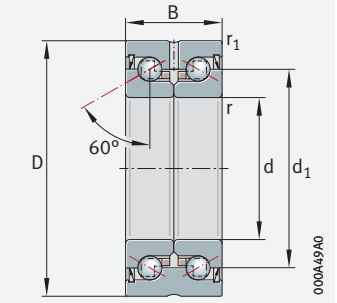
Shaft design (threaded spindle)

Dimensions					Pitch		Mounting dimensions			Fixing screws[1] DIN EN ISO 4762		
d	J	d_2	b	l	n	t °	D_a max.	d_a min.	t_1	Size	n_a	t_a °
17	48	6,8	3	42	6	60	37	23	0,1	M6×60	6	60
20	53	6,8	3	47	8	45	43	25	0,1	M6×70	8	45
25	58	6,8	3	47	8	45	48	32	0,1	M6×70	8	45
30	63	6,8	3	47	12	30	53	40	0,1	M6×70	12	30
35	75	8,8	3	59	8	45	62	45	0,2	M8×80	8	45
40	80	8,8	3	59	8	45	67	50	0,2	M8×80	8	45
50	94	8,8	3	59	12	30	82	63	0,2	M8×80	12	30

	Rigidity axial	Tilting rigidity	Mass moment of inertia[2]	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4]
					for radial clamping	for axial clamping	Tightening torque[5]	axial
d	c_{aL}	c_{kL}	M_m				M_A	
	N/µm	Nm/mrad	kg · cm²	µm			Nm	N
17	800	200	0,264	2	ZM17	AM17	15	7 514
20	1 150	320	0,564	2	ZMA20/38	AM20	18	8 258
25	1 300	450	0,972	2	ZMA25/45	AM25	25	9 123
30	1 500	620	1,46	2,5	ZMA30/52	AM30	32	9 947
35	1 600	900	3,02	2,5	ZMA35/58	AM35/58	40	10 770
40	1 750	1 200	4,52	2,5	ZMA40/62	AM40	55	13 412
50	2 200	2 250	10,48	2,5	ZMA50/75	AM50	85	16 280

Axial angular contact ball bearings

Without fixing holes



ZKLN..-2RS, ZKLN..-2Z

d = 6 – 12 mm

Main dimensions			Mass	Designation
d	D	B	m ≈ kg	
6 +0,002/–0,003	19 0/–0,01	12 0/–0,25	0,02	**ZKLN0619-2Z-XL**[5]
+0,002/–0,003	24 0/–0,01	15 0/–0,25	0,03	**ZKLN0624-2RS-XL**
+0,002/–0,003	24 0/–0,01	15 0/–0,25	0,03	**ZKLN0624-2Z-XL**
8 0 /–0,005	32 0/–0,01	20 0/–0,25	0,09	**ZKLN0832-2RS-XL**
0 /–0,005	32 0/–0,01	20 0/–0,25	0,09	**ZKLN0832-2Z-XL**
10 0 /–0,005	34 0/–0,01	20 0/–0,25	0,1	**ZKLN1034-2RS-XL**
0 /–0,005	34 0/–0,01	20 0/–0,25	0,1	**ZKLN1034-2Z-XL**
12 0 /–0,005	42 0/–0,01	25 0/–0,25	0,2	**ZKLN1242-2RS-XL**
0 /–0,005	42 0/–0,01	25 0/–0,25	0,2	**ZKLN1242-2Z-XL**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	
6	5 400	6 100	370	22 800	14 000	0,01	**ZKLN0619-2Z-XL**[5]
	7 600	8 500	520	16 400	6 800	0,04	**ZKLN0624-2RS-XL**
	7 600	8 500	520	19 900	12 000	0,02	**ZKLN0624-2Z-XL**
8	13 800	16 300	990	12 100	5 100	0,08	**ZKLN0832-2RS-XL**
	13 800	16 300	990	15 500	9 500	0,04	**ZKLN0832-2Z-XL**
10	14 700	18 800	1 140	10 900	4 600	0,12	**ZKLN1034-2RS-XL**
	14 700	18 800	1 140	14 400	8 600	0,06	**ZKLN1034-2Z-XL**
12	18 600	24 700	1 500	9 200	3 800	0,16	**ZKLN1242-2RS-XL**
	18 600	24 700	1 500	12 000	7 600	0,08	**ZKLN1242-2Z-XL**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

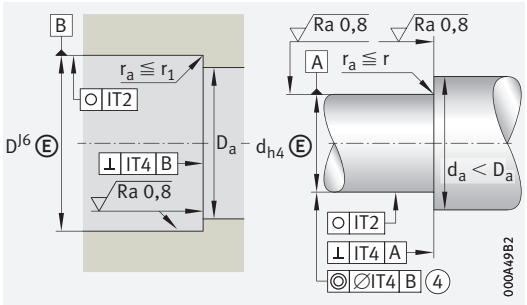
1) Based on rotating inner ring.

2) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

3) The required axial locknut force must be observed when using other locknuts.

4) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.

5) No relubrication facility.



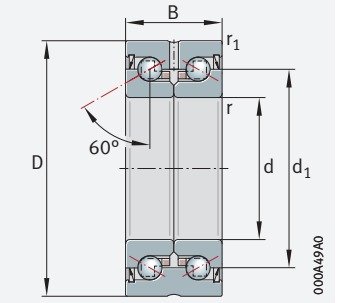
Design of housing and shaft (threaded spindle)

d	Mass moment of inertia[1] M_m kg · cm²	Axial runout[1] µm	Dimensions d_1	r min.	r_1 min.	Mounting dimensions D_a max.	d_a min.
6	0,0019	2	12	0,3	0,3	16	9
	0,0044	2	14	0,3	0,6	19	9
	0,0044	2	14	0,3	0,6	19	9
8	0,02	2	19	0,3	0,6	26	11
	0,02	2	19	0,3	0,6	26	11
10	0,029	2	21	0,3	0,6	28	14
	0,029	2	21	0,3	0,6	28	14
12	0,068	2	25	0,3	0,6	33	16
	0,068	2	25	0,3	0,6	33	16

d	Rigidity axial c_{aL} N/µm	Tilting rigidity c_{kL} Nm/mrad	Recommended INA precision locknuts[2] for radial clamping	for axial clamping	Tightening torque[4] M_A Nm	Required locknut force[3] axial N
6	150	4	ZM06	–	1	2 010
	200	8	ZM06	–	2	2 404
	200	8	ZM06	–	2	2 404
8	250	20	ZM08	–	4	3 468
	250	20	ZM08	–	4	3 468
10	325	25	ZM10	–	6	4 891
	325	25	ZM10	–	6	4 891
12	375	50	ZM12	–	8	5 307
	375	50	ZM12	–	8	5 307

Axial angular contact ball bearings

Without fixing holes



ZKLN..-2RS, ZKLN..-2Z

d = 15 – 25 mm

Main dimensions			Mass	Designation
d	D	B	m ≈ kg	
15 0/–0,005	45 0/–0,01	25 0/–0,25	0,21	**ZKLN1545-2RS-XL**
0/–0,005	45 0/–0,01	25 0/–0,25	0,21	**ZKLN1545-2Z-XL**
17 0/–0,005	47 0/–0,01	25 0/–0,25	0,22	**ZKLN1747-2RS-XL**
0/–0,005	47 0/–0,01	25 0/–0,25	0,22	**ZKLN1747-2Z-XL**
20 0/–0,005	52 0/–0,01	28 0/–0,25	0,31	**ZKLN2052-2RS-XL**
0/–0,005	52 0/–0,01	28 0/–0,25	0,31	**ZKLN2052-2Z-XL**
25 0/–0,005	57 0/–0,01	28 0/–0,25	0,34	**ZKLN2557-2RS-XL**
0/–0,005	57 0/–0,01	28 0/–0,25	0,34	**ZKLN2557-2Z-XL**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Designation
d	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_ϑ	M_R	
	N	N	N	min^{-1}	min^{-1}	Nm	
15	19 600	28 000	1 700	8 200	3 500	0,2	**ZKLN1545-2RS-XL**
	19 600	28 000	1 700	10 800	7 000	0,1	**ZKLN1545-2Z-XL**
17	20 700	31 000	1 890	7 600	3 300	0,24	**ZKLN1747-2RS-XL**
	20 700	31 000	1 890	10 100	6 600	0,12	**ZKLN1747-2Z-XL**
20	28 500	47 000	2 850	6 600	3 000	0,3	**ZKLN2052-2RS-XL**
	28 500	47 000	2 850	8 700	5 400	0,15	**ZKLN2052-2Z-XL**
25	30 500	55 000	3 350	5 700	2 600	0,4	**ZKLN2557-2RS-XL**
	30 500	55 000	3 350	7 500	4 700	0,2	**ZKLN2557-2Z-XL**

medias *https://www.schaeffler.de/std/1F9A*

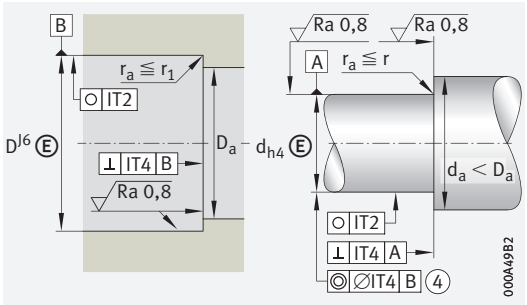
④ Only valid in assembled condition.

1) Based on rotating inner ring.

2) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

3) The required axial locknut force must be observed when using other locknuts.

4) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



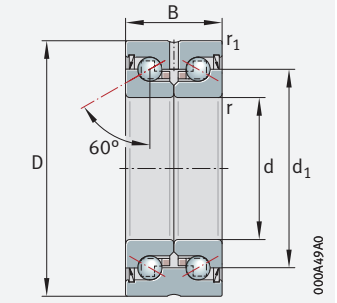
Design of housing and shaft (threaded spindle)

	Mass moment of inertia[1]	Axial runout[1]	Dimensions			Mounting dimensions	
d	M_m		d_1	r	r_1	D_a	d_a
	kg · cm²	µm		min.	min.	max.	min.
15	0,102	2	28	0,3	0,6	35	20
	0,102	2	28	0,3	0,6	35	20
17	0,132	2	30	0,3	0,6	37	23
	0,132	2	30	0,3	0,6	37	23
20	0,273	2	34,5	0,3	0,6	43	25
	0,273	2	34,5	0,3	0,6	43	25
25	0,486	2	40,5	0,3	0,6	48	32
	0,486	2	40,5	0,3	0,6	48	32

	Rigidity	Tilting rigidity	Recommended INA precision locknuts[2]			Required locknut force[3]
	axial		for radial clamping	for axial clamping	Tightening torque[4]	axial
d	c_{aL}	c_{kL}			M_A	
	N/µm	Nm/mrad			Nm	N
15	400	65	ZM15	AM15	10	5 484
	400	65	ZM15	AM15	10	5 484
17	450	80	ZM17	AM17	15	7 514
	450	80	ZM17	AM17	15	7 514
20	650	140	ZM20	AM20	18	8 258
	650	140	ZM20	AM20	18	8 258
25	750	200	ZM25	AM25	25	9 123
	750	200	ZM25	AM25	25	9 123

Axial angular contact ball bearings

Without fixing holes



ZKLN..-2RS, ZKLN..-2Z

d = 30 – 40 mm

Main dimensions			Mass	Designation
d	D	B	m ≈ kg	
30 0/–0,005	62 0/–0,01	28 0/–0,25	0,39	**ZKLN3062-2RS-XL**
0/–0,005	62 0/–0,01	28 0/–0,25	0,39	**ZKLN3062-2Z-XL**
0/–0,005	72 0/–0,01	38 0/–0,25	0,72	**ZKLN3072-2RS-XL**[5]
0/–0,005	72 0/–0,01	38 0/–0,25	0,72	**ZKLN3072-2Z-XL**[5]
35 0/–0,005	72 0/–0,01	34 0/–0,25	0,51	**ZKLN3572-2RS-XL**
0/–0,005	72 0/–0,01	34 0/–0,25	0,51	**ZKLN3572-2Z-XL**
40 0/–0,005	75 0/–0,01	34 0/–0,25	0,61	**ZKLN4075-2RS-XL**
0/–0,005	75 0/–0,01	34 0/–0,25	0,61	**ZKLN4075-2Z-XL**
0/–0,005	90 0/–0,01	46 0/–0,25	0,95	**ZKLN4090-2RS-XL**[5]
0/–0,005	90 0/–0,01	46 0/–0,25	0,95	**ZKLN4090-2Z-XL**[5]

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Designation
d	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_ϑ	M_R	
	N	N	N	min^{-1}	min^{-1}	Nm	
30	32 000	64 000	3 850	5 000	2 200	0,5	**ZKLN3062-2RS-XL**
	32 000	64 000	3 850	6 700	4 300	0,25	**ZKLN3062-2Z-XL**
	65 000	108 000	6 500	4 500	2 100	0,8	**ZKLN3072-2RS-XL**[5]
	65 000	108 000	6 500	5 600	4 000	0,4	**ZKLN3072-2Z-XL**[5]
35	45 000	89 000	5 400	4 400	2 000	0,6	**ZKLN3572-2RS-XL**
	45 000	89 000	5 400	5 800	3 800	0,3	**ZKLN3572-2Z-XL**
40	47 500	101 000	6 100	4 000	1 800	0,7	**ZKLN4075-2RS-XL**
	47 500	101 000	6 100	5 200	3 300	0,35	**ZKLN4075-2Z-XL**
	79 000	149 000	9 100	3 500	1 600	1,3	**ZKLN4090-2RS-XL**[5]
	79 000	149 000	9 100	4 400	3 100	0,65	**ZKLN4090-2Z-XL**[5]

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

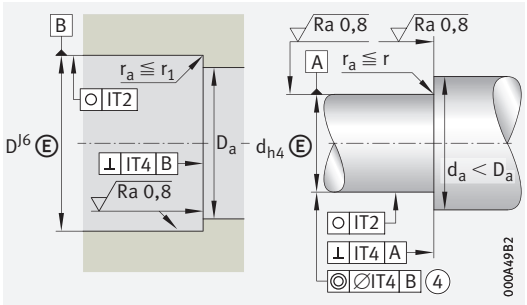
1) Based on rotating inner ring.

2) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

3) The required axial locknut force must be observed when using other locknuts.

4) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.

5) Heavy series.



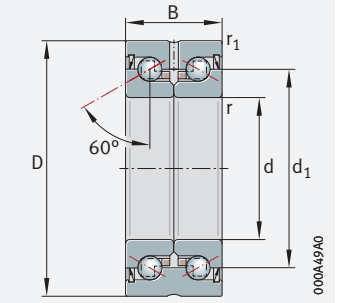
Design of housing and shaft (threaded spindle)

	Mass moment of inertia[1]	Axial runout[1]	Dimensions			Mounting dimensions	
d	M_m		d_1	r	r_1	D_a	d_a
	kg · cm²	µm		min.	min.	max.	min.
30	0,73	2,5	45,5	0,3	0,6	53	40
	0,73	2,5	45,5	0,3	0,6	53	40
	1,91	2,5	51	0,3	0,6	64	47
	1,91	2,5	51	0,3	0,6	64	47
35	1,51	2,5	52	0,3	0,6	62	45
	1,51	2,5	52	0,3	0,6	62	45
40	2,26	2,5	58	0,3	0,6	67	50
	2,26	2,5	58	0,3	0,6	67	50
	5,5	2,5	65	0,6	0,6	80	56
	5,5	2,5	65	0,6	0,6	80	56

	Rigidity	Tilting rigidity	Recommended INA precision locknuts[2]			Required locknut force[3]
	axial		for radial clamping	for axial clamping	Tightening torque[4]	axial
d	c_{aL}	c_{kL}			M_A	
	N/µm	Nm/mrad			Nm	N
30	850	300	ZM30	AM30	32	9 947
	850	300	ZM30	AM30	32	9 947
	950	400	ZMA30/52	AM30	65	19 509
	950	400	ZMA30/52	AM30	65	19 509
35	900	400	ZM35	AM35/58	40	10 770
	900	400	ZM35	AM35/58	40	10 770
40	1 000	550	ZM40	AM40	55	13 412
	1 000	550	ZM40	AM40	55	13 412
	1 200	750	ZMA40/62	AM40	110	25 185
	1 200	750	ZMA40/62	AM40	110	25 185

Axial angular contact ball bearings

Without fixing holes



ZKLN..-2RS, ZKLN..-2Z

d = 50 – 100 mm

Main dimensions			Mass	Designation
d	D	B	m ≈ kg	
50 0/–0,005	110 0/–0,01	54 0/–0,25	2,5	**ZKLN50110-2RS-XL**[5]
0/–0,005	110 0/–0,01	54 0/–0,25	2,5	**ZKLN50110-2Z-XL**[5]
0/–0,005	90 0/–0,01	34 0/–0,25	0,88	**ZKLN5090-2RS-XL**
0/–0,005	90 0/–0,01	34 0/–0,25	0,88	**ZKLN5090-2Z-XL**
60 0/–0,008	110 0/–0,015	45 0/–0,25	2,2	**ZKLN60110-2Z-XL**
70 0/–0,008	120 0/–0,015	45 0/–0,25	2,4	**ZKLN70120-2Z-XL**
80 0/–0,008	130 0/–0,015	45 0/–0,25	2,7	**ZKLN80130-2Z-XL**
90 0/–0,008	150 0/–0,015	55 0/–0,25	4,5	**ZKLN90150-2Z-XL**
100 0/–0,008	160 0/–0,015	55 0/–0,25	4,9	**ZKLN100160-2Z-XL**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	
50	125 000	250 000	15 200	2 900	1 200	2,6	**ZKLN50110-2RS-XL**[5]
	125 000	250 000	15 200	3 500	2 500	1,3	**ZKLN50110-2Z-XL**[5]
	51 000	126 000	7 700	3 200	1 500	0,9	**ZKLN5090-2RS-XL**
	51 000	126 000	7 700	4 200	3 000	0,45	**ZKLN5090-2Z-XL**
60	93 000	214 000	13 000	4 000	3 000	1	**ZKLN60110-2Z-XL**
70	97 000	241 000	14 600	3 800	2 800	1,2	**ZKLN70120-2Z-XL**
80	100 000	265 000	15 800	3 600	2 700	1,4	**ZKLN80130-2Z-XL**
90	149 000	395 000	21 900	3 500	2 300	2,3	**ZKLN90150-2Z-XL**
100	154 000	435 000	23 000	3 300	2 150	2,6	**ZKLN100160-2Z-XL**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

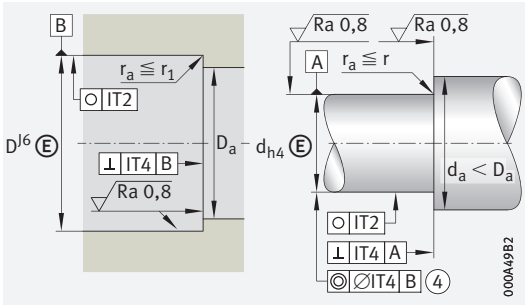
1) Based on rotating inner ring.

2) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

3) The required axial locknut force must be observed when using other locknuts.

4) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.

5) Heavy series.



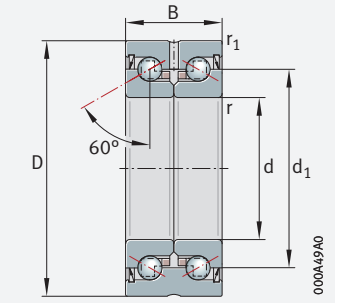
Design of housing and shaft (threaded spindle)

d	Mass moment of inertia[1] M_m kg · cm²	Axial runout[1] μm	Dimensions d_1	r min.	r_1 min.	Mounting dimensions D_a max.	d_a min.
50	15,2	2,5	80	0,6	0,6	98	63
	15,2	2,5	80	0,6	0,6	98	63
	5,24	2,5	72	0,3	0,6	82	63
	5,24	2,5	72	0,3	0,6	82	63
60	13,7	3	85	0,6	0,6	100	82
70	19,8	3	95	0,6	0,6	110	92
80	27,6	3	105	0,6	0,6	120	102
90	59,9	3	120	0,6	0,6	138	116
100	85,3	3	132	0,6	0,6	150	128

d	Rigidity axial c_{aL} N/μm	Tilting rigidity c_{kL} Nm/mrad	Recommended INA precision locknuts[2] for radial clamping	for axial clamping	Tightening torque[4] M_A Nm	Required locknut force[3] axial N
50	1 400	1 500	ZMA50/75	AM50	150	28 451
	1 400	1 500	ZMA50/75	AM50	150	28 451
	1 250	1 000	ZM50	AM50	85	16 280
	1 250	1 000	ZM50	AM50	85	16 280
60	1 300	1 650	ZMA60/98	AM60	100	16 700
70	1 450	2 250	ZMA70/110	AM70	130	19 031
80	1 600	3 000	ZMA80/120	AM80	160	20 604
90	1 700	4 400	ZMA90/130	AM90	200	22 731
100	1 900	5 800	ZMA100/140	AM100	250	25 624

Axial angular contact ball bearings

Without fixing holes
Less stringent tolerances



ZKLN..-2RS-PE

d = 6 – 50 mm

Main dimensions			Mass	Designation
d	D	B	m ≈ kg	
6 +0,003 /–0,005	24 0/–0,01	15 0/–0,25	0,03	**ZKLN0624-2RS-PE**
10 0 /–0,008	34 0/–0,011	20 0/–0,25	0,1	**ZKLN1034-2RS-PE**
12 0 /–0,01	42 0/–0,011	25 0/–0,25	0,2	**ZKLN1242-2RS-PE**
15 0 /–0,01	45 0/–0,011	25 0/–0,25	0,21	**ZKLN1545-2RS-PE**
17 0 /–0,01	47 0/–0,011	25 0/–0,25	0,22	**ZKLN1747-2RS-PE**
20 0 /–0,01	52 0/–0,013	28 0/–0,25	0,31	**ZKLN2052-2RS-PE**
25 0 /–0,01	57 0/–0,013	28 0/–0,25	0,34	**ZKLN2557-2RS-PE**
30 0 /–0,01	62 0/–0,013	28 0/–0,25	0,39	**ZKLN3062-2RS-PE**
35 0 /–0,01	72 0/–0,013	34 0/–0,25	0,51	**ZKLN3572-2RS-PE**
50 0 /–0,01	90 0/–0,015	34 0/–0,25	0,88	**ZKLN5090-2RS-PE**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	
6	6 900	8 500	385	16 400	6 800	0,04	**ZKLN0624-2RS-PE**
10	13 400	18 800	850	10 900	4 600	0,12	**ZKLN1034-2RS-PE**
12	16 900	24 700	1 130	9 200	3 800	0,16	**ZKLN1242-2RS-PE**
15	17 900	28 000	1 280	8 200	3 500	0,2	**ZKLN1545-2RS-PE**
17	18 800	31 000	1 420	7 600	3 300	0,24	**ZKLN1747-2RS-PE**
20	26 000	47 000	2 130	6 600	3 000	0,3	**ZKLN2052-2RS-PE**
25	27 500	55 000	2 500	5 700	2 600	0,4	**ZKLN2557-2RS-PE**
30	29 000	64 000	2 900	5 000	2 200	0,5	**ZKLN3062-2RS-PE**
35	41 000	89 000	4 050	4 400	2 000	0,6	**ZKLN3572-2RS-PE**
50	46 500	126 000	5 800	3 200	1 500	0,9	**ZKLN5090-2RS-PE**

medias *https://www.schaeffler.de/std/1F9A*

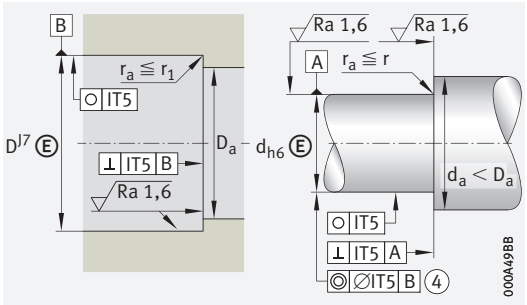
④ Only valid in assembled condition.

1) Based on rotating inner ring.

2) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

3) The required axial locknut force must be observed when using other locknuts.

4) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



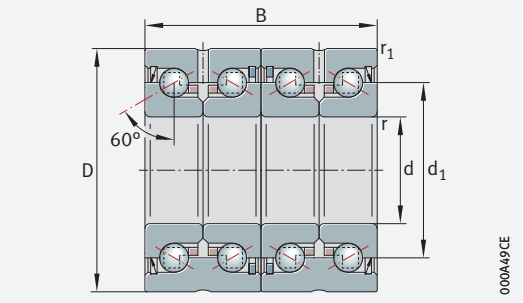
Design of housing and shaft (threaded spindle)

d	Mass moment of inertia[1] M_m kg · cm²	Axial runout[1] µm	Dimensions d_1	r min.	r_1 min.	Mounting dimensions D_a max.	d_a min.
6	0,0044	5	14	0,3	0,6	19	9
10	0,029	5	21	0,3	0,6	28	14
12	0,068	5	25	0,3	0,6	33	16
15	0,102	5	28	0,3	0,6	35	20
17	0,132	5	30	0,3	0,6	37	23
20	0,273	5	34,5	0,3	0,6	43	25
25	0,486	5	40,5	0,3	0,6	48	32
30	0,73	5	45,5	0,3	0,6	53	40
35	1,51	5	52	0,3	0,6	62	45
50	5,24	5	72	0,3	0,6	82	63

d	Rigidity axial c_{aL} N/µm	Tilting rigidity c_{kL} Nm/mrad	Recommended INA precision locknuts[2] for radial clamping	for axial clamping	Tightening torque[4] M_A Nm	Required locknut force[3] axial N
6	200	8	ZM06	–	2	2 404
10	325	25	ZM10	–	6	4 891
12	375	50	ZM12	–	8	5 307
15	400	65	ZM15	AM15	10	5 484
17	450	80	ZM17	AM17	15	7 514
20	650	140	ZM20	AM20	18	8 258
25	750	200	ZM25	AM25	25	9 123
30	850	300	ZM30	AM30	32	9 947
35	900	400	ZM35	AM35/38	40	10 770
50	1 250	1 000	ZM50	AM50	85	16 280

Axial angular contact ball bearings

Without fixing holes
Matched pair



ZKLN..-2RS-2AP

d = 17 – 50 mm

Main dimensions			Mass	Designation
d	D	B	m ≈ kg	
17 0/–0,005	47 0/–0,01	50 0/–0,5	0,44	**ZKLN1747-2RS-2AP-XL**
20 0/–0,005	52 0/–0,01	56 0/–0,5	0,62	**ZKLN2052-2RS-2AP-XL**
25 0/–0,005	57 0/–0,01	56 0/–0,5	0,68	**ZKLN2557-2RS-2AP-XL**
30 0/–0,005	62 0/–0,01	56 0/–0,5	0,78	**ZKLN3062-2RS-2AP-XL**
35 0/–0,005	72 0/–0,01	68 0/–0,5	1,02	**ZKLN3572-2RS-2AP-XL**
40 0/–0,005	75 0/–0,01	68 0/–0,5	1,22	**ZKLN4075-2RS-2AP-XL**
50 0/–0,005	90 0/–0,01	68 0/–0,5	1,76	**ZKLN5090-2RS-2AP-XL**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	
17	33 500	62 000	3 800	7 600	3 300	0,36	**ZKLN1747-2RS-2AP-XL**
20	46 000	94 000	5 700	6 600	3 000	0,45	**ZKLN2052-2RS-2AP-XL**
25	49 000	111 000	6 700	5 700	2 600	0,6	**ZKLN2557-2RS-2AP-XL**
30	52 000	127 000	7 700	5 000	2 200	0,75	**ZKLN3062-2RS-2AP-XL**
35	73 000	177 000	10 800	4 400	2 000	0,9	**ZKLN3572-2RS-2AP-XL**
40	77 000	202 000	12 300	4 000	1 800	1,05	**ZKLN4075-2RS-2AP-XL**
50	83 000	250 000	15 300	3 200	1 500	1,35	**ZKLN5090-2RS-2AP-XL**

medias *https://www.schaeffler.de/std/1F9A*

Further sizes and designs with seals 2Z by agreement.

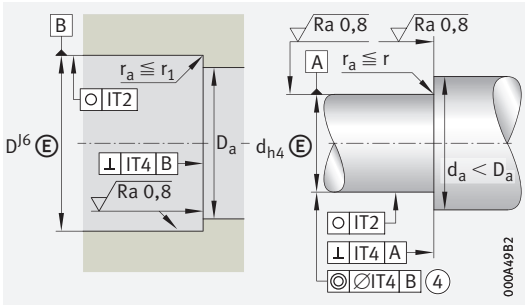
④ Only valid in assembled condition.

1) Based on rotating inner ring.

2) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

3) The required axial locknut force must be observed when using other locknuts.

4) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



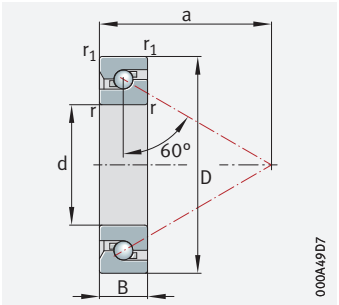
Design of housing and shaft (threaded spindle)

d	Mass moment of inertia[1] M_m kg · cm²	Axial runout[1] µm	Dimensions d_1	r min.	r_1 min.	Mounting dimensions D_a max.	d_a min.
17	0,264	2	30	0,3	0,6	37	23
20	0,546	2	34,5	0,3	0,6	43	25
25	0,972	2	40,5	0,3	0,6	48	32
30	1,46	2,5	45,5	0,3	0,6	53	40
35	3,02	2,5	52	0,3	0,6	62	45
40	4,52	2,5	58	0,3	0,6	67	50
50	10,48	2,5	72	0,3	0,6	82	63

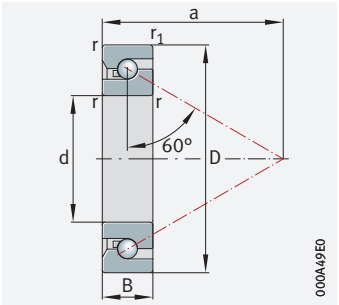
d	Rigidity axial c_{aL} N/µm	Tilting rigidity c_{kL} Nm/mrad	Recommended INA precision locknuts[2] for radial clamping	for axial clamping	Tightening torque[4] M_A Nm	Required locknut force[3] axial N
17	800	200	ZM17	AM17	15	7 514
20	1 150	320	ZMA20/38	AM20	18	8 258
25	1 300	450	ZMA25/45	AM25	25	9 123
30	1 500	620	ZMA30/52	AM30	32	9 947
35	1 600	900	ZMA35/58	AM35/58	40	10 770
40	1 750	1 200	ZMA40/62	AM40	55	13 412
50	2 200	2 250	ZMA50/75	AM50	85	16 280

Axial angular contact ball bearings

Single direction
Open



7602, BSB



BSB..-SU-XL

d = 12 – 17 mm

Main dimensions			Mass	Designation
d	D	B	m	
			≈ kg	
12 0/–0,004	32 0/–0,006	10 0/–0,08	0,042	**7602012-TVP**
15 0/–0,004	35 0/–0,006	11 0/–0,08	0,052	**7602015-TVP**
0/–0,004	47 0/–0,006	15 0/–0,12	0,14	**BSB1547-SU-XL**
0/–0,004	47 0/–0,006	15 0/–0,12	0,14	**BSB1547-SU-XL-L055**
17 0/–0,004	40 0/–0,006	12 0/–0,08	0,074	**7602017-TVP**
0/–0,004	47 0/–0,006	15 0/–0,12	0,13	**BSB1747-SU-XL**
0/–0,004	47 0/–0,006	15 0/–0,12	0,13	**BSB1747-SU-XL-L055**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque[1]	Designation
d	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_ϑ	M_R	
	N	N	N	min^{-1}	min^{-1}	Nm	
12	12 200	20 700	940	14 100	8 000	0,015	**7602012-TVP**
15	13 100	24 700	1 120	12 300	6 700	0,02	**7602015-TVP**
	28 500	47 000	2 850	8 700	6 200	0,08	**BSB1547-SU-XL**
	28 500	47 000	2 850	8 700	6 200	0,08	**BSB1547-SU-XL-L055**
17	17 200	32 500	1 470	10 600	6 000	0,03	**7602017-TVP**
	28 500	47 000	2 850	8 700	6 200	0,08	**BSB1747-SU-XL**
	28 500	47 000	2 850	8 700	6 200	0,08	**BSB1747-SU-XL-L055**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

1) Valid for single bearings with stated preload force.

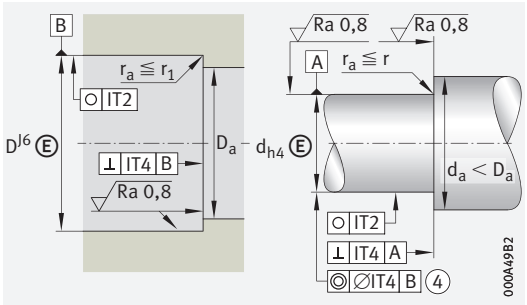
2) Valid for matched pair of bearings in O or X arrangement.

3) Based on rotating inner ring.

4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



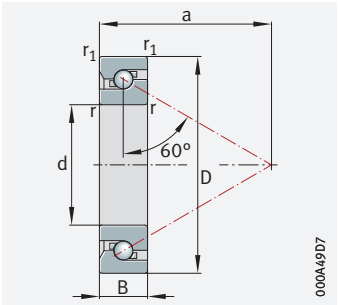
Design of housing and shaft (threaded spindle)

d	Dimensions			Mounting dimensions			
	r min.	r_1 min.	a ≈	D_a max.		d_a min.	
12	0,6	0,6	24	27	H12	17	h12
15	0,6	0,6	27,5	30	H12	20,5	h12
	1	0,6	29,9	43	H12	27	h12
	1	0,6	29,9	43	H12	27	h12
17	0,6	0,6	31	34,5	H12	23	h12
	1	0,6	29,9	43	H12	27	h12
	1	0,6	29,9	43	H12	27	h12

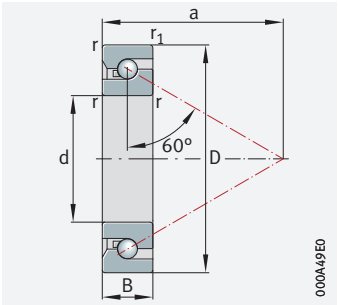
d	Rigidity[2] axial c_{aL} N/µm	Axial runout[3] µm	Recommended INA precision locknuts[4]			Required locknut force[5] axial N
			for radial clamping	for axial clamping	Tightening torque[6] M_A Nm	
12	476	2	ZM12	–	8	6 110
15	516	2	ZM15	AM15	10	5 740
	764	2	ZM17	AM17	15	9 000
	764	2	ZM17	AM17	15	9 000
17	596	2	ZM17	AM17	15	8 060
	764	2	ZM17	AM17	15	9 000
	764	2	ZM17	AM17	15	9 000

Axial angular contact ball bearings

Single direction
Open



7602, 7603, BSB



BSB..-SU-XL

d = 20 – 25 mm

Main dimensions			Mass	Designation
d	D	B	m	
			≈ kg	
20 0/–0,005	47 0/–0,006	14 0/–0,12	0,139	**7602020-TVP**
0/–0,005	47 0/–0,006	15 0/–0,12	0,12	**BSB2047-SU-XL**
0/–0,005	47 0/–0,006	15 0/–0,12	0,12	**BSB2047-SU-XL-L055**
0/–0,005	52 0/–0,007	15 0/–0,12	0,17	**7603020-TVP**
25 0/–0,005	52 0/–0,007	15 0/–0,12	0,147	**7602025-TVP**
0/–0,005	62 0/–0,007	17 0/–0,12	0,275	**7603025-TVP**
0/–0,005	62 0/–0,007	15 0/–0,12	0,24	**BSB2562-SU-XL**
0/–0,005	62 0/–0,007	15 0/–0,12	0,24	**BSB2562-SU-XL-L055**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque[1]	Designation
d	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_ϑ	M_R	
	N	N	N	min^{-1}	min^{-1}	Nm	
20	20 300	41 500	1 900	9 200	5 000	0,05	**7602020-TVP**
	28 500	47 000	2 850	8 700	6 200	0,08	**BSB2047-SU-XL**
	28 500	47 000	2 850	8 700	6 200	0,08	**BSB2047-SU-XL-L055**
	25 500	53 000	2 430	8 200	4 500	0,06	**7603020-TVP**
25	23 200	50 000	2 280	8 000	4 500	0,07	**7602025-TVP**
	29 500	68 000	3 100	6 800	3 800	0,09	**7603025-TVP**
	32 000	64 000	3 850	6 700	5 400	0,13	**BSB2562-SU-XL**
	32 000	64 000	3 850	6 700	5 400	0,13	**BSB2562-SU-XL-L055**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

1) Valid for single bearings with stated preload force.

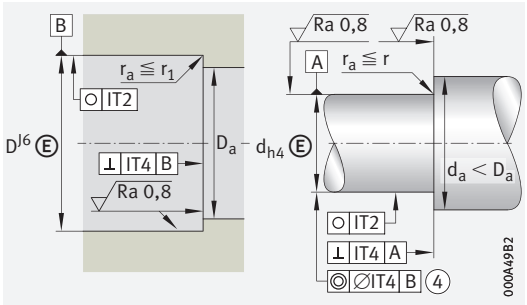
2) Valid for matched pair of bearings in O or X arrangement.

3) Based on rotating inner ring.

4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



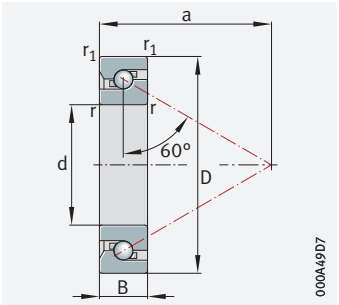
Design of housing and shaft (threaded spindle)

	Dimensions			Mounting dimensions			
d	r min.	r_1 min.	a ≈	D_a max.		d_a min.	
20	1	1	36	39,5	H12	27,5	h12
	1	0,6	29,9	43	H12	27	h12
	1	0,6	29,9	43	H12	27	h12
	1,1	1,1	39,5	43,5	H12	30,5	h12
25	1	1	41	45	H12	32	h12
	1,1	1,1	47,5	52	H12	38	h12
	1	0,6	39,4	54	H12	38	h12
	1	0,6	39,4	54	H12	38	h12

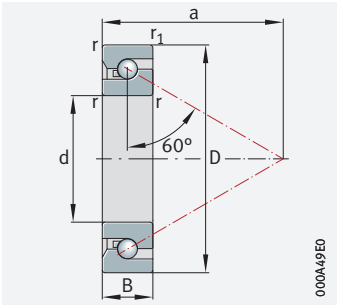
	Rigidity[2]	Axial runout[3]	Recommended INA precision locknuts[4]			Required locknut force[5]
	axial		for radial clamping	for axial clamping	Tightening torque[6]	axial
d	c_{aL}				M_A	
	N/µm	µm			Nm	N
20	703	2	ZM20	AM20	18	8 490
	764	2	ZM20	AM20	18	9 000
	764	2	ZM20	AM20	18	9 000
	787	2	ZM20	AM20	25	11 600
25	772	2	ZM25	AM25	25	9 430
	917	2	ZM25	AM25	40	14 480
	1 001	2	ZMA25/45	AM25	30	11 810
	1 001	2	ZMA25/45	AM25	30	11 810

Axial angular contact ball bearings

Single direction
Open



7602, 7603, BSB



BSB..-SU-XL

d = 30 – 35 mm

Main dimensions				Mass	Designation
d		D	B	m	
				≈ kg	
30	0/–0,005	62 0/–0,007	16 0/–0,12	0,232	**7602030-TVP**
	0/–0,005	62 0/–0,007	15 0/–0,12	0,22	**BSB3062-SU-XL**
	0/–0,005	62 0/–0,007	15 0/–0,12	0,22	**BSB3062-SU-XL-L055**
	0/–0,005	72 0/–0,007	19 0/–0,12	0,409	**7603030-TVP**
35	0/–0,006	72 0/–0,007	17 0/–0,12	0,339	**7602035-TVP**
	0/–0,006	72 0/–0,007	15 0/–0,12	0,3	**BSB3572-SU-XL**
	0/–0,006	72 0/–0,007	15 0/–0,12	0,3	**BSB3572-SU-XL-L055**
	0/–0,006	80 0/–0,007	21 0/–0,12	0,546	**7603035-TVP**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque[1]	Designation
d	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_ϑ	M_R	
	N	N	N	min^{-1}	min^{-1}	Nm	
30	27 500	66 000	3 000	6 700	3 800	0,09	**7602030-TVP**
	32 000	64 000	3 850	6 700	5 400	0,13	**BSB3062-SU-XL**
	32 000	64 000	3 850	6 700	5 400	0,13	**BSB3062-SU-XL-L055**
	36 500	89 000	4 050	5 700	3 200	0,13	**7603030-TVP**
35	31 500	81 000	3 700	5 700	3 200	0,12	**7602035-TVP**
	40 500	89 000	5 400	5 400	4 700	0,18	**BSB3572-SU-XL**
	40 500	89 000	5 400	5 400	4 700	0,18	**BSB3572-SU-XL-L055**
	38 000	100 000	4 550	5 100	3 000	0,17	**7603035-TVP**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

1) Valid for single bearings with stated preload force.

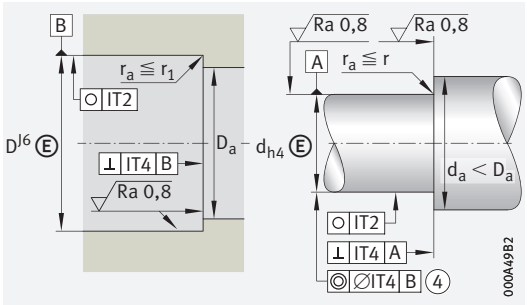
2) Valid for matched pair of bearings in O or X arrangement.

3) Based on rotating inner ring.

4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



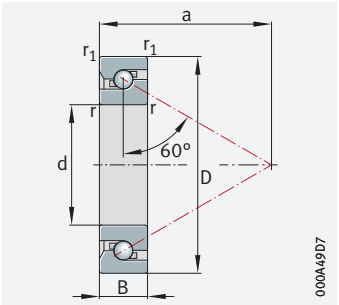
Design of housing and shaft (threaded spindle)

d	Dimensions			Mounting dimensions			
	r	r_1	a	D_a		d_a	
	min.	min.	≈	max.		min.	
30	1	1	48	52,5	H12	39,5	h12
	1	0,6	39,4	54	H12	38	h12
	1	0,6	39,4	54	H12	38	h12
	1,1	1,1	55,5	61	H12	45	h12
35	1,1	1,1	55	60,5	H12	46,5	h12
	1	0,6	48,5	65	H12	47	h12
	1	0,6	48,5	65	H12	47	h12
	1,5	1,5	61,5	67	H12	51	h12

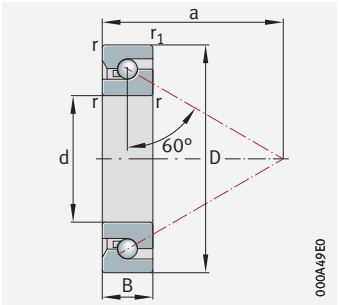
d	Rigidity[2]	Axial runout[3]	Recommended INA precision locknuts[4]			Required locknut force[5]
	axial		for radial clamping	for axial clamping	Tightening torque[6]	axial
	c_{aL}				M_A	
	N/µm	µm			Nm	N
30	893	2	ZM30	AM30	32	10 240
	1 034	2,5	ZM30	AM30	32	11 080
	1 034	2,5	ZM30	AM30	32	11 080
	1 073	2	ZM30	AM30	55	16 180
35	1 020	2	ZM35	AM35	40	11 310
	1 196	2,5	ZM35	AM35	50	15 220
	1 196	2,5	ZM35	AM35	50	15 220
	1 192	2	ZM35	AM35	65	17 380

Axial angular contact ball bearings

Single direction
Open



7602, 7603, BSB



BSB..-SU-XL

d = 40 – 40 mm

Main dimensions			Mass	Designation
d	D	B	m	
			≈ kg	
40 0/–0,006	72 0/–0,007	15 0/–0,12	0,26	**BSB4072-SU-XL**
0/–0,006	72 0/–0,007	15 0/–0,12	0,26	**BSB4072-SU-XL-L055**
0/–0,006	80 0/–0,007	18 0/–0,12	0,418	**7602040-TVP**
0/–0,006	90 0/–0,008	23 0/–0,12	0,751	**7603040-TVP**
0/–0,006	90 0/–0,008	20 0/–0,12	0,65	**BSB040090-T**
0/–0,006	90 0/–0,008	20 0/–0,12	0,65	**BSB4090-SU-XL**
0/–0,006	90 0/–0,008	20 0/–0,12	0,65	**BSB4090-SU-XL-L055**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque[1]	Designation
d	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_ϑ	M_R	
	N	N	N	min^{-1}	min^{-1}	Nm	
40	40 500	89 000	5 400	5 400	4 700	0,18	**BSB4072-SU-XL**
	40 500	89 000	5 400	5 400	4 700	0,18	**BSB4072-SU-XL-L055**
	39 000	106 000	4 800	4 900	2 800	0,17	**7602040-TVP**
	52 000	138 000	6 300	4 500	2 600	0,23	**7603040-TVP**
	52 000	138 000	6 300	4 500	3 100	0,23	**BSB040090-T**
	65 000	153 000	9 300	4 500	3 100	0,23	**BSB4090-SU-XL**
	65 000	153 000	9 300	4 500	3 100	0,23	**BSB4090-SU-XL-L055**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

1) Valid for single bearings with stated preload force.

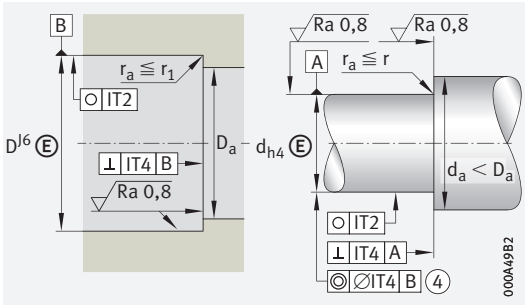
2) Valid for matched pair of bearings in O or X arrangement.

3) Based on rotating inner ring.

4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



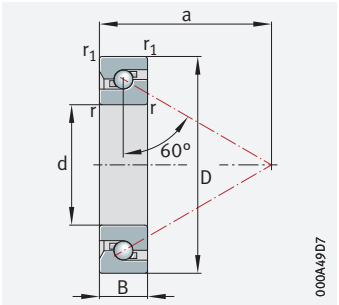
Design of housing and shaft (threaded spindle)

d	Dimensions			Mounting dimensions			
	r	r_1	a	D_a		d_a	
	min.	min.	≈	max.		min.	
40	1	0,6	48,5	65	H12	47	h12
	1	0,6	48,5	65	H12	47	h12
	1,1	1,1	62,5	69,5	H12	53,5	h12
	1,5	1,5	68,5	75,5	H12	56,5	h12
	1,5	1,5	67	75,5	H12	56,5	h12
	1,5	1,5	67	75,5	H12	56,5	h12
	1,5	1,5	67	75,5	H12	56,5	h12

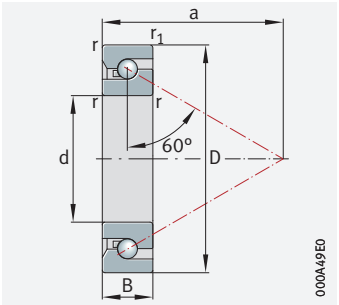
d	Rigidity[2]	Axial runout[3]	Recommended INA precision locknuts[4]			Required locknut force[5]
	axial		for radial clamping	for axial clamping	Tightening torque[6]	axial
	c_{aL}				M_A	
	N/µm	µm			Nm	N
40	1 235	2,5	ZM40	AM40	60	15 650
	1 235	2,5	ZM40	AM40	60	15 650
	1 190	2	ZM40	AM40	55	13 330
	1 292	2	ZM40	AM40	110	25 120
	1 292	2	ZM40	AM40	110	25 120
	1 390	2,5	ZM40	AM40	110	26 080
	1 390	2,5	ZM40	AM40	110	26 080

Axial angular contact ball bearings

Single direction
Open



7602, 7603, BSB



BSB..-SU-XL

d = 45 – 45 mm

Main dimensions				Mass	Designation
d		D	B	m	
				≈ kg	
45	0/–0,006	75 0/–0,007	15 0/–0,12	0,26	**BSB045075-T**
	0/–0,006	85 0/–0,008	19 0/–0,12	0,488	**7602045-TVP**
	0/–0,006	100 0/–0,008	25 0/–0,12	0,992	**7603045-TVP**
	0/–0,006	100 0/–0,008	20 0/–0,12	0,81	**BSB045100-T**
	0/–0,006	100 0/–0,008	20 0/–0,12	0,8	**BSB45100-SU-XL**
	0/–0,006	100 0/–0,008	20 0/–0,12	0,8	**BSB45100-SU-XL-L055**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque[1]	Designation
d	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_ϑ	M_R	
	N	N	N	min^{-1}	min^{-1}	Nm	
45	30 000	85 000	3 850	5 100	3 300	0,13	**BSB045075-T**
	39 500	111 000	5 100	4 700	2 600	0,19	**7602045-TVP**
	62 000	172 000	7 800	4 000	2 200	0,3	**7603045-TVP**
	62 000	172 000	7 800	4 000	2 700	0,3	**BSB045100-T**
	68 000	172 000	10 400	4 000	2 700	0,33	**BSB45100-SU-XL**
	68 000	172 000	10 400	4 000	2 700	0,33	**BSB45100-SU-XL-L055**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

1) Valid for single bearings with stated preload force.

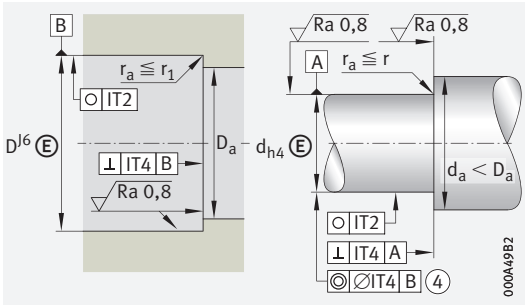
2) Valid for matched pair of bearings in O or X arrangement.

3) Based on rotating inner ring.

4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



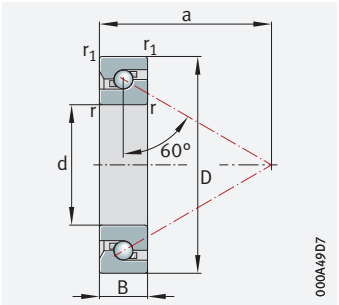
Design of housing and shaft (threaded spindle)

	Dimensions			Mounting dimensions			
d	r min.	r_1 min.	a ≈	D_a max.		d_a min.	
45	1	1	59,5	68	H12	52	h12
	1,1	1,1	66	73	H12	57	h12
	1,5	1,5	77,5	85,5	H12	64,5	h12
	1,5	1,5	75	85,5	H12	64,5	h12
	1,5	1,5	75	85,5	H12	64,5	h12
	1,5	1,5	75	85,5	H12	64,5	h12

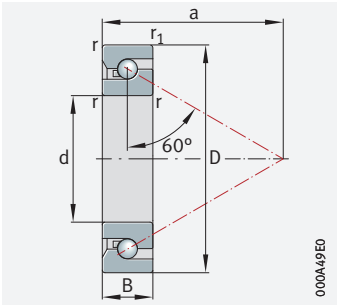
	Rigidity[2]	Axial runout[3]	Recommended INA precision locknuts[4]			Required locknut force[5]
	axial		for radial clamping	for axial clamping	Tightening torque[6]	axial
d	c_{aL}				M_A	
	N/µm	µm			Nm	N
45	1 072	2	ZM45	AM45	50	11 140
	1 247	2	ZM45	AM45	65	14 410
	1 473	2	ZM45	AM45	120	25 160
	1 473	2	ZM45	AM45	120	25 160
	1 473	2,5	ZM50	AM50	120	23 770
	1 473	2,5	ZM50	AM50	120	23 770

Axial angular contact ball bearings

Single direction
Open



7602, 7603, BSB



BSB..-SU-XL

d = 50 – 50 mm

Main dimensions				Mass	Designation
d	D		B	m	
				≈ kg	
50 0/–0,006	90 0/–0,008		20 0/–0,12	0,557	**7602050-TVP**
0/–0,006	100 0/–0,008		20 0/–0,12	0,75	**BSB050100-T**
0/–0,006	100 0/–0,008		20 0/–0,12	0,75	**BSB50100-SU-XL**
0/–0,006	100 0/–0,008		20 0/–0,12	0,75	**BSB50100-SU-XL-L055**
0/–0,006	110 0/–0,008		27 0/–0,12	1,29	**7603050-TVP**

	Basic load ratings		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque[1]	Designation
	axial						
d	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_ϑ	M_R	
	N	N	N	min^{-1}	min^{-1}	Nm	
50	41 000	122 000	5 600	4 300	2 400	0,23	**7602050-TVP**
	62 000	172 000	7 800	4 000	2 700	0,33	**BSB050100-T**
	68 000	172 000	10 400	4 000	2 700	0,33	**BSB50100-SU-XL**
	68 000	172 000	10 400	4 000	2 700	0,33	**BSB50100-SU-XL-L055**
	72 000	203 000	9 200	3 600	2 000	0,36	**7603050-TVP**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

1) Valid for single bearings with stated preload force.

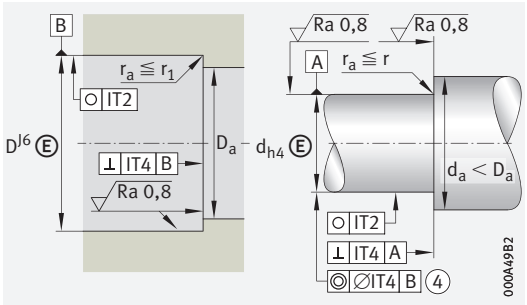
2) Valid for matched pair of bearings in O or X arrangement.

3) Based on rotating inner ring.

4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



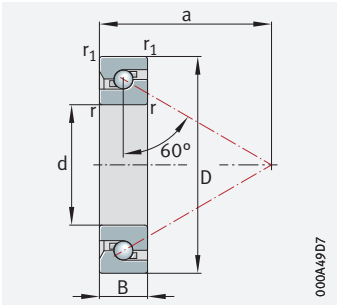
Design of housing and shaft (threaded spindle)

d	Dimensions			Mounting dimensions			
	r	r_1	a	D_a		d_a	
	min.	min.	≈	max.		min.	
50	1,1	1,1	71,5	79	H12	63	h12
	1,5	1,5	75	85,5	H12	64,5	h12
	1,5	1,5	75	85,5	H12	64,5	h12
	1,5	1,5	75	85,5	H12	64,5	h12
	2	2	85,5	94	H12	72	h12

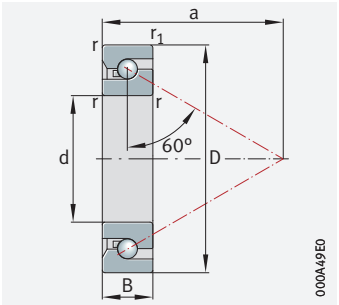
d	Rigidity[2]	Axial runout[3]	Recommended INA precision locknuts[4]			Required locknut force[5]
	axial		for radial clamping	for axial clamping	Tightening torque[6]	axial
	c_{aL}				M_A	
	N/µm	µm			Nm	N
50	1 360	2	ZM50	AM50	85	16 810
	1 473	2	ZM50	AM50	120	23 770
	1 473	2,5	ZM50	AM50	120	23 770
	1 473	2,5	ZM50	AM50	120	23 770
	1 601	2	ZM50	AM50	150	28 930

Axial angular contact ball bearings

Single direction
Open



7602, 7603, BSB



BSB..-SU-XL

d = 55 – 60 mm

Main dimensions				Mass	Designation
d	D		B	m	
				≈ kg	
55 0/–0,007	90 0/–0,008		15 0/–0,15	0,38	**BSB055090-T**
0/–0,007	100 0/–0,008		21 0/–0,15	0,74	**7602055-TVP**
0/–0,007	120 0/–0,008		29 0/–0,15	1,67	**7603055-TVP**[7]
0/–0,007	120 0/–0,008		20 0/–0,15	1,2	**BSB055120-T**[7]
0/–0,007	120 0/–0,008		20 0/–0,15	1,2	**BSB55120-SU-XL**
0/–0,007	120 0/–0,008		20 0/–0,15	1,2	**BSB55120-SU-XL-L055**
60 0/–0,007	120 0/–0,008		20 0/–0,15	1,1	**BSB060120-T**
0/–0,007	120 0/–0,008		20 0/–0,15	1,1	**BSB60120-SU-XL**
0/–0,007	120 0/–0,008		20 0/–0,15	1,1	**BSB60120-SU-XL-L055**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque[1]	Designation
d	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_ϑ	M_R	
	N	N	N	min^{-1}	min^{-1}	Nm	
55	33 500	98 000	4 450	4 200	2 800	0,19	**BSB055090-T**
	42 000	132 000	6 000	3 900	2 200	0,25	**7602055-TVP**
	85 000	255 000	11 500	3 300	1 900	0,46	**7603055-TVP**[7]
	63 000	188 000	8 600	3 400	2 400	0,36	**BSB055120-T**[7]
	71 000	196 000	11 900	3 800	2 300	0,38	**BSB55120-SU-XL**
	71 000	196 000	11 900	3 800	2 300	0,38	**BSB55120-SU-XL-L055**
60	64 000	196 000	8 900	3 800	2 300	0,38	**BSB060120-T**
	71 000	196 000	11 900	3 800	2 300	0,38	**BSB60120-SU-XL**
	71 000	196 000	11 900	3 800	2 300	0,38	**BSB60120-SU-XL-L055**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

1) Valid for single bearings with stated preload force.

2) Valid for matched pair of bearings in O or X arrangement.

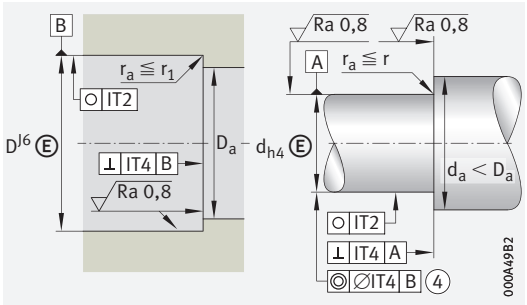
3) Based on rotating inner ring.

4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.

7) Delivery possibility by agreement.



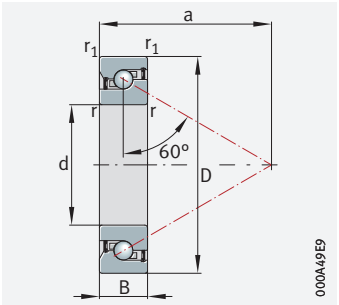
Design of housing and shaft (threaded spindle)

	Dimensions			Mounting dimensions			
d	r min.	r_1 min.	a ≈	D_a max.		d_a min.	
55	1	1	70,5	80	H12	65	h12
	1,5	1,5	77,5	85,5	H12	69,5	h12
	2	2	91,5	101	H12	77	h12
	2	2	86	97,5	H12	77	h12
	1,5	1,5	88	100,5	H12	79,5	h12
	1,5	1,5	88	100,5	H12	79,5	h12
60	1,5	1,5	88	100,5	H12	79,5	h12
	1,5	1,5	88	100,5	H12	79,5	h12
	1,5	1,5	88	100,5	H12	79,5	h12

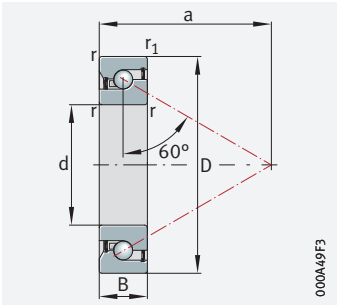
	Rigidity[2]	Axial runout[3]	Recommended INA precision locknuts[4]			Required locknut force[5]
	axial		for radial clamping	for axial clamping	Tightening torque[6]	axial
d	c_{aL}				M_A	
	N/µm	µm			Nm	N
55	1 246	3	ZM55	AM55	60	12 040
	1 394	3	ZM55	AM55	85	15 060
	1 723	3	ZM55	AM55	130	24 120
	1 553	3	ZM55	AM55	110	20 070
	1 623	2,5	ZM60	AM60	120	20 020
	1 623	2,5	ZM60	AM60	120	20 020
60	1 623	3	ZM60	AM60	120	20 020
	1 623	3	ZM60	AM60	120	20 020
	1 623	3	ZM60	AM60	120	20 020

Axial angular contact ball bearings

Single direction
Sealed on both sides



7602..-2RS, 7603..-2RS



BSB..-2Z-SU-XL

d = 12 – 20 mm

Main dimensions			Mass	Designation
d	D	B	m	
			≈ kg	
12 0/–0,004	32 0/ –0,006	10 0/ –0,08	0,042	**7602012-2RS-TVP**
15 0/–0,004	35 0/ –0,006	11 0/ –0,08	0,052	**7602015-2RS-TVP**
0/–0,004	47 0/ –0,006	15 0/ –0,12	0,14	**BSB1547-2Z-SU-XL**
17 0/–0,004	47 0/ –0,006	15 0 –0,12	0,13	**BSB1747-2Z-SU-XL**
20 0/–0,005	47 0/ –0,006	14 0/ –0,12	0,12	**7602020-2RS-TVP**
0/–0,005	47 0/ –0,006	15 0/ –0,12	0,12	**BSB2047-2Z-SU-XL**
0/–0,005	52 0/ –0,007	15 0/ –0,12	0,17	**7603020-2RS-TVP**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque[1]	Designation
d	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_ϑ	M_R	
	N	N	N	min^{-1}	min^{-1}	Nm	
12	12 200	20 700	940	10 400	8 000	0,015	**7602012-2RS-TVP**
15	13 100	24 700	1 120	9 000	6 700	0,02	**7602015-2RS-TVP**
	28 500	47 000	2 850	8 700	6 200	0,08	**BSB1547-2Z-SU-XL**
17	28 500	47 000	2 850	8 700	6 200	0,08	**BSB1747-2Z-SU-XL**
20	19 100	38 000	1 720	6 800	5 000	0,05	**7602020-2RS-TVP**
	28 500	47 000	2 850	8 700	6 200	0,08	**BSB2047-2Z-SU-XL**
	25 500	53 000	2 430	6 200	4 500	0,06	**7603020-2RS-TVP**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

1) Valid for single bearings with stated preload force.

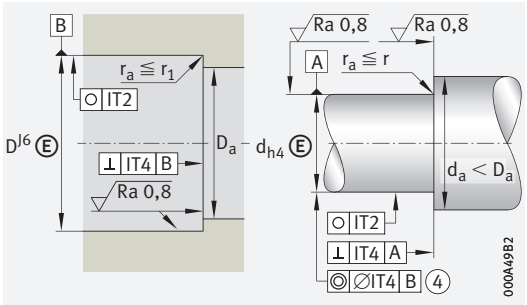
2) Valid for matched pair of bearings in O or X arrangement.

3) Based on rotating inner ring.

4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



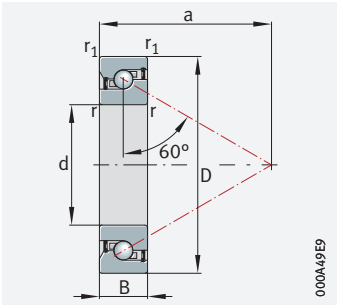
Design of housing and shaft (threaded spindle)

d	Dimensions			Mounting dimensions			
	r	r_1	a	D_a		d_a	
	min.	min.	≈	max.		min.	
12	0,6	0,6	24	27	H12	17	h12
15	0,6	0,6	27,5	30	H12	20,5	h12
	1	0,6	29,9	43	H12	27	h12
17	1	0,6	29,9	43	H12	27	h12
20	1	1	36	39,5	H12	27,5	h12
	1	0,6	29,9	43	H12	27	h12
	1,1	1,1	36,5	43,5	H12	30,5	h12

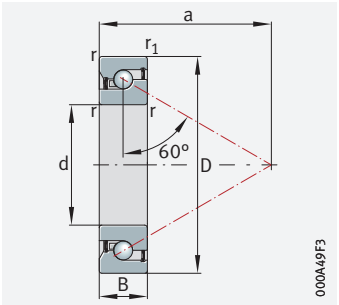
d	Rigidity[2]	Axial runout[3]	Recommended INA precision locknuts[4]			Required locknut force[5]
	axial		for radial clamping	for axial clamping	Tightening torque[6]	axial
	c_{aL}				M_A	
	N/µm	µm			Nm	N
12	476	2	ZM12	–	8	6 110
15	516	2	ZM15	AM15	10	5 740
	764	2	ZM17	AM17	15	9 000
17	764	2	ZM17	AM17	15	9 000
20	703	2	ZM20	AM20	18	8 490
	764	2	ZM20	AM20	18	9 000
	787	2	ZM20	AM20	18	11 600

Axial angular contact ball bearings

Single direction
Sealed on both sides



7602..-2RS, 7603..-2RS



BSB..-2Z-SU-XL

d = 25 – 40 mm

Main dimensions			Mass	Designation
d	D	B	m ≈ kg	
25 0/–0,005	52 0/–0,007	15 0/–0,12	0,15	**7602025-2RS-TVP**
0/–0,005	62 0/–0,007	17 0/–0,12	0,27	**7603025-2RS-TVP**
0/–0,005	62 0/–0,007	15 0/–0,12	0,24	**BSB2562-2Z-SU-XL**
30 0/–0,005	62 0/–0,007	16 0/–0,12	0,23	**7602030-2RS-TVP**
0/–0,005	62 0/–0,007	15 0/–0,12	0,22	**BSB3062-2Z-SU-XL**
35 0/–0,006	72 0/–0,007	15 0/–0,12	0,3	**BSB3572-2Z-SU-XL**
40 0/–0,006	72 0/–0,007	15 0/–0,12	0,26	**BSB4072-2Z-SU-XL**
0/–0,006	90 0/–0,008	20 0/–0,12	0,65	**BSB4090-2Z-SU-XL**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque[1]	Designation
d	dyn. C_a	stat. C_{0a}	C_{ua}	n_G grease	n_ϑ	M_R	
	N	N	N	min^{-1}	min^{-1}	Nm	
25	23 200	50 000	2 280	5 100	3 800	0,07	**7602025-2RS-TVP**
	29 500	68 000	3 100	5 100	3 800	0,09	**7603025-2RS-TVP**
	32 000	64 000	3 850	6 700	5 400	0,13	**BSB2562-2Z-SU-XL**
30	27 500	66 000	3 000	5 000	3 800	0,09	**7602030-2RS-TVP**
	32 000	64 000	3 850	6 700	5 400	0,13	**BSB3062-2Z-SU-XL**
35	40 500	89 000	5 400	5 400	4 700	0,18	**BSB3572-2Z-SU-XL**
40	40 500	89 000	5 400	5 400	4 700	0,18	**BSB4072-2Z-SU-XL**
	65 000	153 000	9 300	4 500	3 100	0,23	**BSB4090-2Z-SU-XL**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

1) Valid for single bearings with stated preload force.

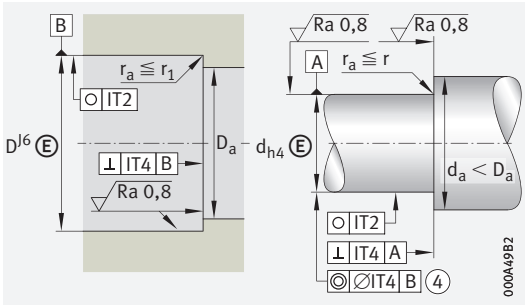
2) Valid for matched pair of bearings in O or X arrangement.

3) Based on rotating inner ring.

4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



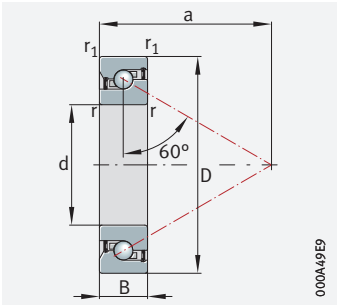
Design of housing and shaft (threaded spindle)

	Dimensions			Mounting dimensions			
d	r min.	r_1 min.	a ≈	D_a max.		d_a min.	
25	1	1	41	45	H12	32	h12
	1,1	1,1	47,5	52	H12	38	h12
	1	0,6	39,4	54	H12	38	h12
30	1	1	48	52,5	H12	39,5	h12
	1	0,6	39,4	54	H12	38	h12
35	1	0,6	48,5	65	H12	47	h12
40	1	0,6	48,5	65	H12	47	h12
	1,5	1,5	67	75,5	H12	56,5	h12

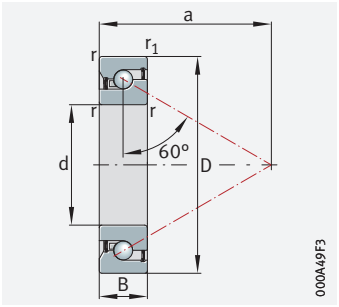
	Rigidity[2]	Axial runout[3]	Recommended INA precision locknuts[4]			Required locknut force[5]
	axial		for radial clamping	for axial clamping	Tightening torque[6]	axial
d	c_{aL}				M_A	
	N/µm	µm			Nm	N
25	772	2	ZM25	AM25	25	9 430
	917	2	ZM25	AM25	40	14 480
	1 001	2	ZMA25/45	AM25	30	11 810
30	893	2	ZM30	AM30	32	10 240
	1 034	2,5	ZM30	AM30	32	11 080
35	1 196	2,5	ZM35	AM35	50	15 220
40	1 235	2,5	ZM40	AM40	60	15 650
	1 390	2,5	ZM40	AM40	110	26 080

Axial angular contact ball bearings

Single direction
Sealed on both sides



7602..-2RS, 7603..-2RS



BSB..-2Z-SU-XL

d = 45 – 60 mm

Main dimensions			Mass	Designation
d	D	B	m ≈ kg	
45 0/–0,006	100 0/–0,008	20 0/–0,12	0,8	**BSB45100-2Z-SU-XL**
50 0/–0,006	100 0/–0,008	20 0/–0,12	0,75	**BSB50100-2Z-SU-XL**
55 0/–0,007	120 0/–0,008	20 0/–0,15	1,2	**BSB55120-2Z-SU-XL**
60 0/–0,007	120 0/–0,008	20 0/–0,15	1,1	**BSB60120-2Z-SU-XL**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque[1]	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	
45	68 000	172 000	10 400	4 000	2 700	0,33	**BSB45100-2Z-SU-XL**
50	68 000	172 000	10 400	4 000	2 700	0,33	**BSB50100-2Z-SU-XL**
55	71 000	196 000	11 900	3 800	2 300	0,38	**BSB55120-2Z-SU-XL**
60	71 000	196 000	11 900	3 800	2 300	0,38	**BSB60120-2Z-SU-XL**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

1) Valid for single bearings with stated preload force.

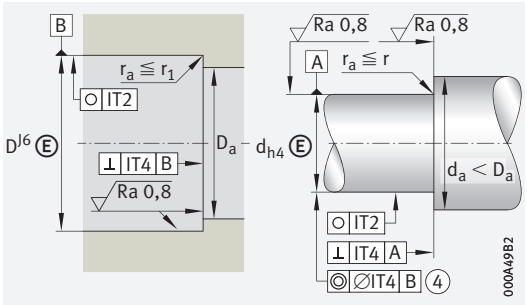
2) Valid for matched pair of bearings in O or X arrangement.

3) Based on rotating inner ring.

4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



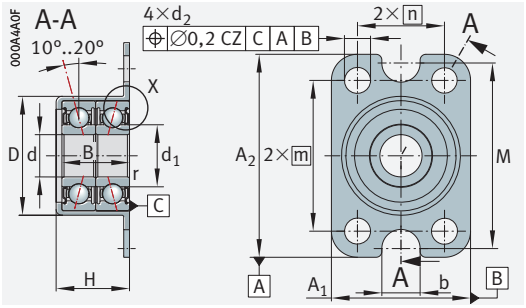
Design of housing and shaft (threaded spindle)

	Dimensions			Mounting dimensions			
d	r	r_1	a	D_a		d_a	
	min.	min.	≈	max.		min.	
45	1,5	1,5	75	85,5	H12	64,5	h12
50	1,5	1,5	75	85,5	H12	64,5	h12
55	1,5	1,5	88	100,5	H12	79,5	h12
60	1,5	1,5	88	100,5	H12	79,5	h12

	Rigidity[2]	Axial runout[3]	Recommended INA precision locknuts[4]			Required locknut force[5]
	axial		for radial clamping	for axial clamping	Tightening torque[6]	axial
d	c_{aL}				M_A	
	N/µm	µm			Nm	N
45	1 473	2,5	ZM50	AM50	120	23 770
50	1 473	2,5	ZM50	AM50	120	23 770
55	1 623	2,5	ZM60	AM60	120	20 020
60	1 623	3	ZM60	AM60	120	20 020

Angular contact ball bearing units

For screw mounting



ZKLR0624-2Z, ZKLR0828-2Z

d = 6 – 20 mm

Main dimensions				Dimensions			Designation
d	D		B	d_1	r min.	d_2	
6 0/–0,008	20,5	+0,03/–0,01	12 +0,25/–0,25	9	0,3	4,5	**ZKLR0624-2Z**
8 0/–0,008	23,9	+0,03/–0,01	14 +0,25/–0,25	11	0,3	4,5	**ZKLR0828-2Z**
10 0/–0,008	28,14	+0,03/–0,01	16 +0,25/–0,25	13,55	0,3	4,5	**ZKLR1035-2Z**
12 0/–0,007	35,45	+0,03/–0,01	20 +0,25/–0,25	16,6	0,3	6,6	**ZKLR1244-2RS**
15 0/–0,007	38,45	+0,03/–0,01	22 +0,25/–0,25	18	0,3	6,6	**ZKLR1547-2RS**
20 0/–0,008	50,45	+0,03/–0,01	28 +0,25/–0,25	24,4	0,3	6,6	**ZKLR2060-2RS**

	Basic load ratings				Fatigue limit load	Limiting speed	Bearing frictional torque	Mass	Designation
	radial		axial						
d	dyn. C_r	stat. C_{0r}	dyn. C_a	stat. C_{0a}	C_{ur}	n_G grease	M_R	m	
	N	N	N	N	N	min^{-1}	Nm	≈ kg	
6	4 100	2 060	1 650	1 520	107	7 300	0,04	0,023	**ZKLR0624-2Z**
8	5 000	2 700	2 060	1 850	142	6 200	0,08	0,03	**ZKLR0828-2Z**
10	7 000	3 900	2 430	2 420	202	5 100	0,12	0,05	**ZKLR1035-2Z**
12	13 600	8 500	13 200	17 900	445	3 700	0,16	0,12	**ZKLR1244-2RS**
15	16 700	10 700	16 400	22 400	560	3 400	0,2	0,14	**ZKLR1547-2RS**
20	28 000	19 100	27 500	40 000	990	2 800	0,3	0,3	**ZKLR2060-2RS**

medias *https://www.schaeffler.de/std/1F9A*

② Adjacent construction, bearing screw mounted on flat surface. ④ Only valid in assembled condition.

1) The screws are not included in the scope of delivery.
Tightening torque according to manufacturer's data.

2) Statistically determined mean values from measurements on the complete bearing. Due to the design, larger variations in rigidity must be expected with axial angular contact ball bearing units ZKLR.

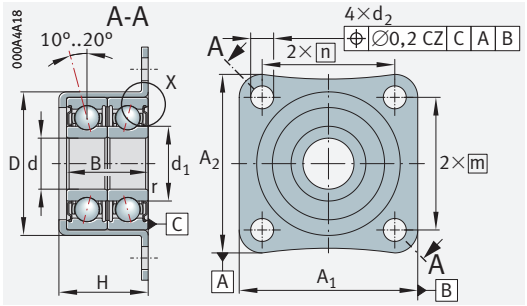
3) Based on rotating inner ring.

4) The locknut is only used to axially locate the bearing unit.
It has no influence on the bearing preload.

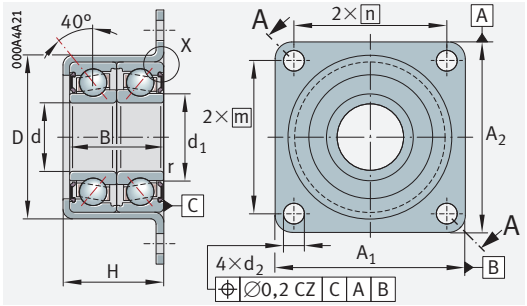
5) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.

7) The geometrical tolerances stated are only required in the area of the diameter between D_{ai} and D_{aa}.
When IT5-7 is stated, the tolerance should be selected as IT5 to IT7 depending on the accuracy requirement of the subassembly.



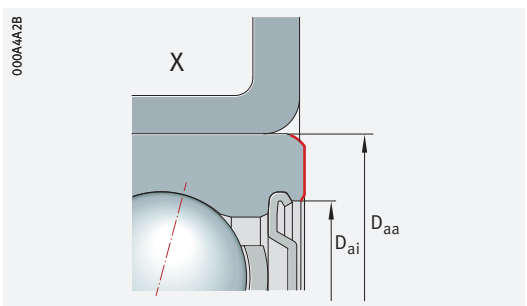
ZKLR1035-2Z



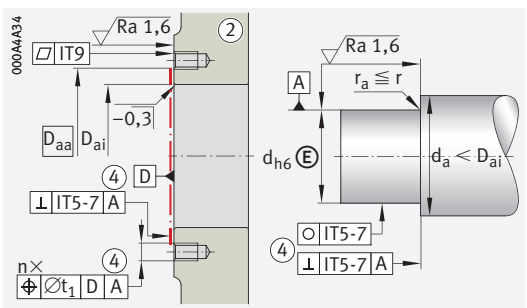
ZKLR1244-2RS, ZKLR1547-2RS, ZKLR2060-2RS

Dimensions									Mounting dimensions			Fixing screws[1] DIN EN ISO 4762				
d	A_1	A_2	b	m	n	M	H		d_a	D_{ai}	D_{aa} min.	Size	n	Size	n	t_1 ○
6	24	35	6,6	26	15	32	13	0/–0,5	8	16	19	M4	4	M6	2	0,2
8	28	35	6,6	26	20	35	15,5	0/–0,5	10,4	18	22	M4	4	M6	2	0,2
10	35	35	–	26	26	–	17,5	0/–0,5	12,4	22	26	M4	4	–	–	0,2
12	44	50	–	38	32	–	22	0/–0,5	14	27	32	M6	4	–	–	0,2
15	47	51	–	39	35	–	24	0/–0,5	17,5	29	35	M6	4	–	–	0,2
20	60	60	–	47	47	–	30	0/–0,5	24	39	47	M6	4	–	–	0,2

	Rigidity[2] axial	Mass moment of inertia[3]	Axial runout[3]	Recommended INA precision locknuts[4] [5]		
				for radial clamping	for axial clamping	Tightening torque[6]
d	c_{aL}	M_m				M_A
	N/µm	kg · cm²	µm			Nm
6	14	0,0014	7	ZM06	–	2
8	16	0,0028	7	ZM08	–	4
10	19	0,0075	7	ZM10	–	6
12	170	0,0102	7	ZM12	–	8
15	200	0,0178	7	ZM15	AM15	10
20	250	0,263	8	ZM20	AM20	18



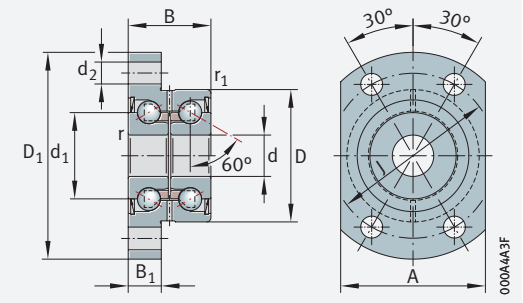
Axial abutment area of outer ring



Design of housing and shaft[7]

Double row axial angular contact ball bearings with flange

With fixing holes



ZKLFA..-2RS, ZKLFA..-2Z

d = 6 – 8 mm

Main dimensions			Dimensions			Designation
d	D	B	d_1	D_1	r min.	
6 +0,002/–0,003	19 0/–0,01	12 0/–0,25	12	30	0,3	**ZKLFA0630-2Z**[2]
+0,002/–0,003	24 0/–0,01	15 0/–0,25	14	40	0,3	**ZKLFA0640-2RS**
+0,002/–0,003	24 0/–0,01	15 0/–0,25	14	40	0,3	**ZKLFA0640-2Z**
8 0 /–0,005	32 0/–0,01	20 0/–0,25	19	50	0,3	**ZKLFA0850-2RS**
0 /–0,005	32 0/–0,01	20 0/–0,25	19	50	0,3	**ZKLFA0850-2Z**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Mass	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	m ≈ kg	
6	4 900	6 100	280	22 800	14 000	0,01	0,05	**ZKLFA0630-2Z**[2]
	6 900	8 500	385	16 400	6 800	0,04	0,08	**ZKLFA0640-2RS**
	6 900	8 500	385	19 900	12 000	0,02	0,08	**ZKLFA0640-2Z**
8	12 500	16 300	740	12 100	5 100	0,08	0,17	**ZKLFA0850-2RS**
	12 500	16 300	740	15 500	9 500	0,04	0,17	**ZKLFA0850-2Z**

medias *https://www.schaeffler.de/std/1F9A*

② Adjacent construction, bearing screw mounted on flat surface ④ Only valid in assembled condition.

1) Screws 10.9 are not included in the scope of delivery. Tightening torque according to manufacturer's data.

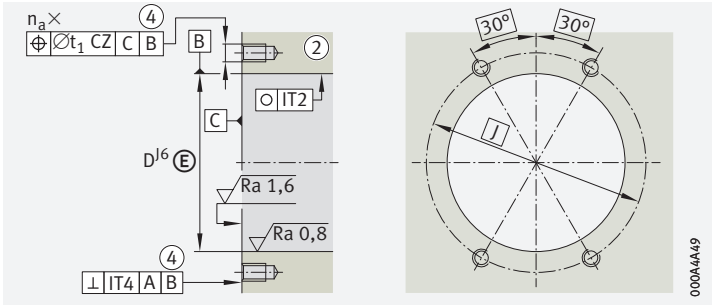
2) No relubrication facility.

3) Based on rotating inner ring.

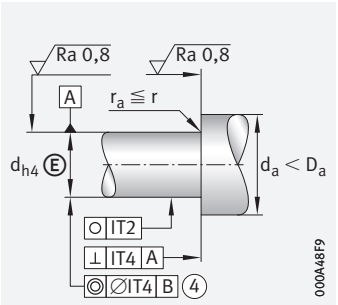
4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

6) Only valid in conjunction with INA precision locknuts. Observe the guidelines on locating/locating bearing arrangements TPI 123.



Housing design



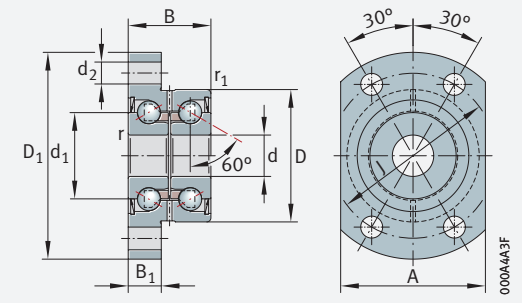
Shaft design (threaded spindle)

Dimensions						Mounting dimensions			Fixing screws[1] DIN EN ISO 4762	
d	r_1 min.	B_1	d_2	J	A	d_a min.	d_a max.	t_1	Size	n_a
6	0,3	5	3,5	24	22	9	15	0,1	M3	4
	0,6	6	4,5	32	27	9	18	0,1	M4	4
	0,6	6	4,5	32	27	9	18	0,1	M4	4
8	0,6	8	5,5	40	35	11	25	0,1	M5	4
	0,6	8	5,5	40	35	11	25	0,1	M5	4

	Rigidity axial	Tilting rigidity	Mass moment of inertia[3]	Axial runout[3]	Recommended INA precision locknuts[4] for radial clamping	for axial clamping	Tightening torque[6]	Required locknut force[5] axial
d	c_{aL}	c_{kL}	M_m				M_A	
	N/µm	Nm/mrad	kg · cm^2	µm			Nm	N
6	150	4	0,0019	2	ZM06	–	2	2 010
	200	8	0,0044	2	ZM06	–	2	2 404
	200	8	0,0044	2	ZM06	–	2	2 404
8	250	20	0,02	2	ZM08	–	4	3 468
	250	20	0,02	2	ZM08	–	4	3 468

Double row axial angular contact ball bearings with flange

With fixing holes



ZKLFA..-2RS, ZKLFA..-2Z

d = 10 – 15 mm

Main dimensions			Dimensions			Designation
d	D	B	d_1	D_1	r min.	
10 0/–0,005	32 0/–0,01	20 0/–0,25	21	50	0,3	**ZKLFA1050-2RS**
0/–0,005	32 0/–0,01	20 0/–0,25	21	50	0,3	**ZKLFA1050-2Z**
12 0/–0,005	42 0/–0,01	25 0/–0,25	25	63	0,3	**ZKLFA1263-2RS**
0/–0,005	42 0/–0,01	25 0/–0,25	25	63	0,3	**ZKLFA1263-2Z**
15 0/–0,005	42 0/–0,01	25 0/–0,25	28	63	0,3	**ZKLFA1563-2RS**
0/–0,005	42 0/–0,01	25 0/–0,25	28	63	0,3	**ZKLFA1563-2Z**

	Basic load ratings axial		Fatigue limit load	Limiting speed	Thermally safe operating speed	Bearing frictional torque	Mass	Designation
d	dyn. C_a N	stat. C_{0a} N	C_{ua} N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	m ≈ kg	
10	13 400	18 800	850	10 900	4 600	0,12	0,18	**ZKLFA1050-2RS**
	13 400	18 800	850	14 400	8 600	0,06	0,18	**ZKLFA1050-2Z**
12	16 900	24 700	1 130	9 200	3 800	0,16	0,3	**ZKLFA1263-2RS**
	16 900	24 700	1 130	12 000	7 600	0,08	0,3	**ZKLFA1263-2Z**
15	17 900	28 000	1 280	8 200	3 500	0,2	0,31	**ZKLFA1563-2RS**
	17 900	28 000	1 280	10 800	7 000	0,1	0,31	**ZKLFA1563-2Z**

medias *https://www.schaeffler.de/std/1F9A*

② Adjacent construction, bearing screw mounted on flat surface ④ Only valid in assembled condition.

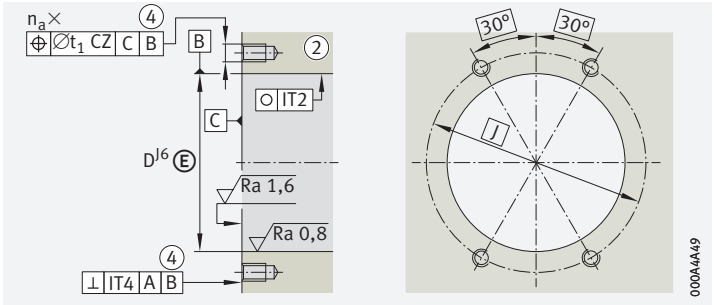
1) Screws 10.9 are not included in the scope of delivery.
Tightening torque according to manufacturer's data.

2) Based on rotating inner ring.

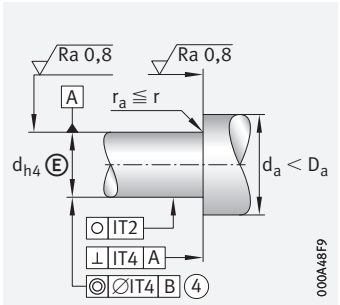
3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

4) The required axial locknut force must be observed when using other locknuts.

5) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



Housing design



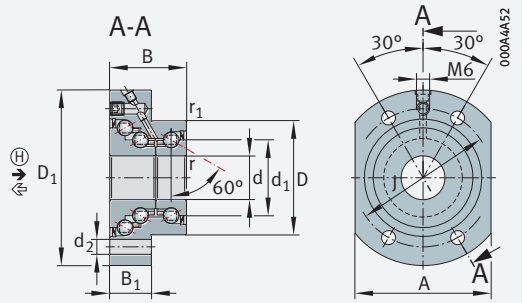
Shaft design
(threaded spindle)

Dimensions						Mounting dimensions			Fixing screws[1] DIN EN ISO 4762	
d	r_1 min.	B_1	d_2	J	A	d_a min.	d_a max.	t_1	Size	n_a
10	0,6	8	5,5	40	35	14	27	0,1	M5	4
	0,6	8	5,5	40	35	14	27	0,1	M5	4
12	0,6	10	6,8	53	45	16	31	0,1	M6	4
	0,6	10	6,8	53	45	16	31	0,1	M6	4
15	0,6	10	6,8	53	45	20	34	0,1	M6	4
	0,6	10	6,8	53	45	20	34	0,1	M6	4

	Rigidity axial	Tilting rigidity	Mass moment of inertia[2]	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4]
					for radial clamping	for axial clamping	Tightening torque[5]	axial
d	c_{aL}	c_{kL}	M_m				M_A	
	N/µm	Nm/mrad	kg · cm^2	µm			Nm	N
10	325	25	0,029	2	ZM10	–	6	4 891
	325	25	0,029	2	ZM10	–	6	4 891
12	375	50	0,068	2	ZM12	–	8	5 307
	375	50	0,068	2	ZM12	–	8	5 307
15	400	65	0,102	2	ZM15	AM15	10	5 484
	400	65	0,102	2	ZM15	AM15	10	5 484

Triple row axial angular contact ball bearings with flange

With fixing holes



DKLFA..-2RS (d ≦ 20 mm)

d = 15 – 25 mm

Main dimensions			Dimensions			Designation
d	D	B	d_1	D_1 min.	r min.	
15 0/–0,010	45 0/–0,013	32 0/–0,25	28	75	0,3	**DKLFA1575-2RS**
20 0/–0,010	52 0/–0,013	35 0/–0,25	34,5	80	0,3	**DKLFA2080-2RS**
25 0/–0,010	57 0/–0,013	38 0/–0,25	40,5	90	0,3	**DKLFA2590-2RS**

	Basic load ratings				Fatigue limit load		Limiting speed	Thermally safe operating speed	Bearing frictional torque	Mass	Designation
	axial ⇐		axial Ⓗ ➔								
d	dyn. C_a	stat. C_{0a}	dyn. C_a	stat. C_{0a}	C_{ua}	C_{ua} Ⓗ	n_G grease	n_ϑ	M_R	m	
	N	N	N	N	N	N	min^{-1}	min^{-1}	Nm	≈ kg	
15	17 900	28 000	37 000	83 000	1 240	2 450	5 700	2 600	0,35	0,53	**DKLFA1575-2RS**
20	26 000	47 000	44 500	110 000	2 070	2 800	5 000	2 200	0,45	0,7	**DKLFA2080-2RS**
25	27 500	55 000	53 000	144 000	2 450	3 950	4 400	2 000	0,6	0,9	**DKLFA2590-2RS**

medias *https://www.schaeffler.de/std/1F9A*

Attention!
The bearings require continuous load in the main load direction Ⓗ!

④ Only valid in assembled condition. ⑤ Adjacent construction, bearing screw mounted on flat surface.
⑥ Bearing centred in adjacent construction.

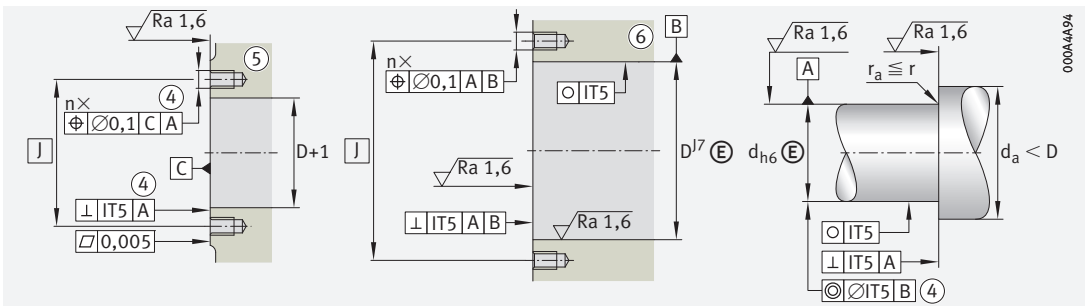
1) Screws 10.9 not included in scope of delivery. Tightening torque according to manufacturer's data.

2) Based on rotating inner ring.

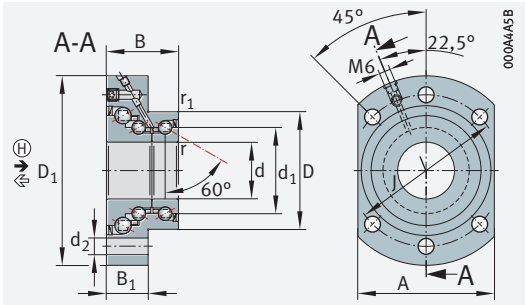
3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

4) The required axial locknut force must be observed when using other locknuts.

5) Only valid in conjunction with INA precision locknuts in locating/non-locating bearing arrangements and for ① in locating/locating bearing arrangements.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



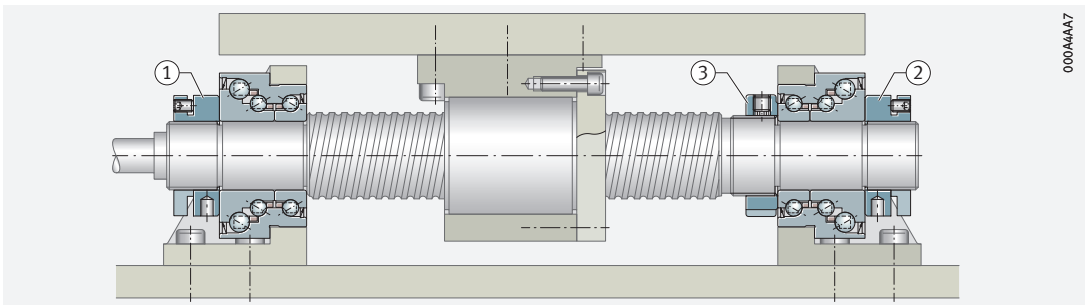
Design of housing and shaft (threaded spindle)



DKLFA..-2RS (d ≧ 25 mm)

d	Dimensions					Mounting dimensions		Fixing screws[1] DIN EN ISO 4762		
	r_1 min.	B_1	d_2	J	A	d_a min.	d_a max.	Size	n	t °
15	0,6	18	6,8	58	55	20	35	M6	4	60
20	0,6	19	6,8	63	62	25	43	M6	4	60
25	0,6	22	8,8	75	70	32	48	M8	6	45

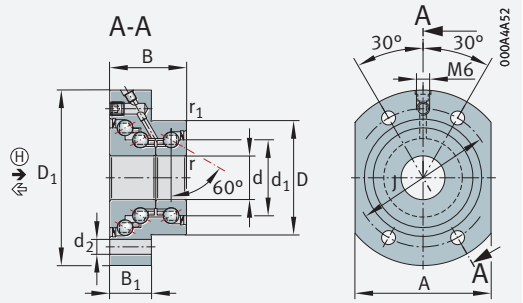
d	Rigidity		Tilting rigidity	Mass moment of inertia[2]	Axial runout[2]	Recommended INA precision locknuts[3]				Required locknut force[4]
	axial ⇦	axial ➔				for radial clamping		for axial clamping	Tightening torque[5]	axial
	c_{aL}	c_{aL}	c_{kL}	M_m		①, ②	③	①, ②	M_A ①	①
	N/µm	N/µm	Nm/mrad	kg · cm²	µm				Nm	N
15	500	950	140	0,278	5	ZMA15/33	ZM17	AM15	10	6 270
20	750	1 100	260	0,553	5	ZMA20/38	ZM25	AM20	18	8 580
25	850	1 200	370	1,12	5	ZMA25/45	ZM30	AM25	25	9 670



Ball screw drive with locating bearing arrangement on both sides

Triple row angular contact ball bearings with flange

With fixing holes



DKLFA..-2RS (d ≦ 20 mm)

d = 30 – 40 mm

Main dimensions			Dimensions			Designation
d	D	B	d_1	D_1 min.	r min.	
30 0/–0,010	62 0/–0,013	38 0/–0,25	45,5	100	0,3	**DKLFA30100-2RS**
0/–0,010	75 0/–0,013	56 0/–0,25	51	110	0,3	**DKLFA30110-2RS**[2]
40 0/–0,010	72 0/–0,013	42 0/–0,25	58	115	0,3	**DKLFA40115-2RS**
0/–0,010	90 0/–0,013	60 0/–0,25	65	140	0,3	**DKLFA40140-2RS**[2]

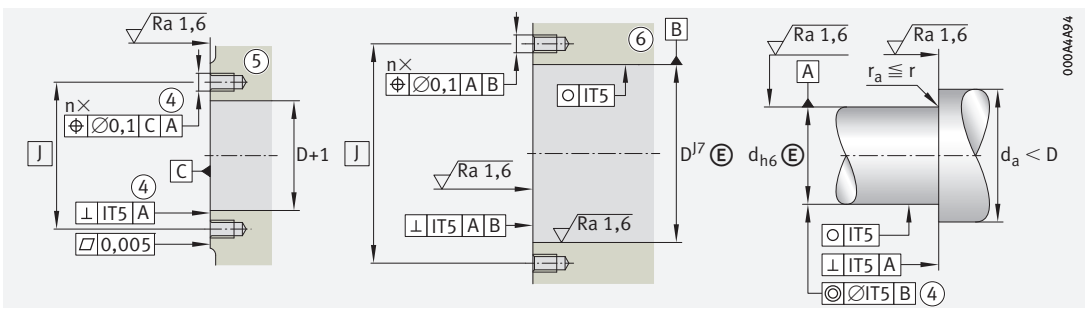
	Basic load ratings				Fatigue limit load		Limiting speed	Thermally safe operating speed	Bearing frictional torque	Mass	Designation
	axial ⇐		axial Ⓗ ⇒								
d	dyn. C_a N	stat. C_{0a} N	dyn. C_a N	stat. C_{0a} N	C_{ua} N	C_{ua} Ⓗ N	n_G grease min^{-1}	n_ϑ min^{-1}	M_R Nm	m ≈ kg	
30	29 000	64 000	56 000	165 000	2 800	4 450	4 000	1 800	0,75	1	**DKLFA30100-2RS**
	59 000	108 000	107 000	255 000	4 800	6 600	3 500	1 600	1,5	2,5	**DKLFA30110-2RS**[2]
40	43 000	101 000	73 000	227 000	4 450	5 600	3 200	1 500	1	1,5	**DKLFA40115-2RS**
	72 000	149 000	127 000	365 000	6 600	9 500	2 900	1 200	2,5	4,2	**DKLFA40140-2RS**[2]

medias *https://www.schaeffler.de/std/1F9A*

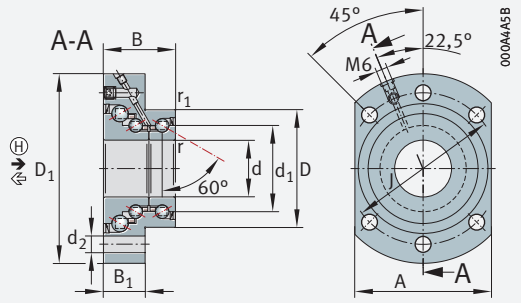
Attention!
The bearings require continuous load in the main load direction Ⓗ!

④ Only valid in assembled condition. ⑤ Adjacent construction, bearing screw mounted on flat surface.
⑥ Bearing centred in adjacent construction.

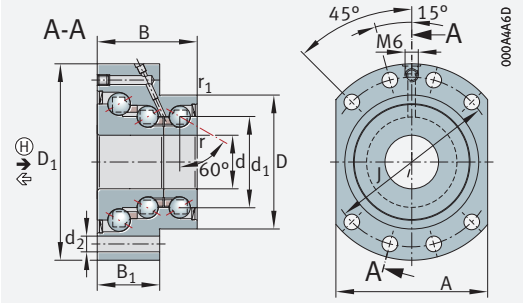
1) Screws 10.9 not included in scope of delivery. Tightening torque according to manufacturer's data.
2) Heavy series.
3) Based on rotating inner ring.



Design of housing and shaft (threaded spindle)



DKLFA..-2RS (d ≧ 25 mm)



DKLFA..-2RS
Heavy series

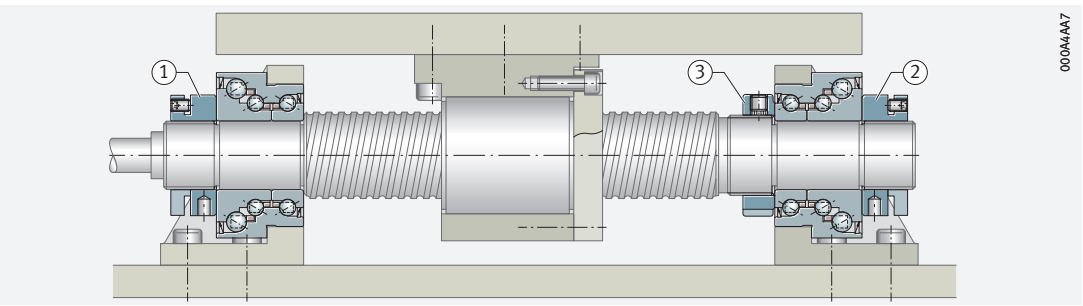
Dimensions						Mounting dimensions		Fixing screws[1] DIN EN ISO 4762		
d	r_1 min.	B_1	d_2	J	A	d_a min.	d_a max.	Size	n	t °
30	0,6	22	8,8	80	72	40	53	M8	6	45
	0,6	35	8,8	95	85	47	64	M8	8	30
40	0,6	23	8,8	94	90	50	67	M8	6	45
	0,6	35	11	118	110	56	80	M10	8	30

	Rigidity		Tilting rigidity	Mass moment of inertia[3]	Axial runout[3]	Recommended INA precision locknuts[4]				Required locknut force[5]
	axial ⇦	axial ➔				for radial clamping		for axial clamping	Tightening torque[6]	axial
d	c_{aL}	c_{aL}	c_{kL}	M_m		①, ②	③	①, ②	M_A ①	①
	N/µm	N/µm	Nm/mrad	kg · cm²	µm				Nm	N
30	900	1 400	500	1,7	5	ZMA30/52	ZM35	AM30	32	10 350
	1 300	1 600	650	3,23	5	–	ZM35	AM30/65	65	20 500
40	1 100	1 700	1 000	4,23	5	ZMA40/62	ZM45	AM40	55	13 420
	1 800	2 000	1 370	9,32	5	–	ZM45	AM40/85	110	26 600

4) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

5) The required axial locknut force must be observed when using other locknuts.

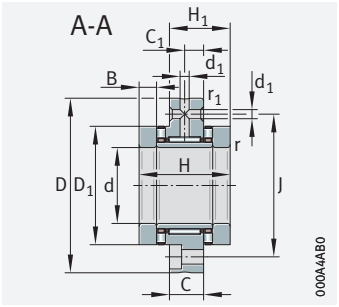
6) Only valid in conjunction with INA precision locknuts in locating/non-locating bearing arrangements and for ① in locating/locating bearing arrangements.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



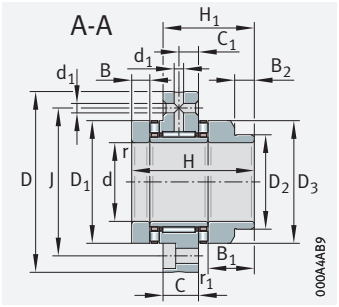
Ball screw drive with locating bearing arrangement on both sides

Needle roller/axial cylindrical roller bearings

Light series
With fixing holes



ZARF



ZARF..-L

d = 15 – 30 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speeds		Bearing frictional torque	Mass	Designation
			axial		radial								
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G oil	n_G grease	M_R	m	
			N	N	N	N	N	N	min^{-1}	min^{-1}	Nm	≈ kg	
15	60	40	24 900	53 000	13 000	17 500	7 500	2 650	8 500	2 200	0,35	0,42	**ZARF1560-TV**
	60	53	24 900	53 000	13 000	17 500	7 500	2 650	8 500	2 200	0,35	0,45	**ZARF1560-L-TV**
17	62	43	26 000	57 000	14 000	19 900	8 000	3 000	7 800	2 100	0,4	0,49	**ZARF1762-TV**
	62	57	26 000	57 000	14 000	19 900	8 000	3 000	7 800	2 100	0,4	0,52	**ZARF1762-L-TV**
20	68	46	33 500	76 000	14 900	22 400	6 400	3 400	7 000	2 000	0,5	0,56	**ZARF2068-TV**
	68	60	33 500	76 000	14 900	22 400	6 400	3 400	7 000	2 000	0,5	0,61	**ZARF2068-L-TV**
25	75	50	35 500	86 000	22 600	36 000	7 300	5 200	6 000	1 900	0,55	0,78	**ZARF2575-TV**
	75	65	35 500	86 000	22 600	36 000	7 300	5 200	6 000	1 900	0,55	0,84	**ZARF2575-L-TV**
30	80	50	39 000	101 000	24 300	41 500	8 500	6 000	5 500	1 800	0,65	0,85	**ZARF3080-TV**
	80	65	39 000	101 000	24 300	41 500	8 500	6 000	5 500	1 800	0,65	0,9	**ZARF3080-L-TV**

medias *https://www.schaeffler.de/std/1F9A*

① Mounting dimension for seal carrier assembly DRS TPI 123.
③ Adjacent construction, bearing screw mounted in bore. ④ Only valid in assembled condition.

1) If rotary shaft seals are used, the outside diameter of the sealing ring must be taken into consideration.

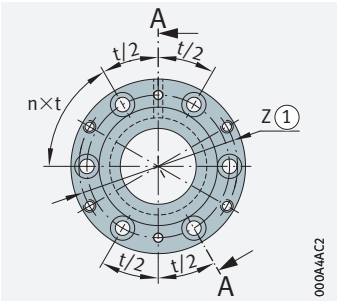
2) Based on rotating inner ring.

3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

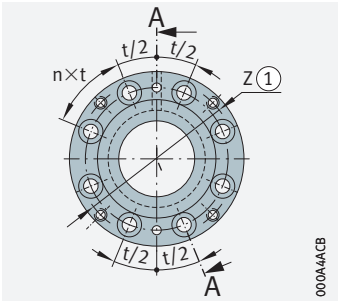
4) The required axial locknut force must be observed when using other locknuts.

5) Screws not included in scope of delivery. Tightening torque according to manufacturer's data.

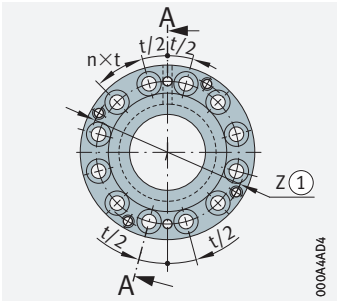
6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



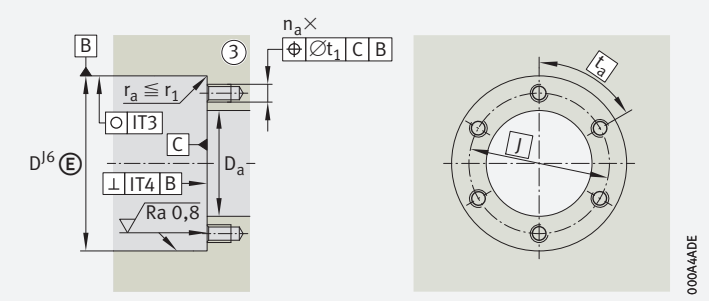
Hole pattern
ZARF1560, ZARF1762



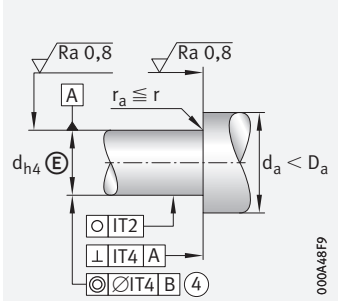
Hole pattern
ZARF2068, ZARF2575



Hole pattern
ZARF3080



Housing design



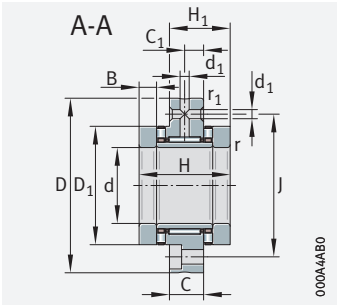
Shaft design (threaded spindle)

Dimensions														Pitch		Mounting dimensions[1]			Mass moment of inertia[2]
d	H_1	C	C_1	D_1	D_2	D_3	B	B_1	B_2	r	r_1	d_1	J	n	t	D_a	d_a	t_1	M_m
										min.	min.				°	max.	min.		kg · cm^2
15	26	14	8	35	–	–	7,5	–	–	0,3	0,6	3,2	46	6	60	36	28	0,1	0,24
	39	14	8	35	24	34	7,5	20,5	11	0,3	0,6	3,2	46	6	60	36	22	0,1	0,274
17	27,5	14	8	38	–	–	9	–	–	0,3	0,6	3,2	48	6	60	39	28	0,1	0,373
	41,5	14	8	38	28	38	9	23	11	0,3	0,6	3,2	48	6	60	39	26	0,1	0,464
20	29	14	8	42	–	–	10	–	–	0,3	0,6	3,2	53	8	45	43	33	0,1	0,615
	43	14	8	42	30	40	10	24	12	0,3	0,6	3,2	53	8	45	43	28	0,1	0,683
25	33	18	10	47	–	–	10	–	–	0,3	0,6	3,2	58	8	45	48	39	0,1	0,989
	48	18	10	47	36	45	10	25	12	0,3	0,6	3,2	58	8	45	48	34	0,1	1,15
30	33	18	10	52	–	–	10	–	–	0,3	0,6	3,2	63	12	30	53	44	0,1	1,46
	48	18	10	52	40	50	10	25	13	0,3	0,6	3,2	63	12	30	53	38	0,1	1,7

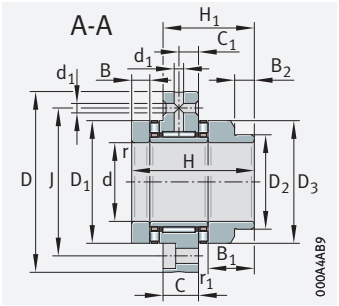
	Rigidity	Tilting rigidity	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4]	Rotary shaft seal to DIN 3760; to be ordered separately	Fixing screws[5] DIN EN ISO 4762		
	axial			for radial clamping	for axial clamping	Tightening torque[6]	axial				
d	c_{aL}	c_{kL}				M_A			Size	n_a	t_a
	N/µm	Nm/mrad	µm			Nm	N				°
15	1 400	110	1	ZMA15/33	AM15	10	6 506	–	M6	6	60
	1 400	110	1	ZMA15/33	AM15	10	6 506	24×35×7	M6	6	60
17	1 600	160	1	ZM17	AM17	12	7 078	–	M6	6	60
	1 600	160	1	ZM17	AM17	12	7 078	28×40×7	M6	6	60
20	1 800	230	1	ZMA20/38	AM20	18	8 972	–	M6	8	45
	1 800	230	1	ZMA20/38	AM20	18	8 972	30×42×7	M6	8	45
25	1 900	350	1	ZMA25/45	AM25	25	9 745	–	M6	8	45
	1 900	350	1	ZMA25/45	AM25	25	9 745	36×47×7	M6	8	45
30	2 200	520	1	ZMA30/52	AM30	32	10 662	–	M6	12	30
	2 200	520	1	ZMA30/52	AM30	32	10 662	40×52×7	M6	12	30

Needle roller/axial cylindrical roller bearings

Light series
With fixing holes



ZARF



ZARF..-L

d = 35 – 50 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speeds		Bearing frictional torque	Mass	Designation
			axial		radial								
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G oil	n_G grease	M_R	m	
			N	N	N	N	N	N	min^{-1}	min^{-1}	Nm	≈ kg	
35	90	54	56 000	148 000	26 000	47 000	12 900	6 800	4 800	1 700	0,9	1,12	**ZARF3590-TV**
	90	70	56 000	148 000	26 000	47 000	12 900	6 800	4 800	1 700	0,9	1,25	**ZARF3590-L-TV**
40	100	54	59 000	163 000	27 500	53 000	14 200	7 600	4 400	1 600	1	1,35	**ZARF40100-TV**
	100	70	59 000	163 000	27 500	53 000	14 200	7 600	4 400	1 600	1	1,45	**ZARF40100-L-TV**
45	105	60	61 000	177 000	38 000	74 000	15 500	10 400	4 000	1 500	1,2	1,7	**ZARF45105-TV**
	105	75	61 000	177 000	38 000	74 000	15 500	10 400	4 000	1 500	1,2	1,85	**ZARF45105-L-TV**
50	115	60	90 000	300 000	40 000	82 000	28 000	11 500	3 600	1 200	2,2	2,1	**ZARF50115-TV**
	115	78	90 000	300 000	40 000	82 000	28 000	11 500	3 600	1 200	2,2	2,45	**ZARF50115-L-TV**

medias *https://www.schaeffler.de/std/1F9A*

① Mounting dimension for seal carrier assembly DRS TPI 123.
③ Adjacent construction, bearing screw mounted in bore. ④ Only valid in assembled condition.

1) If rotary shaft seals are used, the outside diameter of the sealing ring must be taken into consideration.

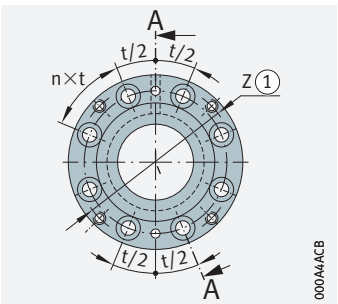
2) Based on rotating inner ring.

3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

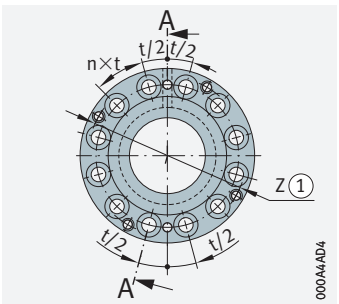
4) The required axial locknut force must be observed when using other locknuts.

5) Screws 10.9 not included in scope of delivery. Tightening torque according to manufacturer's data.

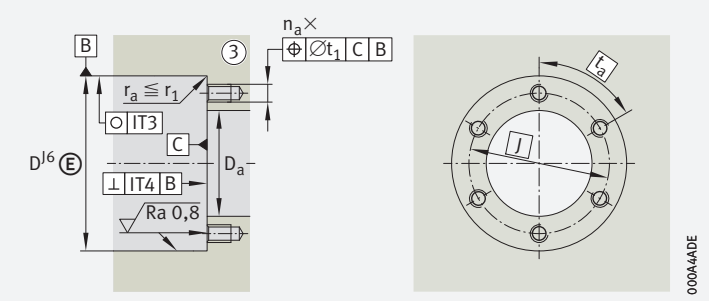
6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



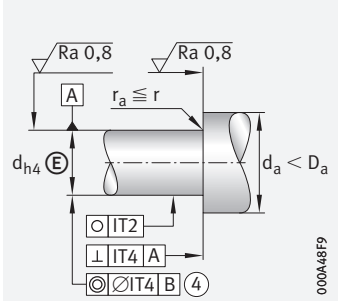
Hole pattern
ZARF40100, ZARF45105



Hole pattern
ZARF3590, ZARF50115



Housing design



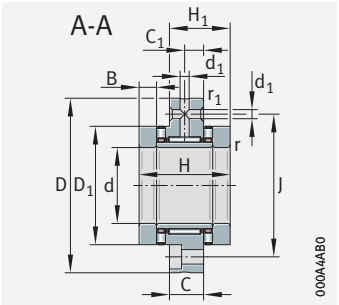
Shaft design (threaded spindle)

Dimensions														Pitch		Mounting dimensions[1]			Mass moment of inertia[2]
d	H_1	C	C_1	D_1	D_2	D_3	B	B_1	B_2	r	r_1	d_1	J	n	t	D_a	d_a	t_1	M_m
										min.	min.				°	max.	min.		kg · cm^2
35	35	18	10	60	–	–	11	–	–	0,3	0,6	3,2	73	12	30	61	50	0,1	2,8
	51	18	10	60	45	58	11	27	13	0,3	0,6	3,2	73	12	30	61	43	0,1	3,21
40	35	18	10	65	–	–	11	–	–	0,3	0,6	3,2	80	8	45	66	55	0,2	3,78
	51	18	10	65	50	63	11	27	14	0,3	0,6	3,2	80	8	45	66	48	0,2	4,35
45	40	22,5	12,5	70	–	–	11,5	–	–	0,3	0,6	6	85	8	45	71	60	0,2	5,33
	55	22,5	12,5	70	56	68	11,5	26,5	13	0,3	0,6	6	85	8	45	71	54	0,2	6,03
50	40	22,5	12,5	78	–	–	11,5	–	–	0,3	0,6	6	94	12	30	79	67	0,2	8,42
	58	22,5	12,5	78	60	78	11,5	29,5	14	0,3	0,6	6	94	12	30	79	58	0,2	10,46

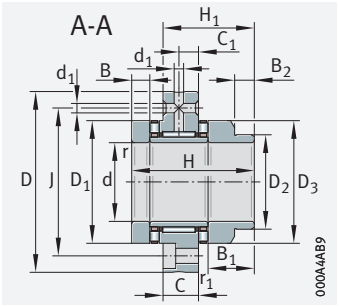
	Rigidity	Tilting rigidity	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4]	Rotary shaft seal to DIN 3760; to be ordered separately	Fixing screws[5] DIN EN ISO 4762		
	axial			for radial clamping	for axial clamping	Tightening torque[6]	axial				
d	c_{aL}	c_{kL}				M_A			Size	n_a	t_a
	N/µm	Nm/mrad	µm			Nm	N				°
35	2 600	740	1	ZMA35/58	AM35/58	40	12 143	–	M6	12	30
	2 600	740	1	ZMA35/58	AM35/58	40	12 143	45×60×8	M6	12	30
40	2 800	1 030	1	ZMA40/62	AM40	55	14 240	–	M8	8	45
	2 800	1 030	1	ZMA40/62	AM40	55	14 240	50×65×8	M8	8	45
45	3 000	1 340	1	ZMA45/68	AM45	65	15 112	–	M8	8	45
	3 000	1 340	1	ZMA45/68	AM45	65	15 112	56×70×8	M8	8	45
50	4 800	2 470	1	ZMA50/75	AM50	85	18 410	–	M8	12	30
	4 800	2 470	1	ZMA50/75	AM50	85	18 410	60×80×8	M8	12	30

Needle roller/axial cylindrical roller bearings

Heavy series
With fixing holes



ZARF



ZARF..-L

d = 20 – 45 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speeds		Bearing frictional torque	Mass	Designation
			axial		radial								
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G oil	n_G grease	M_R	m	
			N	N	N	N	N	N	min^{-1}	min^{-1}	Nm	≈ kg	
20	80	60	64 000	141 000	22 600	36 000	13 100	5 200	6 000	1 500	1,3	1,1	**ZARF2080-TV**
	80	75	64 000	141 000	22 600	36 000	13 100	5 200	6 000	1 500	1,3	1,22	**ZARF2080-L-TV**
25	90	60	80 000	199 000	24 300	41 500	18 600	6 000	4 900	1 400	1,6	1,6	**ZARF2590-TV**
	90	75	80 000	199 000	24 300	41 500	18 600	6 000	4 900	1 400	1,6	1,75	**ZARF2590-L-TV**
30	105	66	107 000	265 000	26 000	47 000	22 900	6 800	4 400	1 300	2,1	1,95	**ZARF30105-TV**
	105	82	107 000	265 000	26 000	47 000	22 900	6 800	4 400	1 300	2,1	2,15	**ZARF30105-L-TV**
35	110	66	105 000	265 000	27 500	53 000	22 900	7 600	4 000	1 250	2,3	1,6	**ZARF35110-TV**
	110	82	105 000	265 000	27 500	53 000	22 900	7 600	4 000	1 250	2,3	1,85	**ZARF35110-L-TV**
40	115	75	117 000	315 000	38 000	74 000	27 000	10 400	3 700	1 200	2,5	2,7	**ZARF40115-TV**
	115	93	117 000	315 000	38 000	74 000	27 000	10 400	3 700	1 200	2,5	3	**ZARF40115-L-TV**
45	130	82	154 000	405 000	40 000	82 000	37 500	11 500	3 300	1 150	3,5	3,9	**ZARF45130-TV**
	130	103	154 000	405 000	40 000	82 000	37 500	11 500	3 300	1 150	3,5	4,3	**ZARF45130-L-TV**

medias *https://www.schaeffler.de/std/1F9A*

① Mounting dimension for seal carrier assembly DRS TPI 123.
③ Adjacent construction, bearing screw mounted in bore. ④ Only valid in assembled condition.

1) If rotary shaft seals are used, the outside diameter of the sealing ring must be taken into consideration.

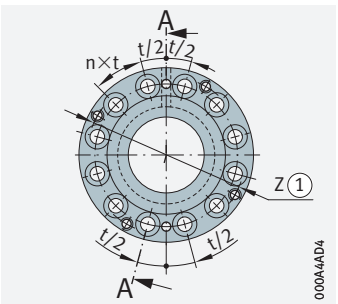
2) Based on rotating inner ring.

3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

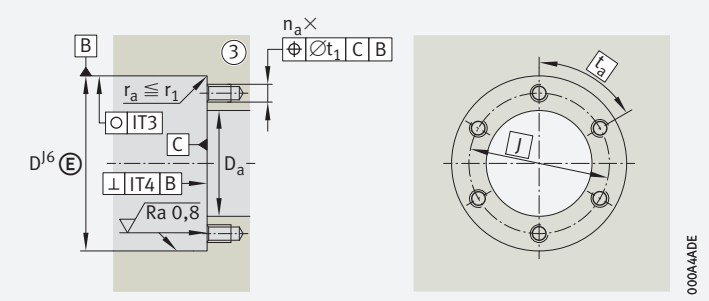
4) The required axial locknut force must be observed when using other locknuts.

5) Screws not included in scope of delivery. Tightening torque according to manufacturer's data.

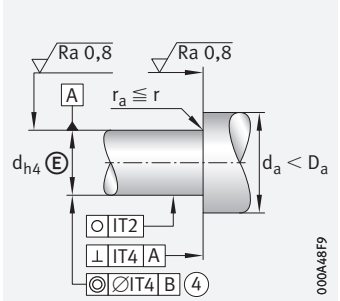
6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



Hole pattern



Housing design



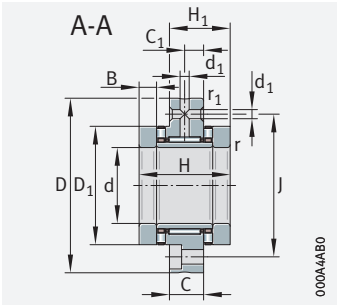
Shaft design (threaded spindle)

Dimensions														Pitch		Mounting dimensions[1]			Mass moment of inertia[2]
d	H_1	C	C_1	D_1	D_2	D_3	B	B_1	B_2	r	r_1	d_1	J	n	t	D_a	d_a	t_1	M_m
										min.	min.				°	max.	min.		kg · cm²
20	38	18	10	52	–	–	12,5	–	–	0,3	0,6	3,2	63	12	30	53	38	0,1	1,98
	53	18	10	52	40	50	12,5	27,5	13	0,3	0,6	3,2	63	12	30	53	38	0,1	2,27
25	38	18	10	62	–	–	12,5	–	–	0,3	0,6	3,2	73	12	30	63	45	0,1	3,88
	53	18	10	62	48	60	12,5	27,5	13	0,3	0,6	3,2	73	12	30	63	45	0,1	4,51
30	41	18	10	68	–	–	14	–	–	0,3	0,6	3,2	85	12	30	69	52	0,2	6,53
	57	18	10	68	52	66	14	30	13	0,3	0,6	3,2	85	12	30	69	50	0,2	7,43
35	41	18	10	73	–	–	14	–	–	0,3	0,6	3,2	88	12	30	74	60	0,2	8,47
	57	18	10	73	60	73	14	30	13	0,3	0,6	3,2	88	12	30	74	58	0,2	10,4
40	47,5	22,5	12,5	78	–	–	16	–	–	0,3	0,6	6	94	12	30	79	65	0,2	13,3
	65,5	22,5	12,5	78	60	78	16	34	14	0,3	0,6	6	94	12	30	79	58	0,2	15,5
45	51	22,5	12,5	90	–	–	17,5	–	–	0,3	0,6	6	105	12	30	91	70	0,2	23,7
	72	22,5	12,5	90	70	88	17,5	38,5	18	0,3	0,6	6	105	12	30	91	68	0,2	28,1

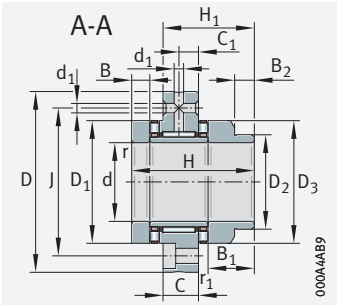
	Rigidity	Tilting rigidity	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4]	Rotary shaft seal to DIN 3760; to be ordered separately	Fixing screws[5] DIN EN ISO 4762		
	axial			for radial clamping	for axial clamping	Tightening torque[6]	axial				
d	c_{aL}	c_{kL}				M_A			Size	n_a	t_a
	N/µm	Nm/mrad	µm			Nm	N				°
20	2 300	400	1	ZMA20/52	AM20	38	17 623	–	M6	12	30
	2 300	400	1	ZMA20/52	AM20	38	17 623	40×52×7	M6	12	30
25	3 000	800	1	ZMA25/58	AM25	55	20 790	–	M6	12	30
	3 000	800	1	ZMA25/58	AM25	55	20 790	48×62×8	M6	12	30
30	3 300	1 100	1	ZMA30/65	AM30	75	24 287	–	M8	12	30
	3 300	1 100	1	ZMA30/65	AM30	75	24 287	52×68×8	M8	12	30
35	3 500	1 300	1	ZMA35/70	AM35	100	27 480	–	M8	12	30
	3 500	1 300	1	ZMA35/70	AM35	100	27 480	60×75×8	M8	12	30
40	3 800	1 800	1	ZMA40/75	AM40	120	29 834	–	M8	12	30
	3 800	1 800	1	ZMA40/75	AM40	120	29 834	60×80×8	M8	12	30
45	4 000	2 100	1	ZMA45/85	AM45	150	33 549	–	M8	12	30
	4 000	2 100	1	ZMA45/85	AM45	150	33 549	70×90×10	M8	12	30

Needle roller/axial cylindrical roller bearings

Heavy series
With fixing holes



ZARF



ZARF..-L

d = 50 – 65 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speeds		Bearing frictional torque	Mass	Designation
			axial		radial								
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G oil	n_G grease	M_R	m	
			N	N	N	N	N	N	min^{-1}	min^{-1}	Nm	≈ kg	
50	140	82	172 000	480 000	41 500	88 000	44 500	12 700	3 100	1 100	3,8	4,2	**ZARF50140-TV**
	140	103	172 000	480 000	41 500	88 000	44 500	12 700	3 100	1 100	3,8	4,65	**ZARF50140-L-TV**
55	145	82	177 000	500 000	44 000	98 000	46 500	13 800	2 900	1 000	4	4,5	**ZARF55145-TV**
	145	103	177 000	500 000	44 000	98 000	46 500	13 800	2 900	1 000	4	5	**ZARF55145-L-TV**
60	150	82	187 000	550 000	44 500	92 000	51 000	12 900	2 700	950	4,2	4,7	**ZARF60150-TV**
	150	103	187 000	550 000	44 500	92 000	51 000	12 900	2 700	950	4,2	5,35	**ZARF60150-L-TV**
65	155	82	172 000	500 000	54 000	104 000	46 500	14 900	2 600	900	4	5,1	**ZARF65155-TV**
	155	103	172 000	500 000	54 000	104 000	46 500	14 900	2 600	900	4	5,7	**ZARF65155-L-TV**

medias *https://www.schaeffler.de/std/1F9A*

① Mounting dimension for seal carrier assembly DRS TPI 123.
③ Adjacent construction, bearing screw mounted in bore. ④ Only valid in assembled condition.

1) If rotary shaft seals are used, the outside diameter of the sealing ring must be taken into consideration.

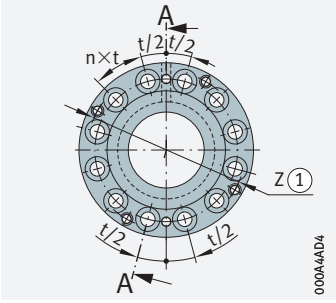
2) Based on rotating inner ring.

3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

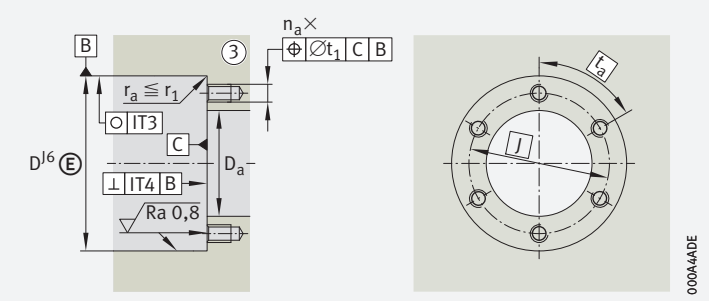
4) The required axial locknut force must be observed when using other locknuts.

5) Screws not included in scope of delivery. Tightening torque according to manufacturer's data.

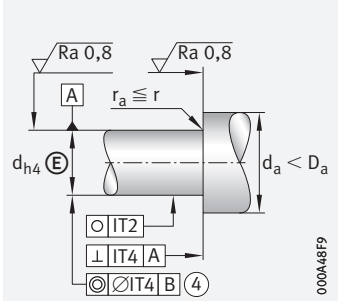
6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



Hole pattern
ZARF5, ZARF6



Housing design



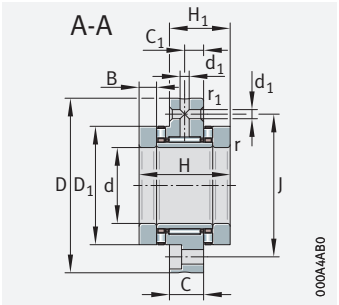
Shaft design (threaded spindle)

Dimensions														Pitch		Mounting dimensions[1]			Mass moment of inertia[2]
d	H_1	C	C_1	D_1	D_2	D_3	B	B_1	B_2	r	r_1	d_1	J	n	t	D_a	d_a	t_1	M_m
										min.	min.				°	max.	min.		kg · cm^2
50	51	22,5	12,5	95	–	–	17,5	–	–	0,3	0,6	6	113	12	30	96	75	0,2	29,8
	72	22,5	12,5	95	75	93	17,5	38,5	18	0,3	0,6	6	113	12	30	96	73	0,2	35,3
55	51	22,5	12,5	100	–	–	17,5	–	–	0,3	0,6	6	118	12	30	101	85	0,2	36,1
	72	22,5	12,5	100	80	98	17,5	38,5	18	0,3	0,6	6	118	12	30	101	78	0,2	43
60	51	22,5	12,5	105	–	–	17,5	–	–	0,3	0,6	6	123	12	30	106	90	0,2	43,8
	72	22,5	12,5	105	90	105	17,5	38,5	18	0,3	0,6	6	123	12	30	106	88	0,2	54,5
65	51	22,5	12,5	110	–	–	17,5	–	–	0,3	0,6	6	128	12	30	111	97	0,2	51
	72	22,5	12,5	110	90	108	17,5	38,5	18	0,3	0,6	6	128	12	30	111	88	0,2	60,1

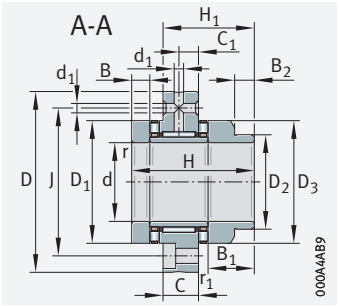
	Rigidity	Tilting rigidity	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4]	Rotary shaft seal to DIN 3760; to be ordered separately	Fixing screws[5] DIN EN ISO 4762		
	axial			for radial clamping	for axial clamping	Tightening torque[6]	axial				
d	c_{aL}	c_{kL}				M_A			Size	n_a	t_a
	N/µm	Nm/mrad	µm			Nm	N				°
50	4 600	2 900	1	ZMA50/92	AM50	180	36 224	–	M10	12	30
	4 600	2 900	1	ZMA50/92	AM50	180	36 224	75×95×10	M10	12	30
55	4 900	3 600	1	ZMA55/98	AM55	220	39 807	–	M10	12	30
	4 900	3 600	1	ZMA55/98	AM55	220	39 807	80×100×10	M10	12	30
60	5 300	4 300	1	ZMA60/98	AM60	250	41 144	–	M10	12	30
	5 300	4 300	1	ZMA60/98	AM60	250	41 144	90×110×12	M10	12	30
65	4 800	4 000	1	ZMA65/105	AM65	270	40 652	–	M10	12	30
	4 800	4 000	1	ZMA65/105	AM65	270	40 652	90×110×12	M10	12	30

Needle roller/axial cylindrical roller bearings

Heavy series
With fixing holes



ZARF



ZARF..-L

d = 70 – 90 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speeds		Bearing frictional torque	Mass	Designation
			axial		radial								
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G oil	n_G grease	M_R	m	
			N	N	N	N	N	N	min^{-1}	min^{-1}	Nm	≈ kg	
70	160	82	201 000	630 000	56 000	119 000	58 000	16 100	2 400	800	4,8	5,2	**ZARF70160-TV**
	160	103	201 000	630 000	56 000	119 000	58 000	16 100	2 400	800	4,8	5,95	**ZARF70160-L-TV**
75	185	100	290 000	890 000	72 000	132 000	85 000	19 100	2 100	700	8	9,4	**ZARF75185-TV**
	185	125	290 000	890 000	72 000	132 000	85 000	19 100	2 100	700	8	10,6	**ZARF75185-L-TV**
90	210	110	325 000	1 030 000	98 000	210 000	95 000	29 000	1 800	700	10,5	13,7	**ZARF90210-TV**
	210	135	325 000	1 030 000	98 000	210 000	95 000	29 000	1 800	700	10,5	15,1	**ZARF90210-L-TV**

medias *https://www.schaeffler.de/std/1F9A*

① Mounting dimension for seal carrier assembly DRS TPI 123.
③ Adjacent construction, bearing screw mounted in bore. ④ Only valid in assembled condition.

1) If rotary shaft seals are used, the outside diameter of the sealing ring must be taken into consideration.

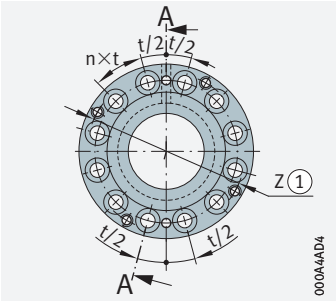
2) Based on rotating inner ring.

3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

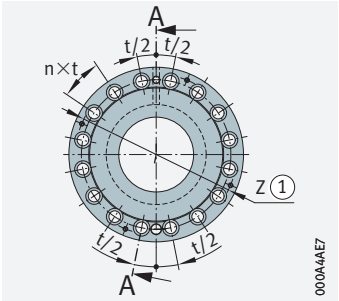
4) The required axial locknut force must be observed when using other locknuts.

5) Screws not included in scope of delivery. Tightening torque according to manufacturer's data.

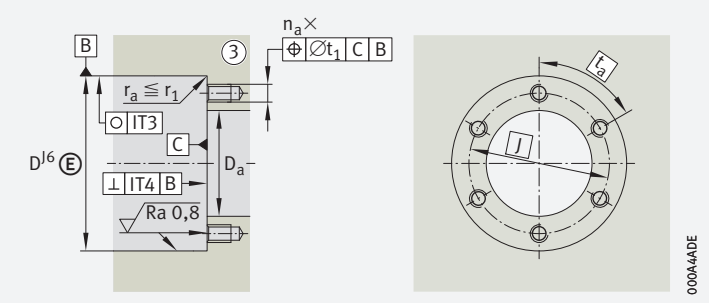
6) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



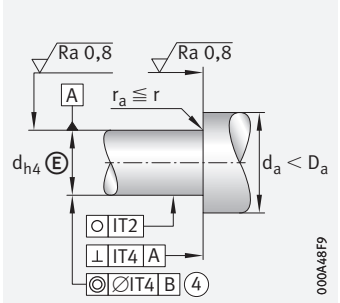
Hole pattern
ZARF7



Hole pattern
ZARF90210



Housing design



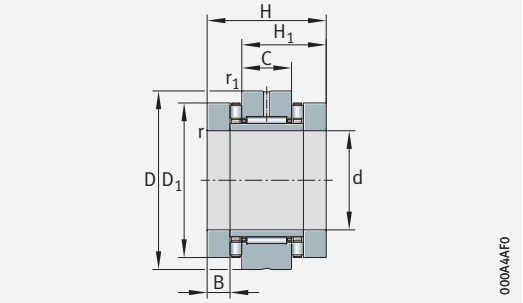
Shaft design (threaded spindle)

Dimensions														Pitch	Mounting dimensions[1]			Mass moment of inertia[2]
d	H_1	C	C_1	D_1	D_2	D_3	B	B_1	B_2	r	r_1	d_1	J	n	t	D_a	d_a	t_1	M_m
										min.	min.				°	max.	min.		kg · cm²
70	51	22,5	12,5	115	–	–	17,5	–	–	0,3	0,6	6	133	12	30	116	100	0,2	62,2
	72	22,5	12,5	115	100	115	17,5	38,5	18	0,3	0,6	6	133	12	30	116	98	0,2	77,3
75	62	27	15	135	–	–	21	–	–	0,3	1	6	155	12	30	136	113	0,4	149
	87	27	15	135	115	135	21	46	20	0,3	1	6	155	12	30	136	110	0,4	188
90	69,5	32	17,5	160	–	–	22,5	–	–	0,3	1	8	180	16	22,5	161	130	0,4	312
	94,5	32	17,5	160	130	158	22,5	47,5	18	0,3	1	8	180	16	22,5	161	125	0,4	372

	Rigidity	Tilting rigidity	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4]	Rotary shaft seal to DIN 3760; to be ordered separately	Fixing screws[5] DIN EN ISO 4762		
	axial			for radial clamping	for axial clamping	Tightening torque[6]	axial				
d	c_{aL}	c_{kL}				M_A			Size	n_a	t_a
	N/µm	Nm/mrad	µm			Nm	N				°
70	5 800	6 000	1	ZMA70/110	AM70	330	46 786	–	M10	12	30
	5 800	6 000	1	ZMA70/110	AM70	330	46 786	100×120×12	M10	12	30
75	6 600	8 500	2	ZMA75/125	AM75	580	72 971	–	M12	12	30
	6 600	8 500	2	ZMA75/125	AM75	580	72 971	115×140×12	M12	12	30
90	7 700	14 500	2	ZMA90/155	AM90	960	100 669	–	M12	16	22,5
	7 700	14 500	2	ZMA90/155	AM90	960	100 669	130×160×12	M12	16	22,5

Needle roller/axial cylindrical roller bearings

Light series
Without fixing holes



ZARN

d = 15 – 30 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speeds		Bearing frictional torque	Mass	Designation
			axial		radial								
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G oil	n_G grease	M_R	m	
			N	N	N	N	N	N	min^{-1}	min^{-1}	Nm	≈ kg	
15	45	40	24 900	53 000	13 000	17 500	7 500	2 650	8 500	2 200	0,35	0,34	**ZARN1545-TV**
	45	53	24 900	53 000	13 000	17 500	7 500	2 650	8 500	2 200	0,35	0,37	**ZARN1545-L-TV**
17	47	43	26 000	57 000	14 000	19 900	8 000	3 000	7 800	2 100	0,4	0,37	**ZARN1747-TV**
	47	57	26 000	57 000	14 000	19 900	8 000	3 000	7 800	2 100	0,4	0,41	**ZARN1747-L-TV**
20	52	46	33 500	76 000	14 900	22 400	6 400	3 400	7 000	2 000	0,5	0,41	**ZARN2052-TV**
	52	60	33 500	76 000	14 900	22 400	6 400	3 400	7 000	2 000	0,5	0,46	**ZARN2052-L-TV**
25	57	50	35 500	86 000	22 600	36 000	7 300	5 200	6 000	1 900	0,55	0,53	**ZARN2557-TV**
	57	65	35 500	86 000	22 600	36 000	7 300	5 200	6 000	1 900	0,55	0,59	**ZARN2557-L-TV**
30	62	50	39 000	101 000	24 300	41 500	8 500	6 000	5 500	1 800	0,65	0,6	**ZARN3062-TV**
	62	65	39 000	101 000	24 300	41 500	8 500	6 000	5 500	1 800	0,65	0,75	**ZARN3062-L-TV**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

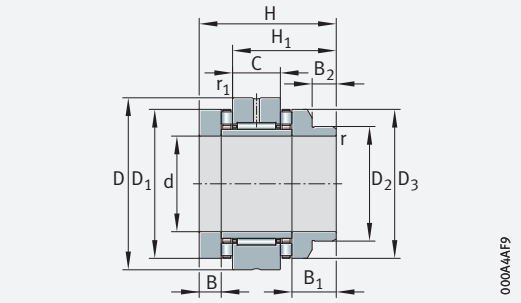
1) If rotary shaft seals are used, the outside diameter of the sealing ring must be taken into consideration.

2) Based on rotating inner ring.

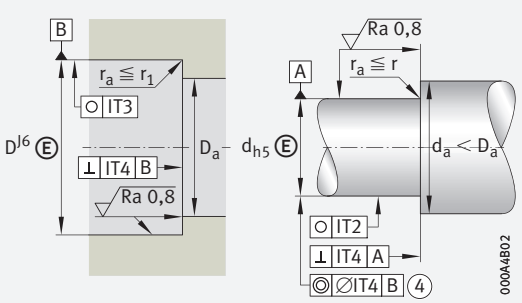
3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

4) The required axial locknut force must be observed when using other locknuts.

5) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



ZARN..-L



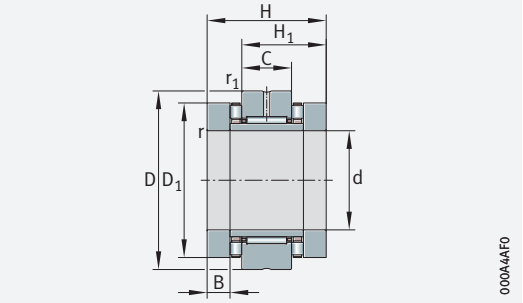
Design of housing and shaft (threaded spindle)

Dimensions											Mounting dimensions[1]	
d	H_1	C	D_1	D_2	D_3	B	B_1	B_2	r min.	r_1 min.	D_a max.	d_a min.
15	28	16	35	–	–	7,5	–	–	0,3	0,6	36	28
	41	16	35	24	34	7,5	20,5	11	0,3	0,6	36	22
17	29,5	16	38	–	–	9	–	–	0,3	0,6	39	28
	43,5	16	38	28	38	9	23	11	0,3	0,6	39	26
20	31	16	42	–	–	10	–	–	0,3	0,6	43	33
	45	16	42	30	40	10	24	12	0,3	0,6	43	28
25	35	20	47	–	–	10	–	–	0,3	0,6	48	39
	50	20	47	36	45	10	25	12	0,3	0,6	48	34
30	35	20	52	–	–	10	–	–	0,3	0,6	53	44
	50	20	52	40	50	10	25	13	0,3	0,6	53	38

	Rigidity axial	Tilting rigidity	Mass moment of inertia[2]	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4] axial	Rotary shaft seal to DIN 3760; to be ordered separately
					for radial clamping	for axial clamping	Tightening torque[5] M_A		
d	c_{aL} N/µm	c_{kL} Nm/mrad	M_m kg · cm²	µm			Nm	N	
15	1 400	110	0,24	1	ZMA15/33	AM15	10	6 506	–
	1 400	110	0,274	1	ZMA15/33	AM15	10	6 506	24×35×7
17	1 600	160	0,373	1	ZM17	AM17	12	7 078	–
	1 600	160	0,464	1	ZM17	AM17	12	7 078	28×40×7
20	1 800	230	0,615	1	ZMA20/38	AM20	18	8 972	–
	1 800	230	0,683	1	ZMA20/38	AM20	18	8 972	30×42×7
25	1 900	350	0,989	1	ZMA25/45	AM25	25	9 745	–
	1 900	350	1,15	1	ZMA25/45	AM25	25	9 745	36×47×7
30	2 200	520	1,46	1	ZMA30/52	AM30	32	10 662	–
	2 200	520	1,7	1	ZMA30/52	AM30	32	10 662	40×52×7

Needle roller/axial cylindrical roller bearings

Light series
Without fixing holes



ZARN

d = 35 – 50 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speeds		Bearing frictional torque	Mass	Designation
			axial		radial								
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G oil	n_G grease	M_R	m	
			N	N	N	N	N	N	min^{-1}	min^{-1}	Nm	≈ kg	
35	70	54	56 000	148 000	26 000	47 000	12 900	6 800	4 800	1 700	0,9	0,8	**ZARN3570-TV**
	70	70	56 000	148 000	26 000	47 000	12 900	6 800	4 800	1 700	0,9	0,93	**ZARN3570-L-TV**
40	75	54	59 000	163 000	27 500	53 000	14 200	7 600	4 400	1 600	1	0,9	**ZARN4075-TV**
	75	70	59 000	163 000	27 500	53 000	14 200	7 600	4 400	1 600	1	1	**ZARN4075-L-TV**
45	80	60	61 000	177 000	38 000	74 000	15 500	10 400	4 000	1 500	1,2	1,12	**ZARN4580-TV**
	80	75	61 000	177 000	38 000	74 000	15 500	10 400	4 000	1 500	1,2	1,27	**ZARN4580-L-TV**
50	90	60	90 000	300 000	40 000	82 000	28 000	11 500	3 600	1 200	2,2	1,43	**ZARN5090-TV**
	90	78	90 000	300 000	40 000	82 000	28 000	11 500	3 600	1 200	2,2	1,78	**ZARN5090-L-TV**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

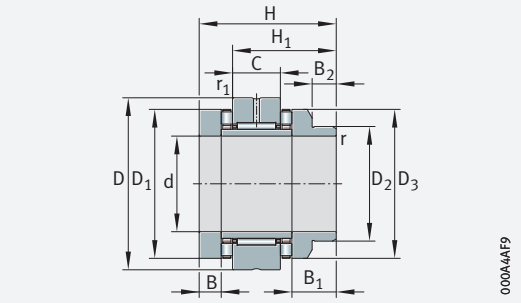
1) If rotary shaft seals are used, the outside diameter of the sealing ring must be taken into consideration.

2) Based on rotating inner ring.

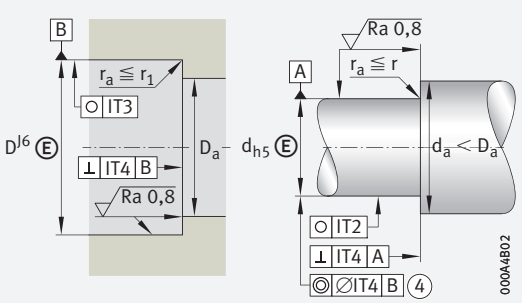
3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

4) The required axial locknut force must be observed when using other locknuts.

5) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



ZARN..-L



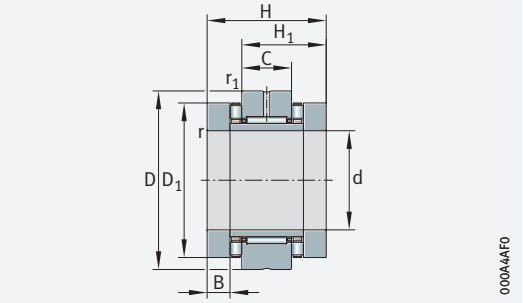
Design of housing and shaft (threaded spindle)

Dimensions											Mounting dimensions[1]	
d	H_1	C	D_1	D_2	D_3	B	B_1	B_2	r min.	r_1 min.	D_a max.	d_a min.
35	37	20	60	–	–	11	–	–	0,3	0,6	61	50
	53	20	60	45	58	11	27	13	0,3	0,6	61	43
40	37	20	65	–	–	11	–	–	0,3	0,6	66	55
	53	20	65	50	63	11	27	14	0,3	0,6	66	48
45	42,5	25	70	–	–	11,5	–	–	0,3	0,6	71	60
	57,5	25	70	56	68	11,5	26,5	13	0,3	0,6	71	54
50	42,5	25	78	–	–	11,5	–	–	0,3	0,6	79	67
	60,5	25	78	60	78	11,5	29,5	14	0,3	0,6	79	58

	Rigidity axial	Tilting rigidity	Mass moment of inertia[2]	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4] axial	Rotary shaft seal to DIN 3760; to be ordered separately
					for radial clamping	for axial clamping	Tightening torque[5] M_A		
d	c_{aL} N/µm	c_{kL} Nm/mrad	M_m kg · cm²	µm			Nm	N	
35	2 600	740	2,8	1	ZMA35/58	AM35/58	40	12 143	–
	2 600	740	3,21	1	ZMA35/58	AM35/58	40	12 143	45×60×8
40	2 800	1 030	3,78	1	ZMA40/62	AM40	55	14 240	–
	2 800	1 030	4,35	1	ZMA40/62	AM40	55	14 240	50×65×8
45	3 000	1 340	5,33	1	ZMA45/68	AM45	65	15 112	–
	3 000	1 340	6,03	1	ZMA45/68	AM45	65	15 112	56×70×8
50	4 800	2 470	8,42	1	ZMA50/75	AM50	85	18 410	–
	4 800	2 470	10,46	1	ZMA50/75	AM50	85	18 410	60×80×8

Needle roller/axial cylindrical roller bearings

Heavy series
Without fixing holes



ZARN

d = 20 – 35 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speeds		Bearing frictional torque	Mass	Designation
			axial		radial								
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G oil	n_G grease	M_R	m	
			N	N	N	N	N	N	min^{-1}	min^{-1}	Nm	≈ kg	
20	62	60	64 000	141 000	22 600	36 000	13 100	5 200	6 000	1 500	1,3	0,87	**ZARN2062-TV**
	62	75	64 000	141 000	22 600	36 000	13 100	5 200	6 000	1 500	1,3	0,99	**ZARN2062-L-TV**
25	72	60	80 000	199 000	24 300	41 500	18 600	6 000	4 900	1 400	1,6	1,17	**ZARN2572-TV**
	72	75	80 000	199 000	24 300	41 500	18 600	6 000	4 900	1 400	1,6	1,32	**ZARN2572-L-TV**
30	80	66	107 000	265 000	26 000	47 000	22 900	6 800	4 400	1 300	2,1	1,5	**ZARN3080-TV**
	80	82	107 000	265 000	26 000	47 000	22 900	6 800	4 400	1 300	2,1	1,7	**ZARN3080-L-TV**
35	85	66	105 000	265 000	27 500	53 000	22 900	7 600	4 000	1 250	2,3	1,65	**ZARN3585-TV**
	85	82	105 000	265 000	27 500	53 000	22 900	7 600	4 000	1 250	2,3	1,8	**ZARN3585-L-TV**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

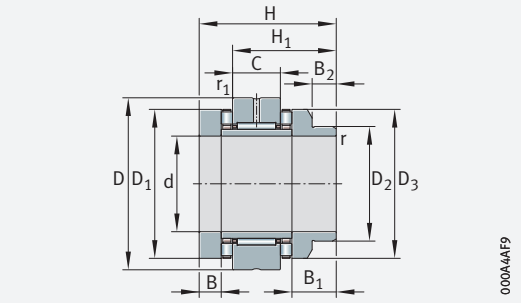
1) If rotary shaft seals are used, the outside diameter of the sealing ring must be taken into consideration.

2) Based on rotating inner ring.

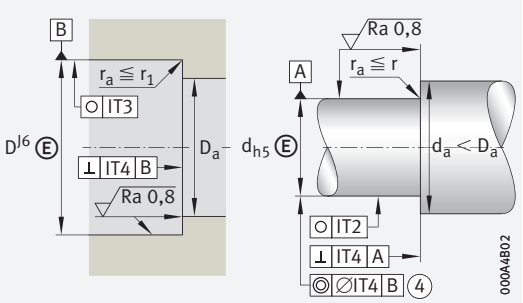
3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

4) The required axial locknut force must be observed when using other locknuts.

5) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



ZARN..-L



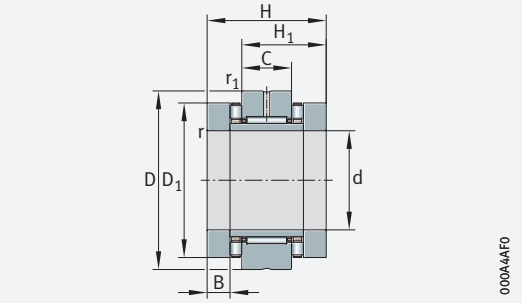
Design of housing and shaft (threaded spindle)

Dimensions											Mounting dimensions[1]	
d	H_1	C	D_1	D_2	D_3	B	B_1	B_2	r min.	r_1 min.	D_a max.	d_a min.
20	40	20	52	–	–	12,5	–	–	0,3	0,6	53	38
	55	20	52	40	50	12,5	27,5	13	0,3	0,6	53	38
25	40	20	62	–	–	12,5	–	–	0,3	0,6	63	45
	55	20	62	48	60	12,5	27,5	13	0,3	0,6	63	45
30	43	20	68	–	–	14	–	–	0,3	0,6	69	52
	59	20	68	52	66	14	30	13	0,3	0,6	69	50
35	43	20	73	–	–	14	–	–	0,3	0,6	74	60
	59	20	73	60	73	14	30	13	0,3	0,6	74	58

	Rigidity axial	Tilting rigidity	Mass moment of inertia[2]	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4] axial	Rotary shaft seal to DIN 3760; to be ordered separately
					for radial clamping	for axial clamping	Tightening torque[5]		
d	c_{aL} N/µm	c_{kL} Nm/mrad	M_m kg · cm²	µm			M_A Nm	N	
20	2 300	400	1,98	1	ZMA20/52	AM20	38	17 623	–
	2 300	400	2,27	1	ZMA20/52	AM20	38	17 623	40×52×7
25	3 000	800	3,88	1	ZMA25/58	AM25	55	20 790	–
	3 000	800	4,51	1	ZMA25/58	AM25	55	20 790	48×62×8
30	3 300	1 100	6,53	1	ZMA30/65	AM30	75	24 287	–
	3 300	1 100	7,43	1	ZMA30/65	AM30	75	24 287	52×68×8
35	3 500	1 300	8,47	1	ZMA35/70	AM35	100	27 480	–
	3 500	1 300	10,4	1	ZMA35/70	AM35	100	27 480	60×75×8

Needle roller/axial cylindrical roller bearings

Heavy series
Without fixing holes



ZARN

d = 40 – 55 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speeds		Bearing frictional torque	Mass	Designation
			axial		radial								
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G oil	n_G grease	M_R	m	
			N	N	N	N	N	N	min^{-1}	min^{-1}	Nm	≈ kg	
40	90	75	117 000	315 000	38 000	74 000	27 000	10 400	3 700	1 200	2,5	2,09	**ZARN4090-TV**
	90	93	117 000	315 000	38 000	74 000	27 000	10 400	3 700	1 200	2,5	2,39	**ZARN4090-L-TV**
45	105	82	154 000	405 000	40 000	82 000	37 500	11 500	3 300	1 150	3,5	3,02	**ZARN45105-TV**
	105	103	154 000	405 000	40 000	82 000	37 500	11 500	3 300	1 150	3,5	3,42	**ZARN45105-L-TV**
50	110	82	172 000	480 000	41 500	88 000	44 500	12 700	3 100	1 100	3,8	3,3	**ZARN50110-TV**
	110	103	172 000	480 000	41 500	88 000	44 500	12 700	3 100	1 100	3,8	3,75	**ZARN50110-L-TV**
55	115	82	177 000	500 000	44 000	98 000	46 500	13 800	2 900	1 000	4	3,5	**ZARN55115-TV**
	115	103	177 000	500 000	44 000	98 000	46 500	13 800	2 900	1 000	4	4	**ZARN55115-L-TV**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

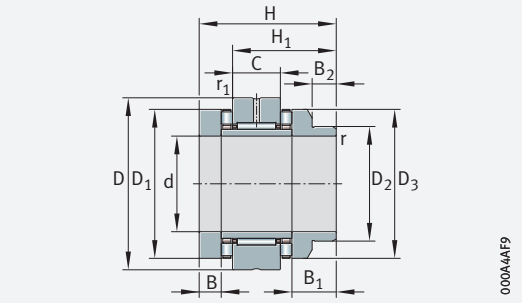
1) If rotary shaft seals are used, the outside diameter of the sealing ring must be taken into consideration.

2) Based on rotating inner ring.

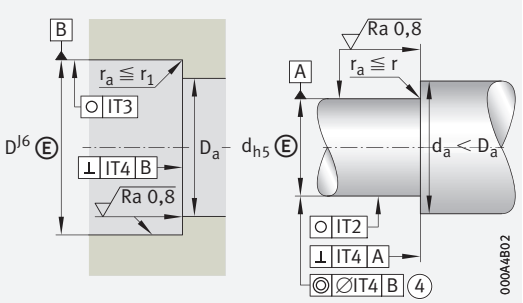
3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

4) The required axial locknut force must be observed when using other locknuts.

5) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



ZARN..-L



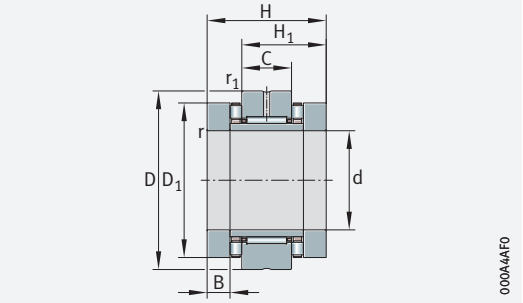
Design of housing and shaft (threaded spindle)

Dimensions											Mounting dimensions[1]	
d	H_1	C	D_1	D_2	D_3	B	B_1	B_2	r min.	r_1 min.	D_a max.	d_a min.
40	50	25	78	–	–	16	–	–	0,3	0,6	79	65
	68	25	78	60	78	16	34	14	0,3	0,6	79	58
45	53,5	25	90	–	–	17,5	–	–	0,3	0,6	91	70
	74,5	25	90	70	88	17,5	38,5	18	0,3	0,6	91	68
50	53,5	25	95	–	–	17,5	–	–	0,3	0,6	96	75
	74,5	25	95	75	93	17,5	38,5	18	0,3	0,6	96	73
55	53,5	25	100	–	–	17,5	–	–	0,3	0,6	101	85
	74,5	25	100	80	98	17,5	38,5	18	0,3	0,6	101	78

	Rigidity axial	Tilting rigidity	Mass moment of inertia[2]	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4] axial	Rotary shaft seal to DIN 3760; to be ordered separately
					for radial clamping	for axial clamping	Tightening torque[5] M_A		
d	c_{aL} N/µm	c_{kL} Nm/mrad	M_m kg · cm²	µm			Nm	N	
40	3 800	1 800	13,3	1	ZMA40/75	AM40	120	29 834	–
	3 800	1 800	15,5	1	ZMA40/75	AM40	120	29 834	60×80×8
45	4 000	2 100	23,7	1	ZMA45/85	AM45	150	33 549	–
	4 000	2 100	28,1	1	ZMA45/85	AM45	150	33 549	70×90×10
50	4 600	2 900	29,8	1	ZMA50/92	AM50	180	36 224	–
	4 600	2 900	35,3	1	ZMA50/92	AM50	180	36 224	75×95×10
55	4 900	3 600	36,1	1	ZMA55/98	AM55	220	39 807	–
	4 900	3 600	43	1	ZMA55/98	AM55	220	39 807	80×100×10

Needle roller/axial cylindrical roller bearings

Heavy series
Without fixing holes



ZARN

d = 60 – 90 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speeds		Bearing frictional torque	Mass	Designation
			axial		radial								
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G oil	n_G grease	M_R	m	
			N	N	N	N	N	N	min^{-1}	min^{-1}	Nm	≈ kg	
60	120	82	187 000	550 000	44 500	92 000	51 000	12 900	2 700	950	4,2	3,7	**ZARN60120-TV**
	120	103	187 000	550 000	44 500	92 000	51 000	12 900	2 700	950	4,2	4,85	**ZARN60120-L-TV**
65	125	82	172 000	500 000	54 000	104 000	46 500	14 900	2 600	900	4	4	**ZARN65125-TV**
	125	103	172 000	500 000	54 000	104 000	46 500	14 900	2 600	900	4	4,6	**ZARN65125-L-TV**
70	130	82	201 000	630 000	56 000	119 000	58 000	16 100	2 400	800	4,8	4,1	**ZARN70130-TV**
	130	103	201 000	630 000	56 000	119 000	58 000	16 100	2 400	800	4,8	4,85	**ZARN70130-L-TV**
75	155	100	290 000	890 000	72 000	132 000	85 000	19 100	2 100	700	8	7,9	**ZARN75155-TV**
	155	125	290 000	890 000	72 000	132 000	85 000	19 100	2 100	700	8	9,1	**ZARN75155-L-TV**
90	180	110	325 000	1 030 000	98 000	210 000	95 000	29 000	1 800	700	10,5	11,8	**ZARN90180-TV**
	180	135	325 000	1 030 000	98 000	210 000	95 000	29 000	1 800	700	10,5	13,2	**ZARN90180-L-TV**

medias *https://www.schaeffler.de/std/1F9A*

④ Only valid in assembled condition.

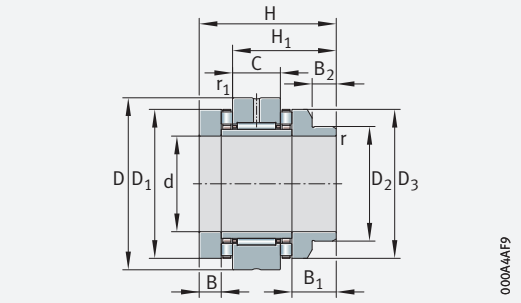
1) If rotary shaft seals are used, the outside diameter of the sealing ring must be taken into consideration.

2) Based on rotating inner ring.

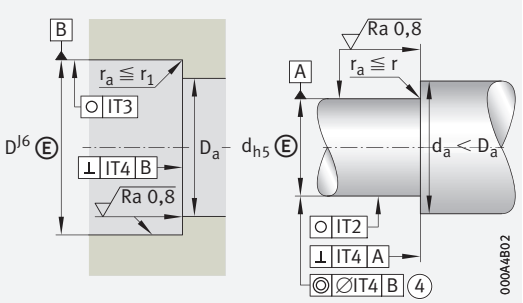
3) The recommended INA precision locknuts are not included in the scope of delivery and must be ordered separately.

4) The required axial locknut force must be observed when using other locknuts.

5) Only valid in conjunction with INA precision locknuts.
Observe the guidelines on locating/locating bearing arrangements TPI 123.



ZARN..-L



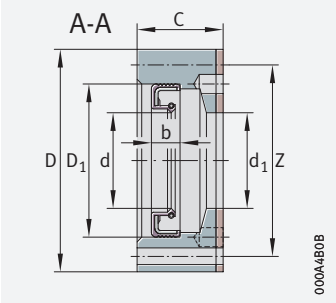
Design of housing and shaft (threaded spindle)

Dimensions											Mounting dimensions[1]	
d	H_1	C	D_1	D_2	D_3	B	B_1	B_2	r min.	r_1 min.	D_a max.	d_a min.
60	53,5	25	105	–	–	17,5	–	–	0,3	0,6	106	90
	74,5	25	105	90	105	17,5	38,5	18	0,3	0,6	106	88
65	53,5	25	110	–	–	17,5	–	–	0,3	0,6	111	97
	74,5	25	110	90	108	17,5	38,5	18	0,3	0,6	111	88
70	53,5	25	115	–	–	17,5	–	–	0,3	0,6	116	100
	74,5	25	115	100	115	17,5	38,5	18	0,3	0,6	116	98
75	65	30	135	–	–	21	–	–	0,3	1	136	113
	90	30	135	115	135	21	46	20	0,3	1	136	110
90	72,5	35	160	–	–	22,5	–	–	0,3	1	161	130
	97,5	35	160	130	158	22,5	47,5	18	0,3	1	161	125

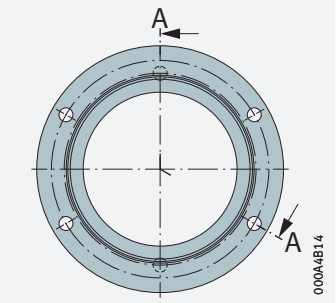
	Rigidity axial	Tilting rigidity	Mass moment of inertia[2]	Axial runout[2]	Recommended INA precision locknuts[3]			Required locknut force[4] axial	Rotary shaft seal to DIN 3760; to be ordered separately
					for radial clamping	for axial clamping	Tightening torque[5] M_A		
d	c_{aL} N/µm	c_{kL} Nm/mrad	M_m kg · cm²	µm			Nm	N	
60	5 300	4 300	43,8	1	ZMA60/98	AM60	250	41 144	–
	5 300	4 300	54,5	1	ZMA60/98	AM60	250	41 144	90×110×12
65	4 800	4 000	51	1	ZMA65/105	AM65	270	40 652	–
	4 800	4 000	60,1	1	ZMA65/105	AM65	270	40 652	90×110×12
70	5 800	6 000	62,2	1	ZMA70/110	AM70	330	46 786	–
	5 800	6 000	77,3	1	ZMA70/110	AM70	330	46 786	100×120×12
75	6 600	8 500	149	2	ZMA75/125	AM75	580	72 971	–
	6 600	8 500	188	2	ZMA75/125	AM75	580	72 971	115×140×12
90	7 700	14 500	312	2	ZMA90/155	AM90	960	100 669	–
	7 700	14 500	372	2	ZMA90/155	AM90	960	100 669	130×160×12

Seal carrier assemblies

For ZARF, light series



DRS[1)]



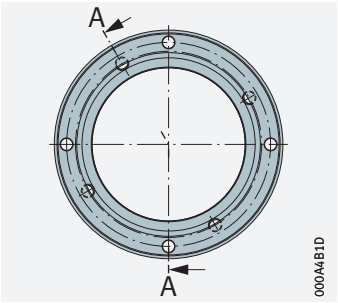
Hole pattern DRS1560, DRS1762

d_1 = 35 – 78 mm

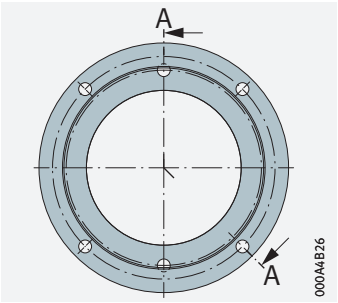
Main dimensions			Dimension	Mass	Designation	Rotary shaft seal					Matching bearing
d_1	D	C	Z	m ≈ kg		d	D_1	b	Socket head screws to DIN EN ISO 4762		
									Size	Quantity	
35	60	14	52,4	0,16	**DRS1560**	35	45	7	M3×20	4	ZARF1560(-L)-TV
38	62	15,5	54,4	0,18	**DRS1762**	38	47	7	M3×25	4	ZARF1762(-L)-TV
42	68	17	60,4	0,2	**DRS2068**	42	55	8	M3×25	4	ZARF2068(-L)-TV
47	75	17	67,4	0,22	**DRS2575**	47	62	6	M3×25	4	ZARF2575(-L)-TV
52	80	17	73,4	0,26	**DRS3080**	52	68	8	M3×25	4	ZARF3080(-L)-TV
60	90	19	80	0,38	**DRS3590**	60	72	8	M4×25	4	ZARF3590(-L)-TV
65	100	19	90	0,47	**DRS40100**	65	80	8	M4×30	4	ZARF40100(-L)-TV
70	105	20	95	0,53	**DRS45105**	70	85	8	M4×30	4	ZARF45105(-L)-TV
78	115	20	106	0,54	**DRS50115**	78	100	10	M3×30	4	ZARF50115(-L)-TV

medias *https://www.schaeffler.de/std/1F9A*

[1)] The seal carrier assembly is supplied as a sealing set in individual parts comprising:
- a seal flange
- a rotary shaft seal
- a gasket
- socket head screws



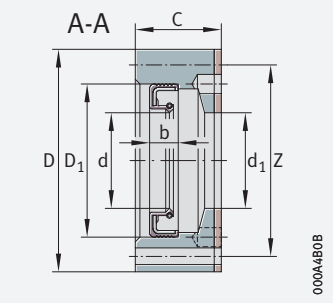
Hole pattern DRS3080, DRS3590, DRS50115



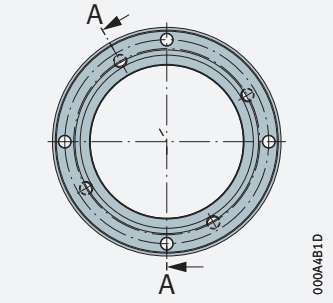
Hole pattern DRS2068, DRS2575, DRS40100, DRS45105

Seal carrier assemblies

For ZARF, heavy series



DRS[1)]



Hole pattern

d_1 = 52 – 160 mm

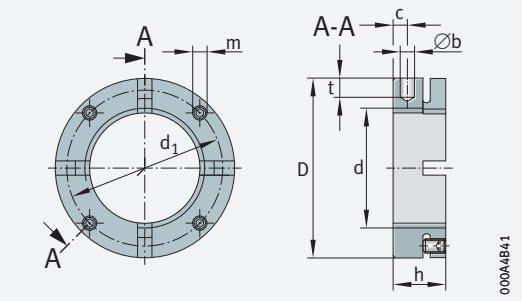
Main dimensions			Dimension	Mass	Designation	Rotary shaft seal					Matching bearing
d_1	D	C	Z	m ≈ kg		d	D_1	b	Socket head screws to DIN EN ISO 4762 Size	Quantity	
52	80	22	73,4	0,3	**DRS2080**	52	68	8	M3×30	4	ZARF2080(-L)-TV
62	90	22	81	0,38	**DRS2590**	62	75	10	M3×30	4	ZARF2590(-L)-TV
68	105	25	95	0,67	**DRS30105**	68	85	10	M4×35	4	ZARF30105(-L)-TV
73	110	25	101	0,6	**DRS35110**	73	95	10	M3×30	4	ZARF35110(-L)-TV
78	115	27,5	106	0,7	**DRS40115**	78	100	10	M3×35	4	ZARF40115(-L)-TV
90	130	31	120	1,1	**DRS45130**	90	110	12	M4×40	4	ZARF45130(-L)-TV
95	140	30	127,5	1,4	**DRS50140**	95	115	13	M5×40	4	ZARF50140(-L)-TV
100	145	30	132,5	1,42	**DRS55145**	100	120	12	M5×40	4	ZARF55145(-L)-TV
105	150	30	137,5	1,42	**DRS60150**	105	125	12	M5×40	4	ZARF60150(-L)-TV
110	155	30	142,5	1,43	**DRS65155**	110	130	12	M5×40	4	ZARF65155(-L)-TV
115	160	30	147,5	1,5	**DRS70160**	115	135	13	M5×40	4	ZARF70160(-L)-TV
135	185	36	172,5	2,4	**DRS75185**	135	160	15	M5×50	4	ZARF75185(-L)-TV
160	210	38	194	2,7	**DRS90210**	160	180	15	M5×50	4	ZARF90210(-L)-TV

medias *https://www.schaeffler.de/std/1F9A*

1) The seal carrier assembly is supplied as a sealing set in individual parts comprising:
- a seal flange
- a rotary shaft seal
- a gasket
- socket head screws

Precision locknuts

For axial clamping



AM15 to AM40 with 4 segments
AM45 to AM90 with 6 segments
AM100 to AM130 with 8 segments

d = M15×1 – M130×2

Main dimensions			Grub screw	Locknut[1]				Mass	Designation	Dimensions				
			Tightening torque	Axial rupture load	Breakaway torque	Reference tightening torque	Mass moment of inertia							
d	D	h	M_A	F_{aB}	M_L at M_{AL}		M_M	m		b	t	d_1	c	m
			Nm	N	Nm	Nm	kg · cm²	≈ kg		H11				
M15×1	30	18	3	100 000	20	10	0,09	0,06	AM15	4	5	24	5	M5
M17×1	32	18	3	120 000	25	15	0,11	0,07	AM17	4	5	26	5	M5
M20×1	38	18	5	145 000	45	18	0,23	0,13	AM20	4	6	31	5	M6
M25×1,5	45	20	5	205 000	60	25	0,49	0,16	AM25	5	6	38	6	M6
M30×1,5	52	20	5	250 000	70	32	0,86	0,2	AM30	5	7	45	6	M6
M30×1,5	65	30	5	400 000	70	32	2,8	0,5	AM30/65	6	8	45	6	M6
M35×1,5	58	20	5	280 000	90	40	1,3	0,23	AM35/58	5	7	51	6	M6
M35×1,5	65	22	5	330 000	100	40	2,4	0,33	AM35	6	8	58	6	M6
M40×1,5	65	22	5	350 000	120	55	2,3	0,3	AM40	6	8	58	6	M6
M40×1,5	85	32	5	570 000	120	55	7,6	0,75	AM40/85	6	8	58	6	M6
M45×1,5	70	22	5	360 000	220	65	2,9	0,34	AM45	6	8	63	6	M6
M50×1,5	75	25	5	450 000	280	85	4,3	0,43	AM50	6	8	68	8	M6
M55×2	85	26	15	520 000	320	95	7,7	0,6	AM55	6	8	75	8	M8
M60×2	90	26	15	550 000	365	100	9,4	0,65	AM60	6	8	80	8	M8
M65×2	100	26	15	560 000	400	120	14,6	0,83	AM65	8	10	88	8	M8
M70×2	100	28	15	650 000	450	130	14,7	0,79	AM70	8	10	90	9	M8
M75×2	115	30	20	750 000	610	150	29	1,23	AM75	8	10	102	10	M10
M80×2	110	30	20	670 000	770	160	21,3	0,93	AM80	8	10	98	10	M10
M85×2	115	30	20	690 000	930	180	24,8	0,97	AM85	8	10	102	10	M10
M90×2	130	32	20	900 000	1 100	200	48	1,53	AM90	8	10	118	13	M10
M100×2	130	30	20	740 000	1 200	250	38	1,12	AM100	8	10	118	10	M10
M110×2	140	30	20	770 000	1 300	250	48	1,22	AM110	8	10	128	10	M10
M120×2	155	30	20	880 000	1 450	250	75	1,56	AM120	8	10	142	10	M10
M130×2	165	30	20	900 000	1 600	250	92	1,67	AM130	8	10	152	10	M10

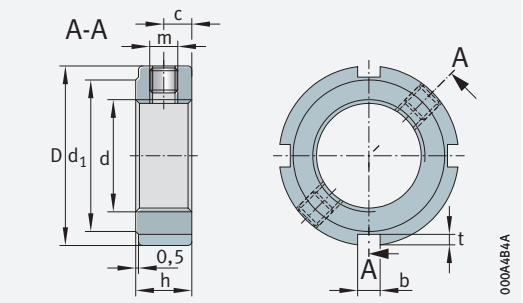
medias *https://www.schaeffler.de/std/1F9A*

[1] Attention!

If precision locknuts AM are fitted using the socket AMS, a maximum of twice the tightening torque of the bearing is permissible in accordance with the dimension table.

Precision locknuts

For radial clamping



ZM, ZMA

d = M6×0,5 – M55×2

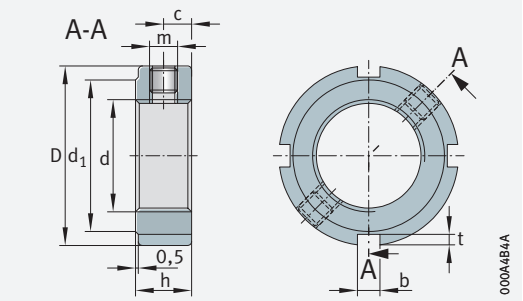
Main dimensions			Grub screw	Locknut				Mass	Designation	Dimensions				
			Tightening torque	Axial rupture load	Breakaway torque	Reference tightening torque	Mass moment of inertia							
d	D	h	M_A	F_{aB}	M_L at M_{AL}		M_M	m		b	t	d_1	c	m
			Nm	N	Nm	Nm	kg · cm²	≈ kg						
M6×0,5	16	8	1	17 000	20	2	0,004	0,01	**ZM06**	3	2	11	4	M4
M8×0,75	16	8	1	23 000	25	4	0,004	0,01	**ZM08**[1]	3	2	11	4	M4
M10×1	18	8	1	31 000	30	6	0,006	0,01	**ZM10**[1]	3	2	14	4	M4
M12×1	22	8	1	38 000	30	8	0,013	0,015	**ZM12**	3	2	18	4	M4
M15×1	25	8	1	50 000	30	10	0,021	0,018	**ZM15**	3	2	21	4	M4
M15×1	33	16	3	106 000	30	10	0,14	0,08	**ZMA15/33**	4	2	28	8	M5
M17×1	28	10	3	57 000	30	15	0,401	0,028	**ZM17**	4	2	23	5	M5
M20×1	32	10	3	69 000	40	18	0,068	0,035	**ZM20**	4	2	27	5	M5
M20×1	38	20	3	174 000	40	18	0,297	0,12	**ZMA20/38**	5	2	33	10	M5
M20×1	52	25	3	218 000	40	18	1,38	0,32	**ZMA20/52**	5	2	47	12,5	M5
M25×1,5	38	12	5	90 000	60	25	0,157	0,055	**ZM25**	5	2	33	6	M6
M25×1,5	45	20	5	211 000	60	25	0,572	0,16	**ZMA25/45**	5	2	40	10	M6
M25×1,5	58	28	5	305 000	60	25	2,36	0,43	**ZMA25/58**	6	2,5	52	14	M6
M30×1,5	45	12	5	112 000	70	32	0,304	0,075	**ZM30**	5	2	40	6	M6
M30×1,5	52	22	5	270 000	70	32	1,1	0,22	**ZMA30/52**	5	2	47	11	M6
M30×1,5	65	30	5	390 000	70	32	3,94	0,55	**ZMA30/65**	6	2,5	59	15	M6
M35×1,5	52	12	5	134 000	80	40	0,537	0,099	**ZM35**	5	2	47	6	M6
M35×1,5	58	22	5	300 000	80	40	1,66	0,26	**ZMA35/58**	6	2,5	52	11	M6
M35×1,5	70	30	5	460 000	80	40	5,2	0,61	**ZMA35/70**	6	2,5	64	15	M6
M40×1,5	58	14	5	157 000	95	55	0,945	0,14	**ZM40**	6	2,5	52	7	M6
M40×1,5	62	22	15	310 000	95	55	2,07	0,27	**ZMA40/62**	6	2,5	56	11	M8
M40×1,5	75	30	15	520 000	95	55	6,72	0,67	**ZMA40/75**	6	2,5	69	15	M8
M45×1,5	65	14	5	181 000	110	65	1,48	0,17	**ZM45**	6	2,5	59	7	M6
M45×1,5	68	24	15	360 000	110	65	3,2	0,35	**ZMA45/68**	6	2,5	62	12	M8
M45×1,5	85	32	15	630 000	110	65	11,9	0,92	**ZMA45/85**	7	3	78	16	M8
M50×1,5	70	14	5	205 000	130	85	1,92	0,19	**ZM50**	6	2,5	64	7	M6
M50×1,5	75	25	15	415 000	130	85	4,89	0,43	**ZMA50/75**	6	2,5	68	12,5	M8
M50×1,5	92	32	15	680 000	130	85	16,1	1,06	**ZMA50/92**	8	3,5	84	16	M8
M55×2	75	16	5	229 000	150	95	2,77	0,23	**ZM55**	7	3	68	8	M6
M55×2	98	32	15	620 000	150	95	20,5	1,17	**ZMA55/98**	8	3,5	90	16	M8

medias *https://www.schaeffler.de/std/1F9A*

[1] When clamped, the grub screw protrudes by ≈ 0,5 mm.

Precision locknuts

For radial clamping



ZM, ZMA

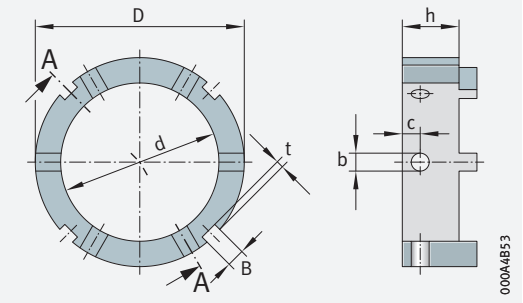
d = M60×2 – M150×2

Main dimensions			Grub screw	Locknut				Mass	Designation	Dimensions				
			Tightening torque	Axial rupture load	Breakaway torque	Reference tightening torque	Mass moment of inertia							
d	D	h	M_A	F_{aB}	M_L at M_{AL}		M_M	m		b	t	d_1	c	m
			Nm	N	Nm	Nm	kg · cm^2	≈ kg						
M60×2	80	16	5	255 000	180	100	3,45	0,25	**ZM60**	7	3	73	8	M6
M60×2	98	32	15	680 000	180	100	19,6	1,07	**ZMA60/98**	8	3,5	90	16	M8
M65×2	85	16	5	280 000	200	120	4,24	0,27	**ZM65**	7	3	78	8	M6
M65×2	105	32	15	750 000	200	120	25,6	1,21	**ZMA65/105**	8	3,5	97	16	M8
M70×2	92	18	15	305 000	220	130	6,61	0,36	**ZM70**	8	3,5	85	9	M8
M70×2	110	35	15	810 000	220	130	33	1,4	**ZMA70/110**	8	3,5	102	17,5	M8
M75×2	98	18	15	331 000	260	150	8,41	0,4	**ZM75**	8	3,5	90	9	M8
M75×2	125	38	15	880 000	260	150	62,2	2,11	**ZMA75/125**	8	3,5	117	19	M8
M80×2	105	18	15	355 000	285	160	11,2	0,46	**ZM80**	8	3,5	95	9	M8
M80×2	120	35	15	810 000	285	160	44,6	1,33	**ZMA80/120**	8	4	105	17,5	M8
M85×2	110	18	15	385 000	320	190	13,1	0,49	**ZM85**	8	3,5	102	9	M8
M90×2	120	20	15	410 000	360	200	21,8	0,7	**ZM90**	10	4	108	10	M8
M90×2	130	38	15	910 000	360	200	64,1	2,01	**ZMA90/130**	10	4	120	19	M8
M90×2	155	38	15	1 080 000	360	200	150	3,36	**ZMA90/155**	10	4	146	19	M8
M100×2	130	20	15	465 000	425	250	28,6	0,77	**ZM100**	10	4	120	10	M8
M100×2	140	38	20	940 000	425	250	82,8	2,23	**ZMA100/140**	12	5	128	19	M10
M105×2	140	22	20	495 000	475	300	44,5	1,05	**ZM105**	12	5	126	11	M10
M110×2	145	22	20	520 000	510	350	50,1	1,09	**ZM110**	12	5	133	11	M10
M115×2	150	22	20	550 000	550	400	56,2	1,13	**ZM115**	12	5	137	11	M10
M120×2	155	24	20	580 000	600	450	68,4	1,28	**ZM120**	12	5	138	12	M10
M125×2	160	24	20	610 000	640	500	76,1	1,33	**ZM125**	12	5	148	12	M10
M130×2	165	24	20	630 000	700	550	84,3	1,36	**ZM130**	12	5	149	12	M10
M140×2	180	26	38	690 000	800	600	133	1,85	**ZM140**	14	6	160	13	M12
M150×2	195	26	38	750 000	900	650	188	2,24	**ZM150**	14	6	171	13	M12

medias *https://www.schaeffler.de/std/1F9A*

Sockets

For precision locknuts with axial clamping



AMS

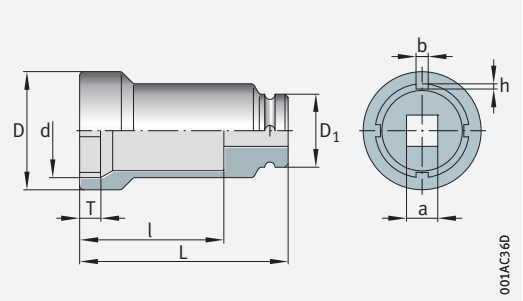
D = 32 – 155 mm

Main dimensions			Mass	Designation	Dimensions				For precision locknuts
D	h	d	m ≈ kg		b H11	c	B	t	
32	14	22	0,047	**AMS20**	4	5	4	2	AM15, AM17, AM20
45	15	35	0,093	**AMS30**	5	5	5	2	AM25, AM30, AM35/58, AM30/65
65	16	45	0,217	**AMS40**	6	6	6	2,5	AM35, AM40
70	19	53	0,245	**AMS50**	6	6	6	2,5	AM45, AM50
85	20	65	0,37	**AMS60**	6	6	7	3	AM55, AM60
98	25	75	0,615	**AMS70**	8	10	8	3,5	AM65, AM70
110	25	85	0,755	**AMS80**	8	10	8	3,5	AM75, AM80, AM85
130	25	95	1,215	**AMS90**	8	10	10	4	AM90
130	25	110	0,74	**AMS110**	8	10	10	4	AM100, AM110
155	25	130	1,485	**AMS130**	8	10	12	5	AM120, AM130

medias *https://www.schaeffler.de/std/1F9A*

Sockets

For precision locknuts suitable for radial or axial clamping
For torque wrenches
Suitable for combination with socket AMS



LOCKNUT-SOCKET-KM

Main dimensions			Mass	Designation	Dimensions					
d	D	a inch	m ≈ kg		D_1	L	l	T	b	h
18,3	22	3/8	0,1	**LOCKNUT-SOCKET-KM0**	22	57	45	5	2,6	1,95
22,4	28	3/8	0,1	**LOCKNUT-SOCKET-KM1**	22	57	45	5	2,6	1,95
25,4	33	1/2	0,2	**LOCKNUT-SOCKET-KM2**	30	82	65	6	3,5	1,9
28,4	36	1/2	0,24	**LOCKNUT-SOCKET-KM3**	30	82	65	6	3,5	1,9
32,5	38	1/2	0,28	**LOCKNUT-SOCKET-KM4**	30	82	58	9	3,5	1,95
38,5	46	1/2	0,38	**LOCKNUT-SOCKET-KM5**	30	82	58	9	4,7	1,95
45,5	53	1/2	0,42	**LOCKNUT-SOCKET-KM6**	30	82	58	9	4,7	1,95
52,5	60	1/2	0,45	**LOCKNUT-SOCKET-KM7**	30	82	58	9	4,7	1,95
58,6	68	1/2	0,61	**LOCKNUT-SOCKET-KM8**	30	82	58	9	5,7	2,4
65,7	73,5	3/4	0,8	**LOCKNUT-SOCKET-KM9**	44	90	60	13,5	5,7	2,45
70,7	78,5	3/4	0,87	**LOCKNUT-SOCKET-KM10**	44	90	60	13,5	5,7	2,45
75,7	83,5	3/4	0,9	**LOCKNUT-SOCKET-KM11**	44	90	60	13,5	6,7	2,95
80,7	88,5	3/4	1	**LOCKNUT-SOCKET-KM12**	44	90	60	13,5	6,7	2,95
85,7	94	3/4	1,09	**LOCKNUT-SOCKET-KM13**	44	90	60	13,5	6,7	2,95
92,6	103	1	2,2	**LOCKNUT-SOCKET-KM14**	62	110	80	12	7,6	3,4
98,6	109	1	2,3	**LOCKNUT-SOCKET-KM15**	62	110	80	13	7,6	3,35
105,8	116	1	2,1	**LOCKNUT-SOCKET-KM16**	62	110	80	15	7,6	3,45
110,8	121	1	2,61	**LOCKNUT-SOCKET-KM17**	62	110	80	16	7,6	3,45
120,8	131	1	2,9	**LOCKNUT-SOCKET-KM18**	62	110	80	16	9,5	3,9
125,8	137	1	3,01	**LOCKNUT-SOCKET-KM19**	62	110	80	17	9,5	3,9
130,8	143	1	3,3	**LOCKNUT-SOCKET-KM20**	62	110	80	18	9,5	3,9
140,8	153	1	3,5	**LOCKNUT-SOCKET-KM21**	62	110	80	18	11,5	4,9
145,8	158	1	3,75	**LOCKNUT-SOCKET-KM22**	62	110	80	18	11,5	4,9
155,8	170	1	4,15	**LOCKNUT-SOCKET-KM24**	62	110	80	18	11,5	4,9

medias *https://www.schaeffler.de/std/1F9A*

d	Locknuts	Precision locknuts		
18,3	KM0	ZM10	–	–
22,4	KM1	ZM12	–	–
25,4	KM2	–	–	–
28,4	KM3	ZM17	–	–
32,5	KM4	ZM20	–	–
38,5	KM5	ZMA20/38	ZM25	–
45,5	KM6	ZMA25/45	ZM30	–
52,5	KM7	ZMA20/52	ZMA30/52	ZM35
58,6	KM8	ZMA25/58	ZMA35/58	ZM40
65,7	KM9	ZMA30/65	ZM45	–
70,7	KM10	ZMA35/70	ZM50	–
75,7	KM11	ZM55	–	–
80,7	KM12	–	–	–
85,7	KM13	ZMA45/85	ZM65	–
92,6	KM14	ZMA50/92	ZM70	–
98,6	KM15	ZMA55/98	ZMA60/98	ZM75
105,8	KM16	ZMA65/105	ZM80	–
110,8	KM17	ZMA70/110	ZM85	–
120,8	KM18	ZM90	–	–
125,8	KM19	–	–	–
130,8	KM20	ZMA90/130	ZM100	–
140,8	KM21	ZMA100/140	ZM105	–
145,8	KM22	ZM110	–	–
155,8	KM24	ZM120	–	–

3 Bearings for combined loads

3.1 General features

Design variants

Bearings for combined loads are available as:

- axial/radial bearings ➤*1383*|*1*
- axial angular contact ball bearings ➤*1383*|*2*
- axial/radial bearings with incremental angular measuring system, with pitch-coded reference marks ➤*1384*|*3*
- axial/radial bearings with absolute value angular measuring system ➤*1385*|*4*

Product catalogue

The standard range of these bearings is described in detail in Technical Product Information TPI 120, High Precision Bearings for Combined Loads, and in our electronic product catalogue ***medias*** *professional*.

Downloading TPI 120

Technical Product Information TPI 120 is available from Schaeffler at *https://www.schaeffler.de/std/1D5B*.

medias

The following link will take you to the Schaeffler electronic product selection and information system: *https://medias.schaeffler.com*.

App for services

The app "PrecisionDesk" offers extensive services for rotary and linear bearings of a super precision design and assists fitters and engineers in the selection and mounting of bearings. Further information on PrecisionDesk ➤*1404*, download *https://www.schaeffler.de/std/1D59*.

X-life premium quality

The axial radial bearings YRTC and YRTCMA in the X-life design achieve higher limiting speeds with lower friction and higher tilting rigidity than the previous standard YRT. The plastic cage segments with grease reservoir and the patented raceway geometry ensure very low bearing friction for preloaded roller bearings.

Increased customer benefits due to X-life

The advantages of this bearing design are:

- limiting speeds up to 80% higher
- 50% lower frictional torque
- lower running temperatures
- lower noise level
- lower lubricant demand
- longer grease operating life
- tilting rigidity up to 20% higher
- longer operating life of the bearings

As a result of the low and uniform frictional torque, the bearings are suitable for combination with torque motors and for prolonged use at high speeds. The bearings have a high axial and radial runout accuracy and are optionally available with an absolute measuring system integrated in the bearing (YRTCMA).

3.2 Axial/radial bearings, axial angular contact ball bearings

Axial/radial bearings YRT, YRTC and YRTS and axial angular contact ball bearings ZKLDF are ready-to-fit high precision bearings for high precision applications with combined loads. They can support radial loads, axial loads from both sides and tilting moments without clearance and are particularly suitable for bearing arrangements with high requirements for running accuracy.

Simple mounting due to fixing holes

Due to the fixing holes in the bearing rings, mounting of the units is very simple. After mounting, the bearings are radially and axially preloaded. The mounting dimensions of all series are identical.

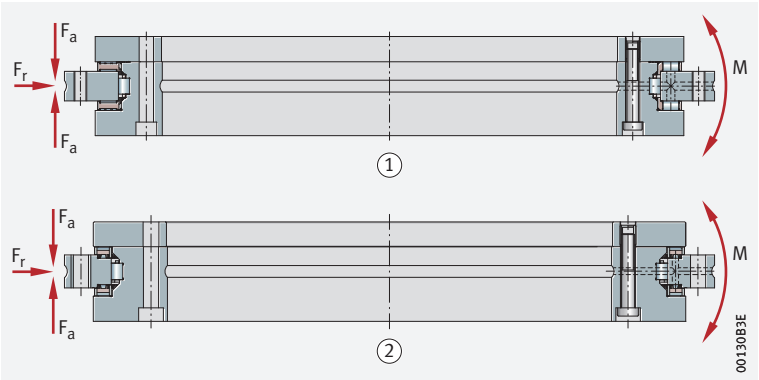
Axial radial bearings YRTC and YRTS

Axial/radial bearings are double direction axial bearings for screw mounting, with a radial guidance bearing. These ready-to-fit, greased units are very rigid, have high load carrying capacity and run with particularly high accuracy. They can support radial forces, axial forces from both directions and tilting moments free from clearance. The bearings are available in several series ➤*1383*|*1*.

1
Axial/radial bearings

F_r = *radial load*
F_a = *axial load*
M = *tilting moment*

① *For standard applications (YRTC)*
② *For high speeds (YRTS)*



YRTC for high demands on tilting rigidity

Axial radial bearings YRTC with a low, uniform frictional torque and in combination with torque motors are suitable for standard applications such as indexing tables and swivel type milling heads.

YRTS suitable for high speeds with low frictional torque

For the bearing arrangements of direct drive axes, there is the series YRTS. Due to their high limiting speeds and very low, uniform frictional torque across the whole speed range, these bearings are particularly suitable for combination with torque motors.

For higher running accuracy requirements, both series are also available with restricted axial and radial runout.

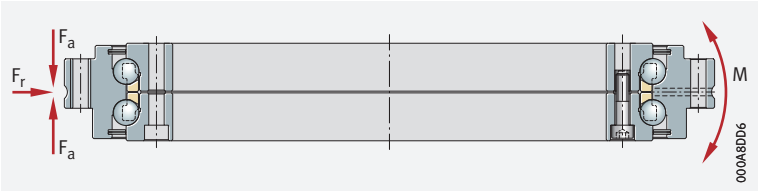
Axial angular contact ball bearings ZKLDF

Suitable for very high speeds and long operating durations

Axial angular contact ball bearings ZKLDF are highly suitable for high speed applications with long operating duration ➤*1383*|*2*. They are characterised by high tilting rigidity, low friction and low lubricant consumption.

2
Axial angular contact ball bearing ZKLDF

F_r = *radial load*
F_a = *axial load*
M = *tilting moment*



Preferred areas of use

Axial angular contact ball bearings are particularly suitable for precision applications involving combined loads. Their preferred areas of use are bearing arrangements in rotary tables with a main spindle function, for example in combined milling and turning, as well as in milling, grinding and honing heads and in measurement and testing equipment.

3.3 Axial/radial bearings with incremental angular measuring system

Features

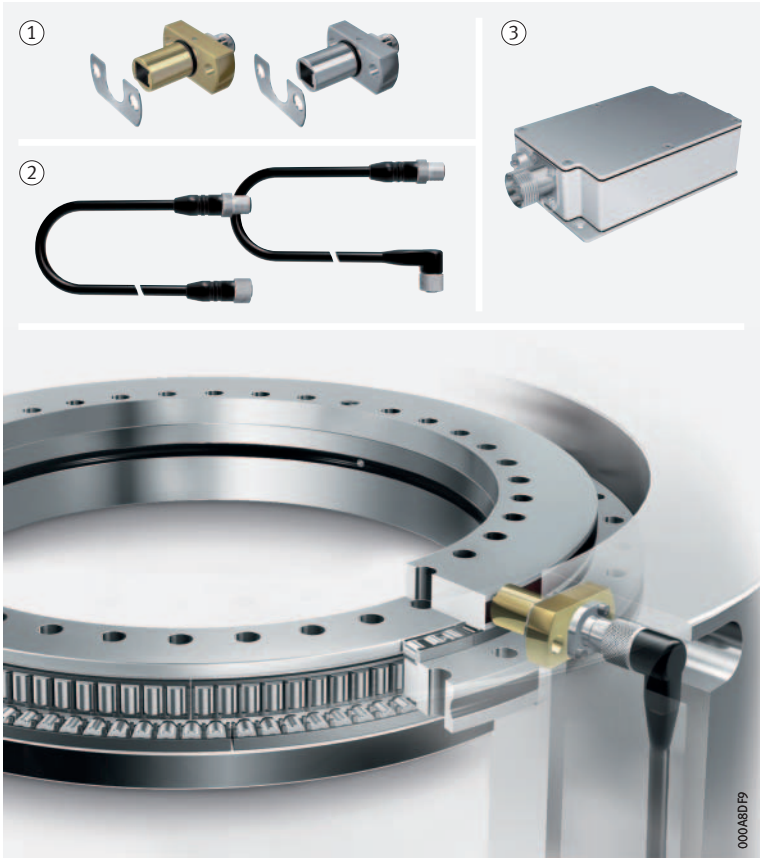
Axial/radial bearings with an incremental angular measuring system and pitch-coded reference marks comprise an axial/radial bearing YRTCM or YRTSM, each with a dimensional scale, an SRM electronic measuring system and signal leads SRMC ➤*1384*|*3*. The electronic measuring system SRM comprises two measuring heads, two stacks of shims and an electronic evaluation system ➤*1384*|*3*. The signal leads for connecting the measuring heads to the electronic evaluation system can be ordered individually in various designs.

Equivalent in mechanical terms to series YRT and YRTS

Bearings of series YRTCM or YRTSM correspond in mechanical terms to axial/radial bearings YRTC or YRTS, but are additionally fitted with a magnetic dimensional scale. The measuring system can measure angles to an accuracy of a few angular seconds by non-contact, magneto-resistive means.

3
Axial/radial bearing with incremental angular measuring system

① *Measuring heads with shims*
② *Connection cable SRMC*
③ *Electronic evaluation system*



Advantages of the angular measuring system

The measuring system:

- allows, due to the rigid connection to the adjacent construction, very good control characteristics (control stability and dynamics) and is therefore particularly suitable for axes with torque motor drive
- offers a high maximum measuring speed of up to 16,5 m/s
- operates by non-contact means and is therefore not subject to wear
- carries out measurement irrespective of tilting and position
- has automatically self-adjusting electronics
- has a self-centring function
- is unaffected by lubricants
- is easy to fit, the measuring heads are easily adjustable, there is no need for alignment of the bearing and a separate measuring system
- requires no additional parts
  - the dimensional scale and measuring heads are integrated in the bearings and adjacent construction respectively
  - the resulting space saved can be used for the machining area of the machine
- does not give any problems relating to supply cables. The cables can be laid within the adjacent construction directly through the large bearing bore
- gives savings on components, overall design envelope and costs due to the compact, integrated design requiring fewer components

3.4 Axial/radial bearings with absolute value angular measuring system

Equivalent in mechanical terms to series YRT and YRTS

Axial/radial bearings with absolute value angular measuring system YRTCMA and YRTSMA correspond in mechanical terms to series YRTC and YRTS, but are additionally fitted with an absolute value angular measuring system ➤ *1385* | 4.

4 *Axial/radial bearing with absolute value angular measuring system*



High system measuring accuracy of angular measuring systems integrated in the bearing

The ideal location for mounting a measuring system is directly in the bearing arrangement, which means that higher system accuracies can be achieved with measuring systems integrated in the bearing than with measuring systems that are attached to the axis a significant distance from the relevant bearing arrangement. The very precise radial runout of the precision rotary axis bearing YRT(S)MA is utilised here.

The absolute angular measuring system integrated directly in the bearing offers considerable advantages:

- an absolute interface, dispensing with the need for reference travel
- a hollow shaft design, freeing up the centre of the machine for other components
- the facility for highly dynamic and precise control loops
- savings in terms of design envelope
- simplifications in design and mounting
- resistance to environmental influences, lubricants and cooling lubricants

Inductive measurement method ABSYS (AMO)

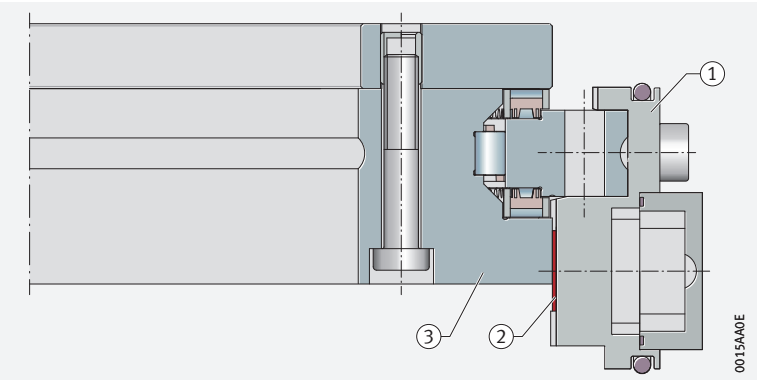
The inductive measurement method ABSYS (AMO) is based on contact-free scanning of a structured dimensional scale that is applied directly as a measurement ring to the bearing inner ring ➤ *1386* | *5*. The irregular structure with absolute coding is captured on a bitwise inductive basis by a coil arrangement that is integrated in the measuring head.

The binary value obtained, which occurs only once per angular position within the entire measurement range, is converted into an absolute angular value by a microcontroller using a conversion table.

The electronic evaluation system is integrated in the measuring head, so the system can be connected directly to the controller. The measuring head is configured such that no adjustment of the measurement gap is required and the rolling bearing chamber is protected against the egress and ingress of lubricants and other media. Other measuring head designs are available by agreement.

5
Absolute value angular measuring system

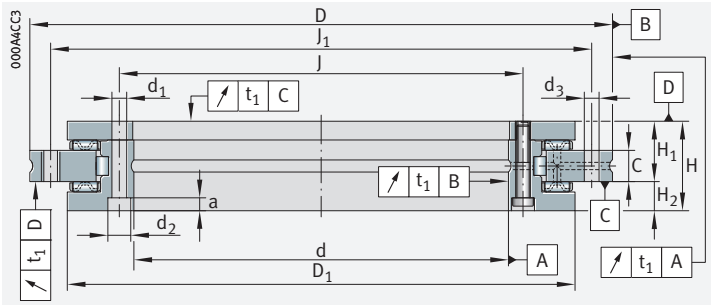
① *Measuring head*
② *Measurement ring*
③ *Inner ring of axial/radial bearing*





Axial/radial bearings

Double direction



YRT

d = 50 – 80 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speed[1]	Mass	Designation
			axial		radial		axial	radial			
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G	m	
			kN	kN	kN	kN	kN	kN	min^{-1}	≈ kg	
50 0/–0,008	126 0/–0,011	30	56	280	28,5	49,5	30	7,2	440	1,6	**YRT50**
80 0/–0,009	146 0/–0,011	35	38	158	44	98	14,4	14,1	350	2,4	**YRT80-TV**[6]

medias *https://www.schaeffler.de/std/1F9A*

① Two retaining screws; ② Screw counterbores open (in the L-section ring to the bearing bore), bearing inside diameter is unsupported in this area

1) For high operating durations or continuous operation, please contact us.

2) Including retaining screws or threaded extraction holes.

3) Diameter of inner ring for design of adjacent construction.

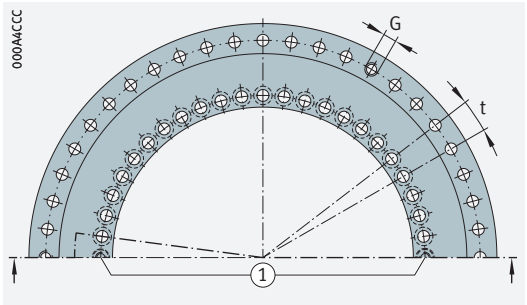
4) Attention!
For fixing holes in the adjacent construction. Observe the pitch of the bearing holes.

5) Tightening torque for screws to DIN EN ISO 4762, grade 10.9.

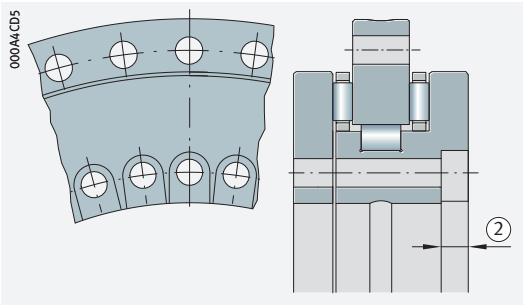
6) Cages made from glass fibre reinforced polyamide 66.

7) M5 screws (on inner ring) to 8,5 Nm and M4 screws (on outer ring) to 4,5 Nm.

8) Rigidity values taking account of the rolling element set, the deformation of the bearing rings and the screw connections. For explanations TPI 120.



Hole pattern



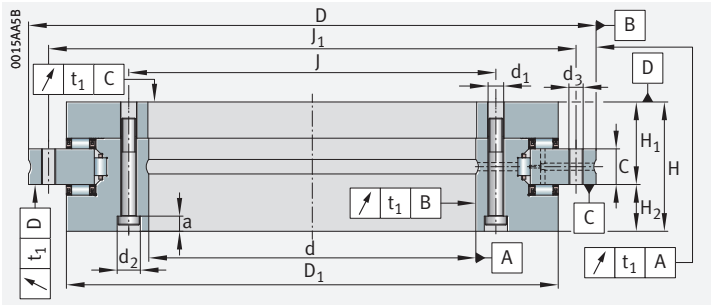
For YRT80-TV and YRT100

Dimensions							Fixing holes						Pitch[2]		Threaded extraction hole		Screw tightening torque
							Inner ring				Outer ring						
d	H_1	H_2	C	D_1[3] max.	J	J_1	d_1	d_2	a	Quantity[4]	d_3	Quantity[4]	n	t °	G	Quantity	M_A[5] Nm
50	20	10	10	105	63	116	5,6	–	–	10	5,6	12	12	30	–	–	8,5
80	23,35	11,65	12	130	92	138	5,6	10	4	10	4,6	12	12	30	–	–	8,5[7]

	Designation	Rigidity					
		Bearing position[8]			Rolling element set		
d		axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad	axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad
50	**YRT50**	1,3	1,1	1,25	6,2	1,5	5,9
80	**YRT80-TV**[6]	1,6	1,8	2,5	4	2,6	6,3

Axial/radial bearings

Double direction



YRTC

d = 100 – 1 030 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speed		Mass	Designation
			axial		radial		axial	radial	Continuous operation	Swivel type operation[2]		X-life ➤1382
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G	n_G	m	
			kN	kN	kN	kN	kN	kN	min^{-1}	min^{-1}	≈ kg	
100 0 /–0,01	185 0 /–0,02	38	105	455	49,5	88	50	14,8	1 200	–	3,65	**YRTC100-XL**
120 0 /–0,01	210 0 /–0,015	40	112	520	69	124	55	19,8	900	–	4,61	**YRTC120-XL**
150 0 /–0,013	240 0 /–0,015	40	128	650	74	146	65	22,1	800	–	5,4	**YRTC150-XL**
180 0 /–0,013	280 0 /–0,018	43	134	730	100	200	69	29,5	600	–	7,2	**YRTC180-XL**
200 0 /–0,015	300 0 /–0,018	45	147	850	123	275	78	39,5	450	–	9,2	**YRTC200-XL**
260 0 /–0,018	385 0 /–0,02	55	168	1 090	140	355	94	47	300	–	17,8	**YRTC260-XL**
325 0 /–0,023	450 0 /–0,023	60	247	1 900	183	530	164	62	200	–	24,7	**YRTC325-XL**
395 0 /–0,023	525 0 /–0,028	65	265	2 190	200	640	180	71	200	–	32,5	**YRTC395-XL**
460 0 /–0,023	600 0 /–0,028	70	290	2 550	265	880	201	96	150	–	45,2	**YRTC460-XL**
580 0 /–0,025	750 0 /–0,035	90	580	4 450	235	730	320	78	80	200	89	**YRTC580-XL**
650 0 /–0,038	870 0 /–0,05	122	910	6 800	455	1 300	510	136	70	170	170	**YRTC650-XL**
850 0 /–0,05	1 095 0 /–0,063	124	1 020	8 500	520	1 690	590	163	50	125	253	**YRTC850-XL**
1 030 0 /–0,063	1 300 0 /–0,08	145	1 140	10 300	580	2 050	680	187	40	100	375	**YRTC1030-XL**

medias *https://www.schaeffler.de/std/1F9A*

① Two retaining screws

1) Including retaining screws or threaded extraction holes.

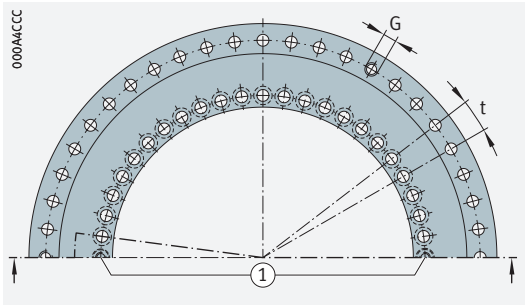
2) Short operating duration.

3) Diameter of inner ring for design of adjacent construction.

4) Attention!
For fixing holes in the adjacent construction. Observe the pitch of the bearing holes.

5) Tightening torque for screws to DIN EN ISO 4762, grade 10.9.

6) Rigidity values taking account of the rolling element set,
the deformation of the bearing rings and the screw connections.
For explanations TPI 120.



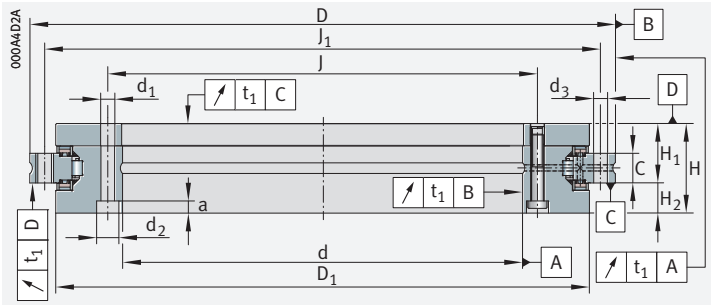
Hole pattern

Dimensions							Fixing holes						Pitch[1]		Threaded extraction hole		Screw tightening torque
							Inner ring				Outer ring						
d	H_1	H_2	C	D_1[3] max.	J	J_1	d_1	d_2	a	Quantity[4]	d_3	Quantity[4]	n	t °	G	Quantity	M_A[5] Nm
100	25	13	12	161	112	170	5,6	10	5,4	16	5,6	15	18	20	M5	3	8,5
120	26	14	12	185	135	195	7	11	6,2	22	7	21	24	15	M8	3	14
150	26	14	12	214,5	165	225	7	11	6,2	34	7	33	36	10	M8	3	14
180	29	14	15	245,1	194	260	7	11	6,2	46	7	45	48	7,5	M8	3	14
200	30	15	15	274,4	215	285	7	11	6,2	46	7	45	48	7,5	M8	3	14
260	36,5	18,5	18	347	280	365	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
325	40	20	20	415,1	342	430	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
395	42,5	22,5	20	487,7	415	505	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34
460	46	24	22	560,9	482	580	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34
580	60	30	30	700	610	720	11,4	18	11	46	11,4	42	48	7,5	M12	6	68
650	78	44	34	800	680	830	14	20	13	46	14	42	48	7,5	M12	6	116
850	80,5	43,5	37	1 018	890	1 055	18	26	17	58	18	54	60	6	M12	6	284
1 030	92,5	52,5	40	1 215	1 075	1 255	18	26	17	70	18	66	72	5	M16	6	284

	Designation	Rigidity					
		Bearing position[6]			Rolling element set		
d		axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad	axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad
100	**YRTC100-XL**	2,65	2,25	7,5	8,7	3,7	23,5
120	**YRTC120-XL**	2,9	2,6	11,2	9,8	4	35,5
150	**YRTC150-XL**	3,8	3,2	18,6	12	4,8	61
180	**YRTC180-XL**	4,7	3,6	29	13,5	5,3	88,5
200	**YRTC200-XL**	4,9	4,1	40	15,5	6,2	128
260	**YRTC260-XL**	6,9	5,3	104	19	8,1	265
325	**YRTC325-XL**	7,1	6,3	159	33	9,9	633
395	**YRTC395-XL**	9,9	5,8	280	37	13	1 002
460	**YRTC460-XL**	12	6,5	429	43	17	1 543
580	**YRTC580-XL**	11,9	2,9	735	41,8	11,2	1 960
650	**YRTC650-XL**	20,6	7,3	1 193	51,4	8,2	3 554
850	**YRTC850-XL**	26,5	11,9	2 351	61,9	12	6 772
1 030	**YRTC1030-XL**	36,4	11,2	5 400	74,9	14,2	11 165

Axial/radial bearings

Double direction



YRTS

d = 200 – 460 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speed	Mass	Designation
			axial		radial		axial	radial			
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G	m	
			kN	kN	kN	kN	kN	kN	min^{-1}	≈ kg	
200 0/–0,015	300 0/–0,018	45	155	840	94	226	93	32	1 160	9,7	**YRTS200**
260 0/–0,018	385 0/–0,02	55	173	1 050	110	305	108	40	910	18,3	**YRTS260**
325 0/–0,023	450 0/–0,023	60	191	1 260	109	320	122	43	760	25	**YRTS325**
395 0/–0,023	525 0/–0,028	65	214	1 540	121	390	142	49,5	650	33	**YRTS395**
460 0/–0,023	600 0/–0,028	70	221	1 690	168	570	149	65	560	45	**YRTS460**

medias *https://www.schaeffler.de/std/1F9A*

① Two retaining screws; ② Screw counterbores open (in the L-section ring to the bearing bore), bearing inside diameter is unsupported in this area

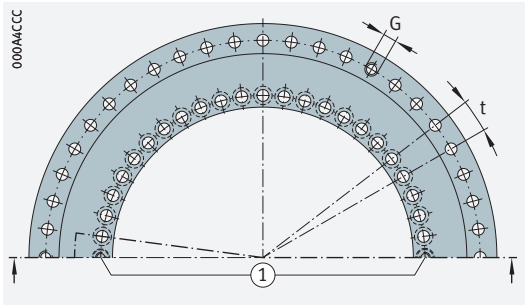
1) Including retaining screws or threaded extraction holes.

2) Diameter of inner ring for design of adjacent construction.

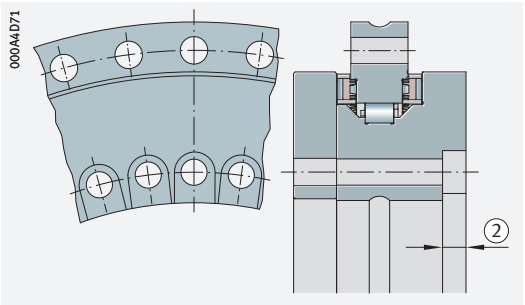
3) Attention!
For fixing holes in the adjacent construction. Observe the pitch of the bearing holes.

4) Tightening torque for screws to DIN EN ISO 4762, grade 10.9.

5) Rigidity values taking account of the rolling element set, the deformation of the bearing rings and the screw connections. For explanations TPI 120.



Hole pattern



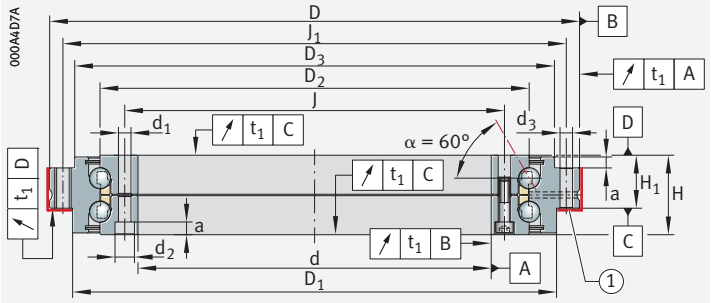
For YRTS325

Dimensions							Fixing holes						Pitch[1]		Threaded extraction hole		Screw tightening torque
							Inner ring				Outer ring						
d	H_1	H_2	C	D_1[2] max.	J	J_1	d_1	d_2	a	Quantity[3]	d_3	Quantity[3]	n	t °	G	Quantity	M_A[4] Nm
200	30	15	15	274,4	215	285	7	11	6,2	46	7	45	48	7,5	M8	3	14
260	36,5	18,5	18	347	280	365	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
325	40	20	20	415,1	342	430	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
395	42,5	22,5	20	487,7	415	505	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34
460	46	24	22	560,9	482	580	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34

	Designation	Rigidity					
		Bearing position[5]			Rolling element set		
d		axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad	axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad
200	**YRTS200**	4	1,2	29	13,6	3,9	101
260	**YRTS260**	5,4	1,6	67	16,8	5,8	201
325	**YRTS325**	6,6	1,8	115	19,9	7,1	350
395	**YRTS395**	7,8	2	195	23,4	8,7	582
460	**YRTS460**	8,9	1,8	280	25,4	9,5	843

Axial angular contact ball bearings

Double direction



ZKLDF

d = 100 – 460 mm

Main dimensions[1]			Basic load ratings		Fatigue limit load	Limiting speed[2]	Mass	Designation
d	D	H	dyn. C_a	stat. C_{0a}	C_{ua}	n_G	m	
			kN	kN	kN	min^{-1}	≈ kg	
100	185	38	71	265	10,3	5 000	3,8	**ZKLDF100**
120	210	40	76	315	11,5	4 300	4,8	**ZKLDF120**
150	240	40	81	380	12,6	3 600	5,6	**ZKLDF150**
180	280	43	85	440	13,5	3 500	7,7	**ZKLDF180**
200	300	45	121	610	17,9	3 200	10	**ZKLDF200**
260	385	55	162	920	23,8	2 400	19	**ZKLDF260**
325	450	60	172	1 110	26	2 000	25	**ZKLDF325**
395	525	65	241	1 580	34	1 600	33	**ZKLDF395**
460	600	70	255	1 860	37	1 400	47	**ZKLDF460**

medias *https://www.schaeffler.de/std/1F9A*

① Contact surface/centring diameter; ② Two retaining screws; ③ Screw counterbores open (in the L-section ring to the bearing bore), bearing inside diameter is unsupported in this area

1) Sizes d > 460 mm available by agreement.

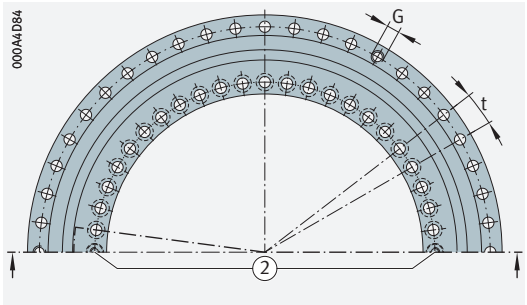
2) The limiting speeds increased by a factor of two are valid for bearings of the current generation with the internal suffix -B.

3) Including retaining screws or threaded extraction holes.

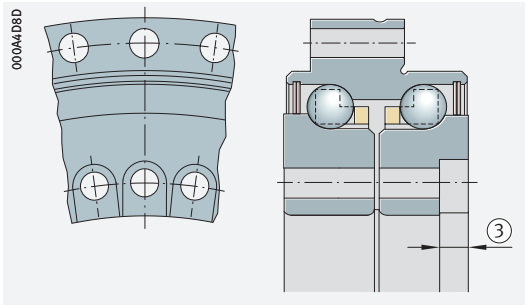
4) Attention!
For fixing holes in the adjacent construction. Observe the pitch of the bearing holes.

5) Tightening torque for screws to DIN EN ISO 4762, grade 10.9.

6) Rigidity values taking account of the rolling element set, the deformation of the bearing rings and the screw connections.
For explanations TPI 120.



Hole pattern



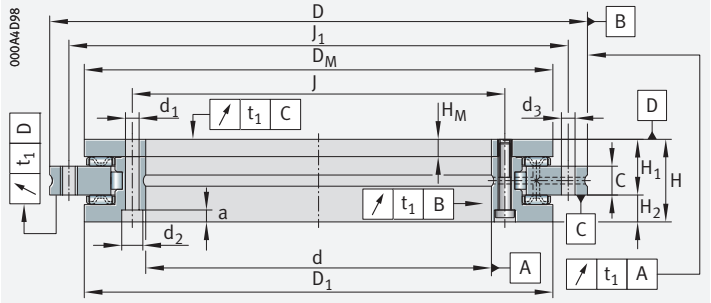
For ZKLDF100, ZKLDF325

Dimensions[1]							Fixing holes						Pitch[3]		Threaded extraction hole		Screw tightening torque
							Inner ring				Outer ring						
d	H_1	D_1	D_2	D_3	J	J_1	d_1	d_2	a	Quantity[4]	d_3	Quantity[4]	n	t °	G	Quantity	M_A[5] Nm
100	25	161	136	158	112	170	5,6	10	5,4	16	5,6	15	18	20	M5	3	8,5
120	26	185	159	181	135	195	7	11	6,2	22	7	21	24	15	M8	3	14
150	26	214	188	211	165	225	7	11	6,2	34	7	33	36	10	M8	3	14
180	29	244	219	246	194	260	7	11	6,2	46	7	45	48	7,5	M8	3	14
200	30	274	243	271	215	285	7	11	6,2	46	7	45	48	7,5	M8	3	14
260	36,5	345	313	348	280	365	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
325	40	415	380	413	342	430	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
395	42,5	486	450	488	415	505	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34
460	46	560	520	563	482	580	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34

	Designation	Rigidity					
		Bearing position[6]			Rolling element set		
d		axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad	axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad
100	**ZKLDF100**	1,2	0,35	3,6	2,2	0,35	5
120	**ZKLDF120**	1,5	0,4	5,5	2,5	0,4	8
150	**ZKLDF150**	1,7	0,4	7,8	2,9	0,4	12
180	**ZKLDF180**	1,9	0,5	10,7	2,8	0,5	16
200	**ZKLDF200**	2,5	0,6	17,5	3,7	0,6	26
260	**ZKLDF260**	3,2	0,7	40	4,7	0,7	54
325	**ZKLDF325**	4	0,8	60	5,4	0,8	90
395	**ZKLDF395**	4,5	0,9	100	6,3	0,9	148
460	**ZKLDF460**	5,3	1,1	175	7,1	1,1	223

Axial/radial bearings

Double direction
With incremental angular measuring system



YRTCM

d = 150 – 460 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speed		Mass	Designation
			axial		radial		axial	radial	Electronic evaluation system and bearing	Reference travel		X-life ➤ *1382*
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G	n_{Ref}	m	
			kN	kN	kN	kN	kN	kN	min^{-1}	min^{-1}	≈ kg	
150 0/–0,013	240 0/–0,015	41[6]	128	650	74	146	65	22,1	800	–	6,4	**YRTCM150-XL**[7]
180 0/–0,013	280 0/–0,018	44[6]	134	730	100	200	69	29,5	600	–	7,7	**YRTCM180-XL**[7]
200 0/–0,015	300 0/–0,018	45	147	850	123	275	78	39,5	450	–	9,7	**YRTCM200-XL**[7]
260 0/–0,018	385 0/–0,02	55	168	1 090	140	355	94	47	300	–	18,3	**YRTCM260-XL**
325 0/–0,023	450 0/–0,023	60	247	1 900	183	530	164	62	200	–	25	**YRTCM325-XL**
395 0/–0,023	525 0/–0,028	65	265	2 190	200	640	180	71	200	–	33	**YRTCM395-XL**
460 0/–0,023	600 0/–0,028	70	290	2 550	265	880	201	96	150	–	45	**YRTCM460-XL**

medias *https://www.schaeffler.de/std/1F9A*

① Two retaining screws; ② Screw counterbores open (in the L-section ring to the bearing bore), bearing inside diameter is unsupported in this area

1) Including retaining screws or threaded extraction holes.

2) Diameter of inner ring for design of adjacent construction.

3) Diameter of dimensional scale on shaft locating washer.

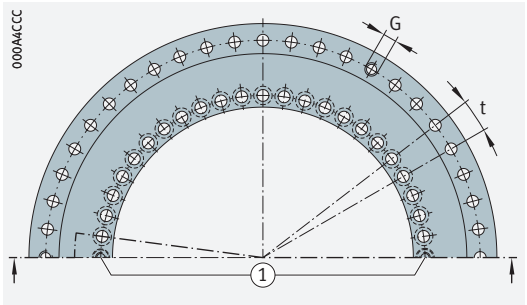
4) Attention!
For fixing holes in the adjacent construction. Observe the pitch of the bearing holes.

5) Tightening torque for screws to DIN EN ISO 4762, grade 10.9.

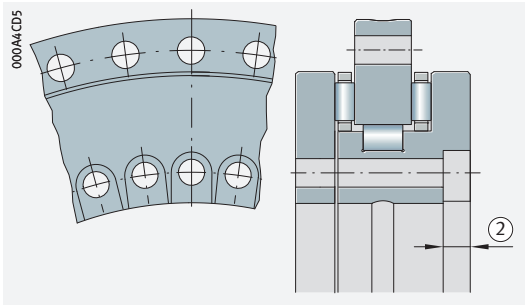
6) Attention!
H and H1 are 1 mm higher than standard bearing YRT.

7) The measuring head cannot be mounted between the fixing holes or the heads of the fixing screws. Two holes for fixing screws therefore remain unused in the bearing outer ring.

8) Rigidity values taking account of the rolling element set, the deformation of the bearing rings and the screw connections. For explanations TPI 120.



Hole pattern



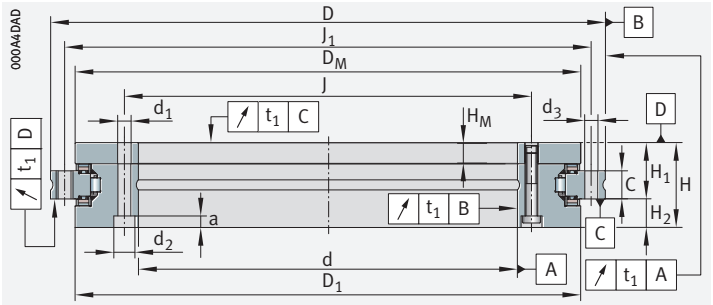
For YRTCM325

Dimensions								Fixing holes						Pitch[1]		Threaded extraction hole		Screw tightening torque
								Inner ring				Outer ring						
d	H_1	H_M	C	D_1[2] max.	D_M[3]	J	J_1	d_1	d_2	a	Quantity[4]	d_3	Quantity[4]	n	t °	G	Quantity	M_A[5] Nm
150	27[6]	10	12	213,82	214,5	165	225	7	11	6,2	34	7	33	36	10	M8	3	14
180	30[6]	10	15	244,38	245,1	194	260	7	11	6,2	46	7	45	48	7,5	M8	3	14
200	30	10	15	274,4	271,12	215	285	7	11	6,2	46	7	45	48	7,5	M8	3	14
260	36,5	13,5	18	347	343,69	280	365	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
325	40	15	20	415,1	412,45	342	430	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
395	42,5	17,5	20	487,7	485,02	415	505	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34
460	46	19	22	560,9	557,6	482	580	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34

	Designation	Rigidity					
		Bearing position[8]			Rolling element set		
d		axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad	axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad
150	**YRTCM150-XL**[7]	3,8	3,2	18,6	12	4,8	61
180	**YRTCM180-XL**[7]	4,7	3,6	29	13,5	5,3	88,5
200	**YRTCM200-XL**[7]	4,9	4,1	40	15,5	6,2	128
260	**YRTCM260-XL**	6,9	5,3	104	19	8,1	265
325	**YRTCM325-XL**	7,1	6,3	159	33	9,9	633
395	**YRTCM395-XL**	9,9	5,8	280	37	13	1 002
460	**YRTCM460-XL**	12	6,5	429	43	17	1 543

Axial/radial bearings

Double direction
With incremental angular measuring system



YRTSM

d = 200 – 460 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speed		Mass	Designation
			axial		radial		axial	radial				
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	Electronic evaluation system and bearing n_G	Reference travel n_{Ref}	m	
			kN	kN	kN	kN	kN	kN	min^{-1}	min^{-1}	≈ kg	
200 0/–0,015	300 0/–0,018	45	155	840	94	226	93	32	1 160	30	9,7	**YRTSM200**[6]
260 0/–0,018	385 0/–0,02	55	173	1 050	110	305	108	40	910	25	18,3	**YRTSM260**
325 0/–0,023	450 0/–0,023	60	191	1 260	109	320	122	43	760	25	25	**YRTSM325**
395 0/–0,023	525 0/–0,028	65	214	1 540	121	390	142	49,5	650	15	33	**YRTSM395**
460 0/–0,023	600 0/–0,028	70	221	1 690	168	570	149	65	560	15	45	**YRTSM460**

medias *https://www.schaeffler.de/std/1F9A*

① Two retaining screws; ② Screw counterbores open (in the L-section ring to the bearing bore), bearing inside diameter is unsupported in this area

1) Including retaining screws or threaded extraction holes.

2) Diameter of inner ring for design of adjacent construction.

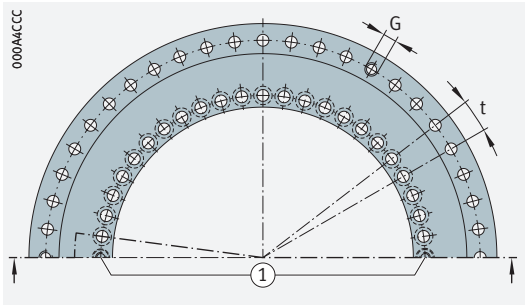
3) Diameter of dimensional scale on shaft locating washer.

4) Attention!
For fixing holes in the adjacent construction. Observe the pitch of the bearing holes.

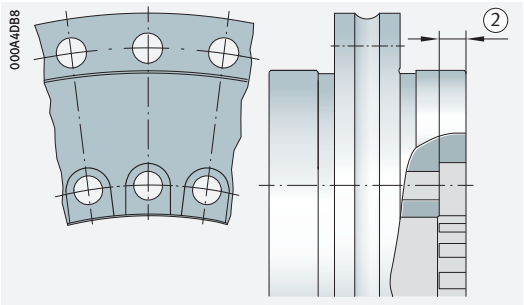
5) Tightening torque for screws to DIN EN ISO 4762, grade 10.9.

6) The measuring head cannot be mounted between the fixing holes or the heads of the fixing screws. Two holes for fixing screws therefore remain unused in the bearing outer ring.

7) Rigidity values taking account of the rolling element set, the deformation of the bearing rings and the screw connections. For explanations TPI 120.



Hole pattern



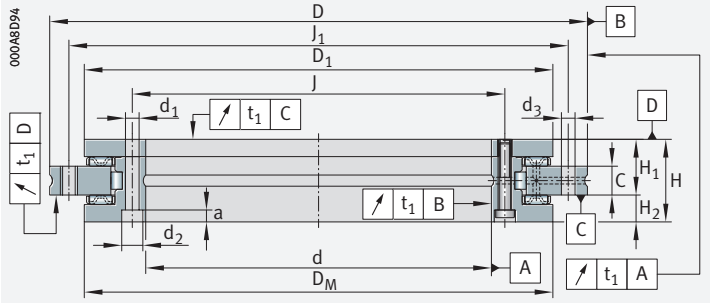
For YRTSM325

Dimensions								Fixing holes						Pitch[1]		Threaded extraction hole		Screw tightening torque
								Inner ring				Outer ring						
d	H_1	H_M	C	D_1[2] max.	D_M[3]	J	J_1	d_1	d_2	a	Quantity[4]	d_3	Quantity[4]	n	t °	G	Quantity	M_A[5] Nm
200	30	10	15	274,4	271,12	215	285	7	11	6,2	46	7	45	48	7,5	M8	3	14
260	36,5	13,5	18	347	343,69	280	365	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
325	40	15	20	415,1	412,45	342	430	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
395	42,5	17,5	20	487,7	485,02	415	505	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34
460	46	19	22	560,9	557,6	482	580	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34

	Designation	Rigidity					
		Bearing position[7]			Rolling element set		
d		axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad	axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad
200	**YRTSM200**[6]	4	1,2	29	13,6	3,9	101
260	**YRTSM260**	5,4	1,6	67	16,8	5,8	201
325	**YRTSM325**	6,6	1,8	115	19,9	7,1	350
395	**YRTSM395**	7,8	2	195	23,4	8,7	582
460	**YRTSM460**	8,9	1,8	280	25,4	9,5	843

Axial/radial bearings

Double direction
With absolute value angular measuring system



YRTCMA

d = 150 – 460 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speed[1]	Mass	Designation
			axial		radial		axial	radial			X-life ➤ 1382
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G	m	
			kN	kN	kN	kN	kN	kN	min^{-1}	≈ kg	
150 0/–0,013	240 0/–0,015	47	128	650	74	146	65	22,1	800	6,7	**YRTCMA150-XL**
180 0/–0,013	280 0/–0,018	50	134	730	100	200	69	29,5	600	8,5	**YRTCMA180-XL**
200 0/–0,015	300 0/–0,018	51[7]	147	850	123	275	78	39,5	450	10,7	**YRTCMA200-XL**
260 0/–0,018	385 0/–0,02	57,5[7]	168	1 090	140	355	94	47	300	18,7	**YRTCMA260-XL**
325 0/–0,023	450 0/–0,023	61	247	1 900	183	530	164	62	200	25	**YRTCMA325-XL**
395 0/–0,023	525 0/–0,028	65	265	2 190	200	640	180	71	200	33	**YRTCMA395-XL**
460 0/–0,023	600 0/–0,028	70	290	2 550	265	880	201	96	150	45	**YRTCMA460-XL**

medias *https://www.schaeffler.de/std/1F9A*

① Two retaining screws; ② Screw counterbores open (in the L-section ring to the bearing bore), bearing inside diameter is unsupported in this area; ③ Shaft locating washer; ④ Inner ring

1) For high operating durations or continuous operation, please contact us.

2) Including retaining screws or threaded extraction holes.

3) Diameter of shaft locating washer for design of adjacent construction.

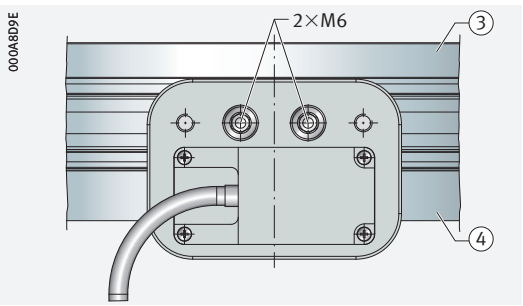
4) Diameter of dimensional scale on inner ring.

5) Attention!
For fixing holes in the adjacent construction. Observe the pitch of the bearing holes.

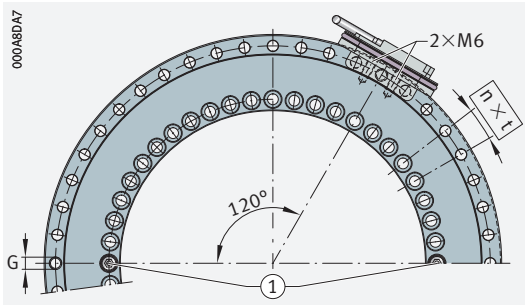
6) Tightening torque for screws to DIN EN ISO 4762, grade 10.9.

7) Dimension differs from the axial/radial bearing YRT.

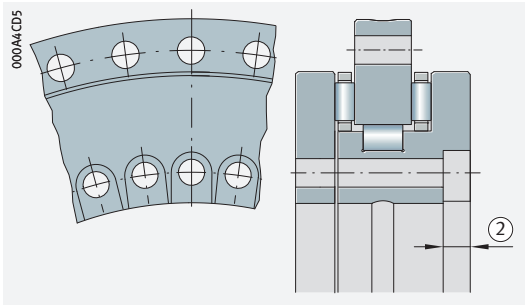
8) Rigidity values taking account of the rolling element set, the deformation of the bearing rings and the screw connections. For explanations TPI 120.



Measuring head suitable for radial screw mounting



Hole pattern, measuring head suitable for radial screw mounting



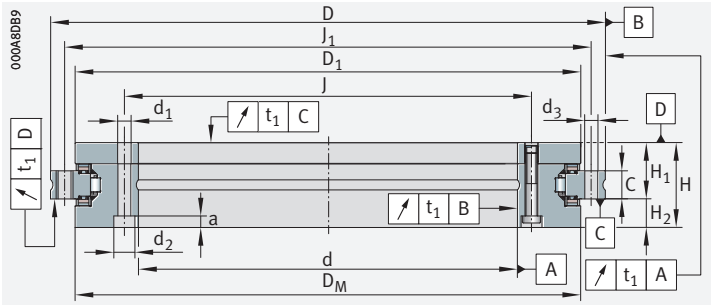
For YRTCMA325

Dimensions							Fixing holes						Pitch[2]		Threaded extraction hole		Screw tightening torque
							Inner ring				Outer ring						
d	H_1	C	D_1[3]	D_M[4] max.	J	J_1	d_1	d_2	a	Quantity[5]	d_3	Quantity[5]	n	t °	G	Quantity	M_A[6] Nm
150	26	12	214	214,5	165	225	7	11	6,2	34	7	33	36	10	M8	3	14
180	29	15	244	245,1	194	260	7	11	6,2	46	7	45	48	7,5	M8	3	14
200	30	15	274	274,4	215	285	7	11	6,2	46	7	45	48	7,5	M8	3	14
260	36,5	18	345	347	280	365	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
325	40	20	415	415,1	342	430	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
395	42,5	20	486	487,7	415	505	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34
460	46	22	560	560,9	482	580	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34

	Designation	Rigidity					
		Bearing position[8]			Rolling element set		
d		axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad	axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad
150	**YRTCMA150-XL**	3,8	3,2	18,6	12	4,8	61
180	**YRTCMA180-XL**	4,7	3,6	29	13,5	5,3	88,5
200	**YRTCMA200-XL**	4,9	4,1	40	15,5	6,2	128
260	**YRTCMA260-XL**	6,9	5,3	104	19	8,1	265
325	**YRTCMA325-XL**	7,1	6,3	159	33	9,9	633
395	**YRTCMA395-XL**	9,9	5,8	280	37	13	1 002
460	**YRTCMA460-XL**	12	6,5	429	43	17	1 543

Axial/radial bearings

Double direction
With absolute value angular measuring system



YRTSMA

d = 200 – 460 mm

Main dimensions			Basic load ratings				Fatigue limit load		Limiting speed[1]	Mass	Designation
			axial		radial		axial	radial			
d	D	H	dyn. C_a	stat. C_{0a}	dyn. C_r	stat. C_{0r}	C_{ua}	C_{ur}	n_G	m	
			kN	kN	kN	kN	kN	kN	min^{-1}	≈ kg	
200 0/–0,015	300 0/–0,018	51[7]	155	840	94	226	93	32	1 160	10,7	**YRTSMA200**
260 0/–0,018	385 0/–0,02	57,5[7]	173	1 050	110	305	108	40	910	18,7	**YRTSMA260**
325 0/–0,023	450 0/–0,023	61[7]	191	1 260	109	320	122	43	760	25	**YRTSMA325**
395 0/–0,023	525 0/–0,028	65	214	1 540	121	390	142	49,5	650	33	**YRTSMA395**
460 0/–0,023	600 0/–0,028	70	221	1 690	168	570	149	65	560	45	**YRTSMA460**

medias *https://www.schaeffler.de/std/1F9A*

① Two retaining screws; ② Screw counterbores open (in the L-section ring to the bearing bore), bearing inside diameter is unsupported in this area; ③ Shaft locating washer; ④ Inner ring

1) For high operating durations or continuous operation, please contact us.

2) Including retaining screws or threaded extraction holes.

3) Diameter of shaft locating washer for design of adjacent construction.

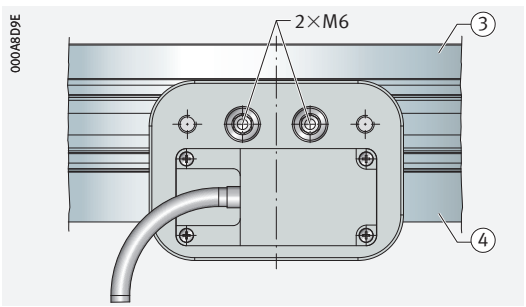
4) Diameter of dimensional scale on inner ring.

5) Attention!
For fixing holes in the adjacent construction. Observe the pitch of the bearing holes.

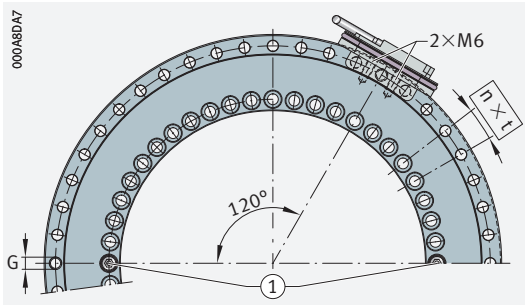
6) Tightening torque for screws to DIN EN ISO 4762, grade 10.9.

7) Dimension differs from the axial/radial bearing YRTS.

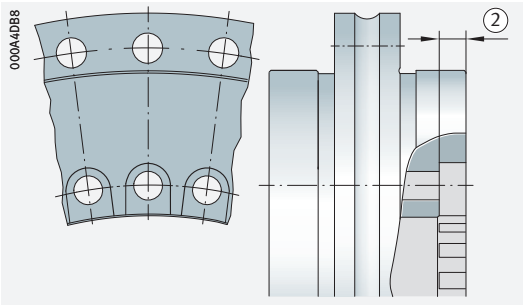
8) Rigidity values taking account of the rolling element set, the deformation of the bearing rings and the screw connections. For explanations TPI 120.



Measuring head suitable for radial screw mounting



Hole pattern, measuring head suitable for radial screw mounting



For YRTSMA325

Dimensions							Fixing holes						Pitch[2]		Threaded extraction hole		Screw tightening torque
							Inner ring				Outer ring						
d	H_1	C	D_1[3]	D_M[4] max.	J	J_1	d_1	d_2	a	Quantity[5]	d_3	Quantity[5]	n	t °	G	Quantity	M_A[6] Nm
200	30	15	274	274,4	215	285	7	11	6,2	46	7	45	48	7,5	M8	3	14
260	36,5	18	345	347	280	365	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
325	40	20	415	415,1	342	430	9,3	15	8,2	34	9,3	33	36	10	M12	3	34
395	42,5	20	486	487,7	415	505	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34
460	46	22	560	560,9	482	580	9,3	15	8,2	46	9,3	45	48	7,5	M12	3	34

	Designation	Rigidity					
		Bearing position[8]			Rolling element set		
d		axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad	axial c_{aL} kN/µm	radial c_{rL} kN/µm	Tilting rigidity c_{kL} kNm/mrad
200	**YRTSMA200**	4	1,2	29	13,6	3,9	101
260	**YRTSMA260**	5,4	1,6	67	16,8	5,8	201
325	**YRTSMA325**	6,6	1,8	115	19,9	7,1	350
395	**YRTSMA395**	7,8	2	195	23,4	8,7	582
460	**YRTSMA460**	8,9	1,8	280	25,4	9,5	843

4 App for super precision bearings

4.1 PrecisionDesk

✎ PrecisionDesk simplifies bearing selection and assists in the mounting of bearing arrangement components

The free-of-charge Schaeffler app PrecisionDesk for super precision bearings includes services for rotary and linear bearings of a high precision design ➤*1404*| *1*. It assists fitters and engineers in the selection and mounting of bearing arrangement components.



1
PrecisionDesk for super precision bearings

✎ Advantages

The advantage for the user is that the data can be accessed from any smartphone. For example, the app can be used to call off bearing-specific measurement records for spindle and rotary table bearings directly and store or send these for the purposes of documentation. For spindle bearings, it is possible to create electronic, bearing-specific data sets in the .csv format and use these, for example, for a logistics system.
The app offers Schaeffler customers the possibility of monitoring their own inventory and improving quality in mounting. With such a service tool, Schaeffler is a pioneer in the market.

✎ Access via DMC

Scanning the data matrix code (DMC) on the bearing or the bearing packaging gives access to the scope of performance of the program ➤*1404*| *2*.



2
Data matrix code on rolling bearing

✎ *Scope of performance*

The scope of performance of the app comprises ➤ *1405*|🗀 *3*:

- checking of data matrix codes (anti-piracy protection)
- measurement records for spindle and rotary table bearings
- recommendations for mounting
- performance data

🗀 **3**
Scope of performance of PrecisionDesk



000B7B74

✎ *Measurement records for spindle bearings*

The measurement records which can be generated contain the following ➤ *1405*|🗀 *4*:

- bearing ID
- designation
- date of manufacture
- actual value codes (bore diameter, outside diameter)
- width deviation
- contact angle
- overhang

🗀 **4**
Measurement record for spindle bearings



000B7B84

✎ *Recommendations for mounting*

- Correct grease quantity
- Grease distribution cycle
- Universal bearing sets
- Permissible heating temperatures
- Designation and marking

✎ *Performance data*

- Catalogue information
- Additional product information
- Direct access to Schaeffler Library

The PrecisionDesk app can be used on Android, IOS and Windows-based operating systems and can be downloaded from the corresponding app stores *https://www.schaeffler.de/std/1D59*.