



## Normal design

FAG spindle bearings are specially designed single row angular contact ball bearings from which they differ by their contact angle, the tolerances and the cage design. Spindle bearings are especially recommended for bearing arrangements requiring highest guiding precision standards, and top speed suitability. They are very well proven bearings for machine tool spindles, their main field of application.

For many years, FAG have supplied spindle bearings of series B719, B70 and B72 with steel balls. Balls of the same size but made of ceramic material are used for ceramic hybrid spindle bearings of series HCB719, HCB70 and HCB72.

High-speed spindle bearings of series HS719 and HS70 and the ceramic hybrid spindle bearings of series HC719 and HC70 have smaller balls of steel and ceramic material. They are suitable for still higher speeds at lower friction, less heat development and lower lubricant stressing resulting in a long service life.

Particularly cost-effective solutions are obtained with the sealed high-speed bearings of series HSS719 and HSS70 as well as with ceramic hybrid spindle bearings of series HCS719 and HCS70. These bearings have non-rubbing seals at both sides. They are grease-lubricated for life and are maintenance-free.

## Normal design

Spindle bearings of normal design are suffixed C.T.P4S or E.T.P4S. The suffix identifies the contact angle of 15° (C) or 25° (E), a solid window-type cage of textile-laminated phenolic resin (T) and the tolerance class P4S.

### Spindle bearings



B719, B70, B72

### High-speed spindle bearings



HSS719, HSS70  
two seals



HS719, HS70  
unsealed

### Ceramic hybrid spindle bearings



HCS719, HCS70  
two seals



HC719, HC70  
unsealed



HCB719, HCB70,  
HCB72

All spindle bearings are available with the contact angle  $\alpha = 15^\circ$  (C) or with the contact angle  $\alpha = 25^\circ$  (E)

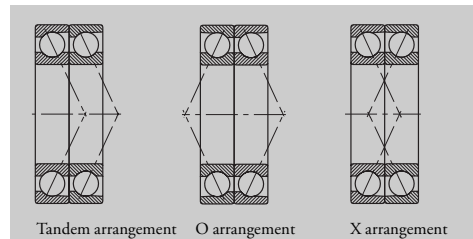
# FAG Spindle Bearings

Universal design · Bearing sets · Sealed spindle bearings · Tolerances

## Universal design

Spindle bearings of universal design are intended for mounting in pairs in X, O or tandem arrangement or for group mounting in any arrangement. Bearing pairs of universal design UL have a light preload before mounting in O and X arrangement. With tight fits the preload of the bearing pair is increased (see FAG publ no. AC 41 130 for the machining tolerances of the bearing seats).

When ordering, please state the number of individual bearings, not the number of bearing pairs or bearing sets.



## Bearing sets

Universal bearings of the same grade (same bores and same outside diameters) are available also as sets. The user can mount them in any arrangement. Sets with a light preload are identified by

DUL: 2 bearings, duplex

TUL: 3 bearings, triplex

QUL: 4 bearings, quadruplex

When ordering, please state the number of bearing sets and not the number of single bearings.

Example of order:

1-HSS7015C.T.P4S.DUL

Two spindle bearings of universal design in one package (optional arrangement), light preload before mounting.

FAG supply complete bearing sets consisting of two, three or four spindle bearings of varying arrangements, the coding system is shown on page 203. The suffix for the preload is added, without a point to the letter combination.

Example of order:

1-HSS7012C.T.P4S.DBL

Two spindle bearings in O arrangement, light preload before mounting.

## Sealed spindle bearings

FAG supply high-speed spindle bearings HSS70 and HSS719 as well as ceramic hybrid bearings HCS70 and HCS719 lubricated for life and with non-rubbing RSD seals on both sides. Grease type, grease quantity and sealing are selected in such a way that the bearings run at low temperatures even at the highest speeds for a long time. The maintenance-free bearings are interchangeable with unsealed bearings of dimensional series 70 and 719. Due to the little expenditure required for mounting, lubrication, maintenance as well as the long service life, sealed spindle bearings are cost-effective solutions.

## Tolerances

FAG spindle bearings, high-speed spindle bearings, and ceramic hybrid spindle bearings are only available with narrow tolerances. P4S is the standard tolerance class. In this tolerance class the dimensional and form accuracies correspond to ISO tolerance class P4 and the running precision of the bearings to tolerance class P2.

The deviation from nominal dimension of bore and outside diameter of the spindle bearings are stamped on the faces of the inner and outer rings (designation e.g. <-2>) and on the packaging. The values are stamped on the packaging in the order of bore diameter/outside diameter.

Example of packaging marking

HSS7010C.T.P4S.UL

\*-1/-4\*

The spindle bearing tolerances are shown on page 60.

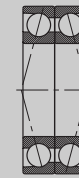
The width tolerances of FAG spindle bearings of universal designs are given in the table below.

Nominal bore diameter		Dimensions in mm				
over to		50	80	120	180	315
Tolerance class	P4S	Width deviation $\Delta_{B_{95}}$ [ $\mu\text{m}$ ]				
		0	0	0	0	0
		-250	-250	-380	-380	-500

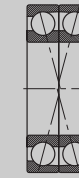
# FAG Spindle Bearings

Bearing sets

## Sets with 2 bearings (D)



DB  
O arrangement



DF  
X arrangement



DT  
Tandem arrangement

## Sets with 3 bearings (T)



TBT  
Combined O and  
tandem arrangement



TFT  
Combined X and  
tandem arrangement



TT  
Tandem arrangement

## Sets with 4 bearings (Q)



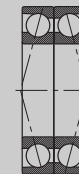
QBC  
O arrangement



QFC  
X arrangement



QT  
Tandem arrangement



QBT  
Combined O and  
tandem arrangement



QFT  
Combined X and  
tandem arrangement

# FAG Spindle Bearings

Cages · Speed suitability · Heat treatment · Equivalent dynamic load

## Cages

The standard cage of spindle bearings is an outer ring riding machined window-type cage of textile-laminated phenolic resin (suffix T). The cage is suitable for long-term operation at temperatures up to 100 °C.

## Speed suitability

The standard DIN 732 part 1 (thermal reference speed) is not applicable to these precision bearings.

The attainable speeds listed for spindle bearings apply to elastically preloaded and lightly loaded single bearings. The speeds for grease lubrication are maximum values which are reached, for example, using the FAG rolling bearing grease Arcanol L74V. The values for oil lubrication apply to throwaway lubrication, for example, oil-air lubrication. The speed values can be increased with cooling lubrication. Since a considerable amount of oil must be pumped through the bearing to carry away heat, the resistance to rotation may increase.

The high speeds of single bearings are not reached if spindle bearings are mounted in pairs or are preloaded to increase the rigidity of the arrangement. The table shows the reduction factors for rigidly arranged bearings subjected to light preload.

### ▼ Speed reduction at light preload and mounting in pairs

Bearing arrangement	Speed reduction
	$0.85 \cdot n^*$
	$0.75 \cdot n^*$
	$0.65 \cdot n^*$

\*Take attainable speed from tables  
With tandem pairs and elastic preload approx.  $0.9 \cdot n^*$  is reached.

## Heat treatment

FAG spindle bearings are heat-treated in such a way that they can be used at operating temperatures of up to 150 °C. Bearings with outside diameters of more than 240 mm are dimensionally stable up to 200 °C. The temperature limit of application of the textile laminated phenolic resin cage must be observed.

## Equivalent dynamic load

Spindle bearings with a contact angle of  $\alpha = 15^\circ$  (suffix C)

$$P = F_r \quad [\text{kN}] \text{ for } \frac{F_a}{F_r} \leq e$$

$$P = 0.44 \cdot F_r + Y \cdot F_a \quad [\text{kN}] \text{ for } \frac{F_a}{F_r} > e$$

The thrust factor Y and the value e depend on the ratio

$$\frac{f_0 \cdot F_a}{i \cdot C_0} \quad \text{with the small contact angle } \alpha = 15^\circ.$$

$\frac{f_0 \cdot F_a}{i \cdot C_0}$	e	Y
0.3	0.4	1.4
0.5	0.43	1.31
0.9	0.45	1.23
1.6	0.48	1.16
3	0.52	1.08
6	0.56	1

$f_0$  take value from the table, page 205  
 $C_0$  static load rating of the single bearing [kN]  
i number of bearings carrying the thrust load

Spindle bearings with a contact angle of  $\alpha = 25^\circ$  (suffix E)

$$P = F_r \quad [\text{kN}] \text{ for } \frac{F_a}{F_r} \leq 0.68$$

$$P = 0.41 \cdot F_r + 0.87 \cdot F_a \quad [\text{kN}] \text{ for } \frac{F_a}{F_r} > 0.68$$

# FAG Spindle Bearings

Equivalent loads · Static load rating · Abutment dimensions · Suffixes

### ▼ Factor $f_0$ for spindle bearings with a contact angle of $\alpha = 15^\circ$

Bore reference number	Factor $f_0$				
	Bearing series				
	B719C	B70C	B72C	HSS719C HCS719C	HSS70C HCS70C
00	14.2	12.6	12.3	15.3	15.5
01	14.7	13.2	12.9	15.7	15.5
02	14.5	14.1	13.6	15.8	15.8
03	14.8	14.3	13.9	16	15.9
04	14.2	14.3	13.8	16.2	16.1
05	14.9	14.9	14.4	16.5	16.2
06	15.4	15.1	14.3	16.4	16.3
07	15.9	15.4	14.6	16.4	16.5
08	15.5	15.7	14.2	16.2	16.5
09	15.8	15.5	14.2	16.3	16.5
10	16	15.7	14.4	16.2	16.5
11	16	15.5	14.5	16.1	16.5
12	16.2	15.6	14.4	16.2	16.4
13	16.4	15.9	14.5	16.1	16.4
14	16.2	15.6	14.6	16.1	16.4
15	16.3	15.8	14.8	16.1	16.3
16	16.4	15.7	14.8	16.1	16.3
17	16.3	15.9	14.9	16	16.3
18	16.4	15.7	14.8	16	16.3
19	16.4	15.9	14.9	15.9	16.3
20	16.5	16	14.5	16	16.2
21	16.4	15.9	14.5	15.9	16.3
22	16.4	15.8	14.5	16	16.2
24	16.4	16	14.9	15.9	16.3
26	16.4	15.9	14.7	15.9	16.2
28	16.4	16	15		
30	16.3	16	15.3		
32	16.4	16.2	15.3		
34	16.5	15.9	15.4		
36	16.4	15.7	15.4		
38	16.4	15.9	15.2		
40	16.2	15.8	15.4		
44	16.4	15.7	15.3		
48	16.5	15.9			

## Static load rating

For the quietness of running required of the bearings the index of static stressing  $f_s$  should be higher than 3.

$$f_s = C_0/P_0$$

$C_0$  static load rating [kN] given in the bearing tables, for more than one bearings

$$C_0 = i \cdot C_{0 \text{ single bearing}}$$

i = number of single bearings

$P_0$  equivalent static load

Spindle bearings with contact angle  $\alpha = 15^\circ$  (suffix C)

$$P_0 = F_r \quad [\text{kN}] \text{ for } \frac{F_a}{F_r} \leq 1.09$$

$$P_0 = 0.5 \cdot F_r + 0.46 \cdot F_a \quad [\text{kN}] \text{ for } \frac{F_a}{F_r} > 1.09$$

Spindle bearings with contact angle  $\alpha = 25^\circ$  (suffix E)

$$P_0 = F_r \quad [\text{kN}] \text{ for } \frac{F_a}{F_r} \leq 1.3$$

$$P_0 = 0.5 \cdot F_r + 0.38 \cdot F_a \quad [\text{kN}] \text{ for } \frac{F_a}{F_r} > 1.3$$

## Abutment dimensions

See page 123 for general information on the abutment dimensions.

The tables list the maximum fillet radius  $r_g$  and the diameters of the abutment shoulders.

## Suffixes

C contact angle  $15^\circ$

E contact angle  $25^\circ$

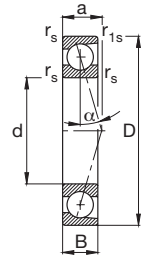
P4S tolerance class P4S

T solid window-type cage of textile laminated phenolic resin

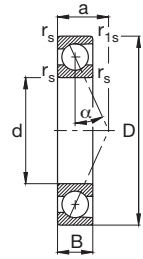
UL universal design for mounting, e.g. in pairs, O and X arranged bearings are lightly preloaded

# FAG Spindle Bearings

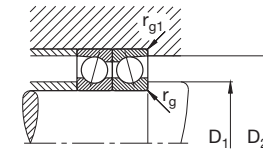
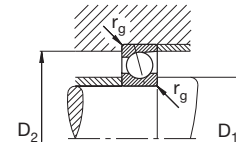
Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.



B719C, B70C, B72C  
Contact angle  $\alpha = 15^\circ$



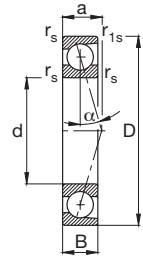
B719E, B70E, B72E  
Contact angle  $\alpha = 25^\circ$



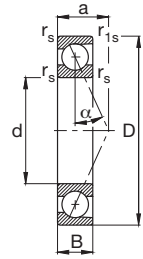
Shaft	Dimensions						Mass ≈ kg	Load rating		Attainable Speed		Code Bearing FAG	Abutment dimensions			
	d mm	D	B	$r_s$ min	$r_{1s}$ min	a ≈		dyn. C kN	stat. C <sub>0</sub>	Grease min <sup>-1</sup>	Oil throwaway		D <sub>1</sub> h12 mm	D <sub>2</sub> H12	r <sub>g</sub> max	r <sub>g1</sub> max
10	10	22	6	0.3	0.15	5	0.01	3.9	1.8	70000	110000	B71900C.T.P4S.UL	12	19.5	0.3	0.1
	10	22	6	0.3	0.15	7	0.01	3.75	1.73	63000	95000	B71900E.T.P4S.UL	12	19.5	0.3	0.1
	10	26	8	0.3	0.3	6	0.02	5.3	2.5	60000	90000	B7000C.T.P4S.UL	13	22.5	0.3	0.1
	10	26	8	0.3	0.3	8	0.02	5.1	2.4	56000	85000	B7000E.T.P4S.UL	13	22.5	0.3	0.1
	10	30	9	0.6	0.6	7	0.03	6.95	3.35	53000	80000	B7200C.T.P4S.UL	14.5	26	0.6	0.6
	10	30	9	0.6	0.6	9	0.03	6.8	3.25	48000	70000	B7200E.T.P4S.UL	14.5	26	0.6	0.6
12	12	24	6	0.3	0.15	5	0.01	4.5	2.28	60000	90000	B71901C.T.P4S.UL	14	21.5	0.3	0.1
	12	24	6	0.3	0.15	7	0.01	4.3	2.2	56000	85000	B71901E.T.P4S.UL	14	21.5	0.3	0.1
	12	28	8	0.3	0.3	5	0.02	5.85	2.9	53000	80000	B7001C.T.P4S.UL	14.5	25.5	0.3	0.1
	12	28	8	0.3	0.3	6	0.02	5.6	2.8	50000	75000	B7001E.T.P4S.UL	14.5	25.5	0.3	0.1
	12	32	10	0.6	0.6	8	0.04	8	3.9	50000	75000	B7201C.T.P4S.UL	16	28	0.6	0.6
	12	32	10	0.6	0.6	10	0.04	7.65	3.75	45000	67000	B7201E.T.P4S.UL	16	28	0.6	0.6
15	15	28	7	0.3	0.15	6	0.01	5	2.9	50000	75000	B71902C.T.P4S.UL	18	25.5	0.3	0.1
	15	28	7	0.3	0.15	9	0.01	4.8	2.75	45000	67000	B71902E.T.P4S.UL	18	25.5	0.3	0.1
	15	32	9	0.3	0.3	8	0.03	6.2	3.4	48000	70000	B7002C.T.P4S.UL	18.5	28	0.3	0.1
	15	32	9	0.3	0.3	10	0.03	6	3.25	43000	63000	B7002E.T.P4S.UL	18.5	28	0.3	0.1
	15	35	11	0.6	0.6	9	0.04	9.65	5	45000	67000	B7202C.T.P4S.UL	18.5	31	0.6	0.6
	15	35	11	0.6	0.6	11	0.04	9.3	4.8	40000	60000	B7202E.T.P4S.UL	18.5	31	0.6	0.6
17	17	30	7	0.3	0.15	7	0.02	5.3	3.15	48000	70000	B71903C.T.P4S.UL	19.5	27	0.3	0.1
	17	30	7	0.3	0.15	9	0.02	5	3	43000	63000	B71903E.T.P4S.UL	19.5	27	0.3	0.1
	17	35	10	0.3	0.3	9	0.04	8.65	4.9	43000	63000	B7003C.T.P4S.UL	20	31.5	0.3	0.1
	17	35	10	0.3	0.3	11	0.04	8.3	4.75	38000	56000	B7003E.T.P4S.UL	20	31.5	0.3	0.1
	17	40	12	0.6	0.6	10	0.07	10.8	5.85	38000	56000	B7203C.T.P4S.UL	21.5	35	0.6	0.6
	17	40	12	0.6	0.6	13	0.07	10.4	5.6	36000	53000	B7203E.T.P4S.UL	21.5	35	0.6	0.6
20	20	37	9	0.3	0.15	8	0.04	9.15	5.5	38000	56000	B71904C.T.P4S.UL	22.5	34	0.3	0.1
	20	37	9	0.3	0.15	11	0.04	8.8	5.3	36000	53000	B71904E.T.P4S.UL	22.5	34	0.3	0.1
	20	42	12	0.6	0.6	10	0.07	10.4	6	36000	53000	B7004C.T.P4S.UL	24.5	37	0.6	0.3
	20	42	12	0.6	0.6	13	0.07	10	5.7	32000	48000	B7004E.T.P4S.UL	24.5	37	0.6	0.3
	20	47	14	1	1	12	0.11	14.6	8.15	32000	48000	B7204C.T.P4S.UL	25.5	41.5	1	1
	20	47	14	1	1	15	0.11	14	7.8	30000	45000	B7204E.T.P4S.UL	25.5	41.5	1	1
25	25	42	9	0.3	0.15	9	0.04	10	6.7	32000	48000	B71905C.T.P4S.UL	27.5	39	0.3	0.1
	25	42	9	0.3	0.15	12	0.04	9.5	6.4	30000	45000	B71905E.T.P4S.UL	27.5	39	0.3	0.1
	25	47	12	0.6	0.6	11	0.08	14.6	9.15	30000	45000	B7005C.T.P4S.UL	28.5	43	0.6	0.3
	25	47	12	0.6	0.6	14	0.08	13.7	8.65	28000	43000	B7005E.T.P4S.UL	28.5	43	0.6	0.3

# FAG Spindle Bearings

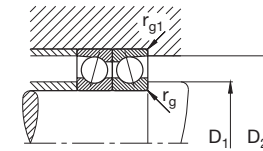
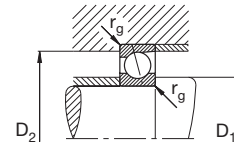
Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.



B719C, B70C, B72C  
Contact angle  $\alpha = 15^\circ$



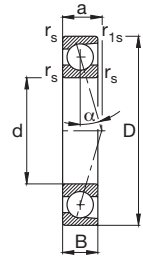
B719E, B70E, B72E  
Contact angle  $\alpha = 25^\circ$



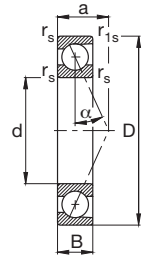
Shaft	Dimensions						Mass ≈ kg	Load rating		Attainable Speed		Code Bearing FAG	Abutment dimensions			
	d mm	D	B	r <sub>s</sub> min	r <sub>1s</sub> min	a ≈		dyn. C kN	stat. C <sub>0</sub>	Grease min <sup>-1</sup>	Oil throwaway		D <sub>1</sub> h12 mm	D <sub>2</sub> H12	r <sub>g</sub> max	r <sub>g1</sub> max
25	25	52	15	1	1	13	0.13	15.6	9.3	28000	43000	B7205C.T.P4S.UL	30.5	46.5	1	1
	25	52	15	1	1	17	0.13	15	9	26000	40000	B7205E.T.P4S.UL	30.5	46.5	1	1
30	30	47	9	0.3	0.15	10	0.05	10.8	7.8	28000	43000	B71906C.T.P4S.UL	32.5	44	0.3	0.1
	30	47	9	0.3	0.15	14	0.05	10.2	7.35	26000	40000	B71906E.T.P4S.UL	32.5	44	0.3	0.1
	30	55	13	1	1	12	0.12	15	10.2	26000	40000	B7006C.T.P4S.UL	35.5	50	1	0.3
	30	55	13	1	1	17	0.12	14.3	9.8	24000	38000	B7006E.T.P4S.UL	35.5	50	1	0.3
	30	62	16	1	1	14	0.2	23.2	14.6	24000	38000	B7206C.T.P4S.UL	36.5	55.5	1	1
	30	62	16	1	1	19	0.2	22	14	22000	36000	B7206E.T.P4S.UL	36.5	55.5	1	1
35	35	55	10	0.6	0.3	11	0.08	14.3	10.8	24000	38000	B71907C.T.P4S.UL	39	51.5	0.6	0.1
	35	55	10	0.6	0.3	16	0.08	13.4	10.4	22000	36000	B71907E.T.P4S.UL	39	51.5	0.6	0.1
	35	62	14	1	1	14	0.16	19	13.7	22000	36000	B7007C.T.P4S.UL	40.5	56	1	0.3
	35	62	14	1	1	18	0.16	18.3	12.9	20000	34000	B7007E.T.P4S.UL	40.5	56	1	0.3
	35	72	17	1.1	1.1	16	0.28	30.5	20	20000	34000	B7207C.T.P4S.UL	42	64.5	1	1
	35	72	17	1.1	1.1	21	0.28	29	19	19000	32000	B7207E.T.P4S.UL	42	64.5	1	1
40	40	62	12	0.6	0.3	13	0.11	17.6	13.7	22000	36000	B71908C.T.P4S.UL	43.5	58	0.6	0.1
	40	62	12	0.6	0.3	18	0.11	16.6	13.2	20000	34000	B71908E.T.P4S.UL	43.5	58	0.6	0.1
	40	68	15	1	1	15	0.2	20.4	16	20000	34000	B7008C.T.P4S.UL	46	61.5	1	0.3
	40	68	15	1	1	20	0.2	19.6	15	19000	32000	B7008E.T.P4S.UL	46	61.5	1	0.3
	40	80	18	1.1	1.1	17	0.38	32	22.4	18000	30000	B7208C.T.P4S.UL	48.5	71	1	1
	40	80	18	1.1	1.1	23	0.38	30.5	21.6	17000	28000	B7208E.T.P4S.UL	48.5	71	1	1
45	45	68	12	0.6	0.3	14	0.13	18.6	15.6	19000	32000	B71909C.T.P4S.UL	49	63.5	0.6	0.1
	45	68	12	0.6	0.3	19	0.13	17.6	15	18000	30000	B71909E.T.P4S.UL	49	63.5	0.6	0.1
	45	75	16	1	1	16	0.24	27.5	21.2	18000	30000	B7009C.T.P4S.UL	50	69.5	1	0.3
	45	75	16	1	1	22	0.24	26.5	20	17000	28000	B7009E.T.P4S.UL	50	69.5	1	0.3
	45	85	19	1.1	1.1	18	0.4	40.5	29	17000	28000	B7209C.T.P4S.UL	52	77.5	1	1
	45	85	19	1.1	1.1	25	0.4	39	27.5	15000	24000	B7209E.T.P4S.UL	52	77.5	1	1
50	50	72	12	0.6	0.3	14	0.13	19	16.6	18000	30000	B71910C.T.P4S.UL	53.5	68	0.6	0.1
	50	72	12	0.6	0.3	20	0.13	18	15.6	16000	26000	B71910E.T.P4S.UL	53.5	68	0.6	0.1
	50	80	16	1	1	17	0.26	28.5	22.8	17000	28000	B7010C.T.P4S.UL	55	74.5	1	0.3
	50	80	16	1	1	23	0.26	27	21.6	15000	24000	B7010E.T.P4S.UL	55	74.5	1	0.3
	50	90	20	1.1	1.1	19	0.46	43	31.5	16000	26000	B7210C.T.P4S.UL	57	82.5	1	1
	50	90	20	1.1	1.1	26	0.45	40.5	30.5	14000	22000	B7210E.T.P4S.UL	57	82.5	1	1

# FAG Spindle Bearings

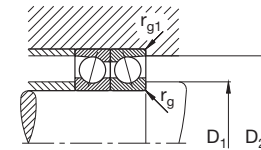
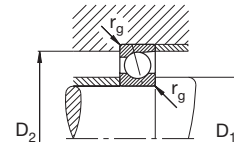
Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.



B719C, B70C, B72C  
Contact angle  $\alpha = 15^\circ$



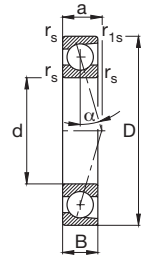
B719E, B70E, B72E  
Contact angle  $\alpha = 25^\circ$



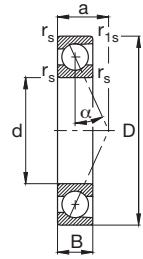
Shaft	Dimensions						Mass ≈ kg	Load rating		Attainable Speed		Code Bearing FAG	Abutment dimensions			
	d mm	D	B	r <sub>s</sub> min	r <sub>1s</sub> min	a ≈		dyn. C kN	stat. C <sub>0</sub>	Grease min <sup>-1</sup>	Oil throwaway		D <sub>1</sub> h12 mm	D <sub>2</sub> H12	r <sub>g</sub> max	r <sub>g1</sub> max
55	55	80	13	1	0.3	16	0.18	22.8	20.4	16000	26000	B71911C.T.P4S.UL	59.5	75	0.6	0.3
	55	80	13	1	0.3	22	0.18	21.6	19.3	15000	24000	B71911E.T.P4S.UL	59.5	75	0.6	0.3
	55	90	18	1.1	1.1	19	0.37	38	31	15000	24000	B7011C.T.P4S.UL	61	83.5	1	0.6
	55	90	18	1.1	1.1	26	0.37	36	29	14000	22000	B7011E.T.P4S.UL	61	83.5	1	0.6
	55	100	21	1.5	1.5	21	0.61	53	40	14000	22000	B7211C.T.P4S.UL	63	91.5	1.5	1.5
	55	100	21	1.5	1.5	29	0.61	50	38	13000	20000	B7211E.T.P4S.UL	63	91.5	1.5	1.5
60	60	85	13	1	0.3	16	0.2	24	22.8	15000	24000	B71912C.T.P4S.UL	64.5	80	0.6	0.3
	60	85	13	1	0.3	23	0.2	22.8	21.6	14000	22000	B71912E.T.P4S.UL	64.5	80	0.6	0.3
	60	95	18	1.1	1.1	19	0.4	39	33.5	14000	22000	B7012C.T.P4S.UL	66	88.5	1	0.6
	60	95	18	1.1	1.1	27	0.4	36.5	31.5	13000	20000	B7012E.T.P4S.UL	66	88.5	1	0.6
	60	110	22	1.5	1.5	23	0.8	55	44	13000	20000	B7212C.T.P4S.UL	71	99.5	1.5	1.5
	60	110	22	1.5	1.5	31	0.79	52	42.5	12000	19000	B7212E.T.P4S.UL	71	99.5	1.5	1.5
65	65	90	13	1	0.3	17	0.2	24.5	24	14000	22000	B71913C.T.P4S.UL	69.5	85	0.6	0.3
	65	90	13	1	0.3	25	0.2	22.8	22.4	13000	20000	B71913E.T.P4S.UL	69.5	85	0.6	0.3
	65	100	18	1.1	1.1	20	0.42	40	35.5	13000	20000	B7013C.T.P4S.UL	71	93.5	1	0.6
	65	100	18	1.1	1.1	28	0.42	38	33.5	12000	19000	B7013E.T.P4S.UL	71	93.5	1	0.6
	65	120	23	1.5	1.5	24	1.01	67	54	12000	19000	B7213C.T.P4S.UL	76.5	108	1.5	1.5
	65	120	23	1.5	1.5	33	1.01	64	52	11000	18000	B7213E.T.P4S.UL	76.5	108	1.5	1.5
70	70	100	16	1	0.3	19	0.33	33.5	32.5	13000	20000	B71914C.T.P4S.UL	75	94.5	0.6	0.3
	70	100	16	1	0.3	28	0.33	31.5	31	12000	19000	B71914E.T.P4S.UL	75	94.5	0.6	0.3
	70	110	20	1.1	1.1	22	0.59	50	43	12000	19000	B7014C.T.P4S.UL	77	102.5	1	0.6
	70	110	20	1.1	1.1	31	0.59	46.5	41.5	11000	18000	B7014E.T.P4S.UL	77	102.5	1	0.6
	70	125	24	1.5	1.5	25	1.1	69.5	58.5	11000	18000	B7214C.T.P4S.UL	81.5	113	1.5	1.5
	70	125	24	1.5	1.5	35	1.1	65.5	56	10000	17000	B7214E.T.P4S.UL	81.5	113	1.5	1.5
75	75	105	16	1	0.3	20	0.35	34	34.5	12000	19000	B71915C.T.P4S.UL	80	99.5	0.6	0.3
	75	105	16	1	0.3	29	0.35	32	32.5	11000	18000	B71915E.T.P4S.UL	80	99.5	0.6	0.3
	75	115	20	1.1	1.1	23	0.62	51	46.5	12000	19000	B7015C.T.P4S.UL	82	107.5	1	0.6
	75	115	20	1.1	1.1	32	0.61	48	44	11000	18000	B7015E.T.P4S.UL	82	107.5	1	0.6
	75	130	25	1.5	1.5	26	1.21	72	63	11000	18000	B7215C.T.P4S.UL	86.5	118	1.5	1.5
	75	130	25	1.5	1.5	36	1.2	68	60	9500	16000	B7215E.T.P4S.UL	86.5	118	1.5	1.5
80	80	110	16	1	0.3	21	0.37	34.5	36	12000	19000	B71916C.T.P4S.UL	85	104.5	0.6	0.3
	80	110	16	1	0.3	30	0.37	32.5	34	11000	18000	B71916E.T.P4S.UL	85	104.5	0.6	0.3
	80	125	22	1.1	1.1	25	0.84	63	58.5	11000	18000	B7016C.T.P4S.UL	88	116.5	1	0.6
	80	125	22	1.1	1.1	35	0.83	60	55	9500	16000	B7016E.T.P4S.UL	88	116.5	1	0.6

# FAG Spindle Bearings

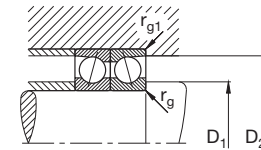
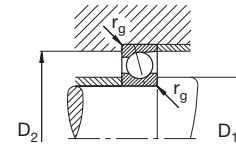
Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.



B719C, B70C, B72C  
Contact angle  $\alpha = 15^\circ$



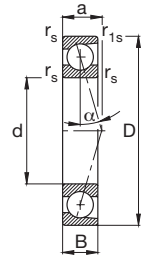
B719E, B70E, B72E  
Contact angle  $\alpha = 25^\circ$



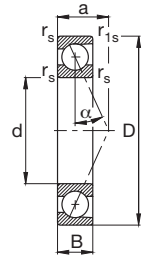
Shaft	Dimensions						Mass ≈ kg	Load rating		Attainable Speed		Code Bearing FAG	Abutment dimensions			
	d mm	D	B	$r_s$ min	$r_{1s}$ min	a ≈		dyn. C kN	stat. C <sub>0</sub>	Grease min <sup>-1</sup>	Oil throwaway		D <sub>1</sub> h12 mm	D <sub>2</sub> H12	$r_g$ max	$r_{g1}$ max
80	80	140	26	2	2	28	1.43	93	78	10000	17000	B7216C.T.P4S.UL	90.5	129	2	2
	80	140	26	2	2	39	1.42	88	73.5	9000	15000	B7216E.T.P4S.UL	90.5	129	2	2
85	85	120	18	1.1	0.6	23	0.53	45	46.5	11000	18000	B71917C.T.P4S.UL	91	113.5	0.6	0.6
	85	120	18	1.1	0.6	33	0.52	42.5	44	9500	16000	B71917E.T.P4S.UL	91	113.5	0.6	0.6
	85	130	22	1.1	1.1	25	0.88	65.5	62	10000	17000	B7017C.T.P4S.UL	93	121.5	1	0.6
	85	130	22	1.1	1.1	36	0.88	62	58.5	9000	15000	B7017E.T.P4S.UL	93	121.5	1	0.6
	85	150	28	2	2	30	1.81	96.5	85	9000	15000	B7217C.T.P4S.UL	98.5	137	2	2
	85	150	28	2	2	42	1.8	91.5	80	8000	13000	B7217E.T.P4S.UL	98.5	137	2	2
90	90	125	18	1.1	0.6	23	0.56	45.5	49	10000	17000	B71918C.T.P4S.UL	96	118.5	0.6	0.6
	90	125	18	1.1	0.6	34	0.56	43	46.5	9000	15000	B71918E.T.P4S.UL	96	118.5	0.6	0.6
	90	140	24	1.5	1.5	27	1.14	76.5	72	9500	16000	B7018C.T.P4S.UL	99	130.5	1.5	0.6
	90	140	24	1.5	1.5	39	1.13	72	68	8500	14000	B7018E.T.P4S.UL	99	130.5	1.5	0.6
	90	160	30	2	2	32	2.2	122	104	8500	14000	B7218C.T.P4S.UL	103	147.5	2	2
	90	160	30	2	2	44	2.19	116	100	7500	12000	B7218E.T.P4S.UL	103	147.5	2	2
95	95	130	18	1.1	0.6	24	0.58	46.5	51	9500	16000	B71919C.T.P4S.UL	101	123.5	0.6	0.6
	95	130	18	1.1	0.6	35	0.57	44	48	8500	14000	B71919E.T.P4S.UL	101	123.5	0.6	0.6
	95	145	24	1.5	1.5	28	1.19	78	76.5	9000	15000	B7019C.T.P4S.UL	104	135.5	1.5	0.6
	95	145	24	1.5	1.5	40	1.18	75	72	8000	13000	B7019E.T.P4S.UL	104	135.5	1.5	0.6
	95	170	32	2.1	2.1	34	2.73	127	114	8000	13000	B7219C.T.P4S.UL	110	154.5	2	2
	95	170	32	2.1	2.1	47	2.72	122	108	7000	11000	B7219E.T.P4S.UL	110	154.5	2	2
100	100	140	20	1.1	0.6	26	0.78	58.5	64	9000	15000	B71920C.T.P4S.UL	108	133.5	0.6	0.6
	100	140	20	1.1	0.6	38	0.78	55	60	8000	13000	B71920E.T.P4S.UL	108	133.5	0.6	0.6
	100	150	24	1.5	1.5	29	1.24	81.5	81.5	8500	14000	B7020C.T.P4S.UL	109	140.5	1.5	0.6
	100	150	24	1.5	1.5	41	1.23	76.5	76.5	7500	12000	B7020E.T.P4S.UL	109	140.5	1.5	0.6
	100	180	34	2.1	2.1	36	3.21	156	137	7500	12000	B7220C.T.P4S.UL	114.5	165	2.1	2.1
	100	180	34	2.1	2.1	50	3.2	150	129	6700	10000	B7220E.T.P4S.UL	114.5	165	2.1	2.1
105	105	145	20	1.1	0.6	27	0.81	58.5	64	8500	14000	B71921C.T.P4S.UL	112	137.5	0.6	0.6
	105	145	20	1.1	0.6	39	0.81	55	60	7500	12000	B71921E.T.P4S.UL	112	137.5	0.6	0.6
	105	160	26	2	2	31	1.52	106	102	8000	13000	B7021C.T.P4S.UL	113	151.5	2	1
	105	160	26	2	2	44	1.51	102	98	7000	11000	B7021E.T.P4S.UL	113	151.5	2	1
	105	190	36	2.1	2.1	38	3.88	163	146	7000	11000	B7221C.T.P4S.UL	122	172.5	2.1	2.1
	105	190	36	2.1	2.1	52	3.88	156	140	6300	9500	B7221E.T.P4S.UL	122	172.5	2.1	2.1

# FAG Spindle Bearings

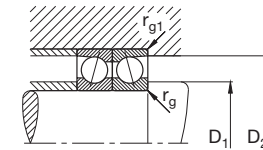
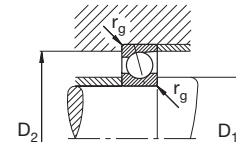
Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.



B719C, B70C, B72C  
Contact angle  $\alpha = 15^\circ$



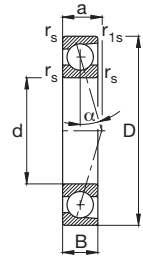
B719E, B70E, B72E  
Contact angle  $\alpha = 25^\circ$



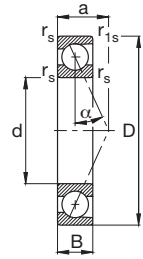
Shaft	Dimensions						Mass ≈ kg	Load rating		Attainable Speed		Code Bearing FAG	Abutment dimensions			
	d mm	D	B	$r_s$ min	$r_{1s}$ min	a ≈		dyn. C kN	stat. C <sub>0</sub>	Grease min <sup>-1</sup>	Oil throwaway		D <sub>1</sub> h12 mm	D <sub>2</sub> H12	$r_g$ max	$r_{g1}$ max
110	110	150	20	1.1	0.6	27	0.85	58.5	67	8000	13000	B71922C.T.P4S.UL	117	142.5	0.6	0.6
	110	150	20	1.1	0.6	40	0.84	56	63	7500	12000		B71922E.T.P4S.UL	117	142.5	0.6
	110	170	28	2	2	33	1.94	110	110	7500	12000	B7022C.T.P4S.UL	120.5	159	2	1
	110	170	28	2	2	47	1.94	104	104	6700	10000		B7022E.T.P4S.UL	120.5	159	2
	110	200	38	2.1	2.1	40	4.59	163	150	6700	10000	B7222C.T.P4S.UL	129.5	180	2.1	2.1
	110	200	38	2.1	2.1	55	4.58	153	143	6000	9000		B7222E.T.P4S.UL	129.5	180	2.1
120	120	165	22	1.1	0.6	30	1.16	73.5	85	7000	11000	B71924C.T.P4S.UL	128	156.5	0.6	0.6
	120	165	22	1.1	0.6	44	1.16	69.5	80	6700	10000		B71924E.T.P4S.UL	128	156.5	0.6
	120	180	28	2	2	34	2.07	112	116	6700	10000	B7024C.T.P4S.UL	130.5	169	2	1
	120	180	28	2	2	49	2.06	106	110	6300	9500		B7024E.T.P4S.UL	130.5	169	2
	120	215	40	2.1	2.1	43	5.29	204	196	6000	9000	B7224C.T.P4S.UL	135.5	199	2.1	2.1
	120	215	40	2.1	2.1	59	5.27	196	186	5300	8000		B7224E.T.P4S.UL	135.5	199	2.1
130	130	180	24	1.5	0.6	33	1.52	86.5	100	6700	10000	B71926C.T.P4S.UL	139	170.5	0.6	0.6
	130	180	24	1.5	0.6	48	1.52	81.5	95	6000	9000		B71926E.T.P4S.UL	139	170.5	0.6
	130	200	33	2	2	39	3.15	143	150	6000	9000	B7026C.T.P4S.UL	142.5	187	2	1
	130	200	33	2	2	55	3.14	137	143	5600	8500		B7026E.T.P4S.UL	142.5	187	2
	130	230	40	3	3	44	6.1	212	216	5600	8500	B7226C.T.P4S.UL	148	211.5	2.5	2.5
	130	230	40	3	3	62	6.08	204	204	5000	7500		B7226E.T.P4S.UL	148	211.5	2.5
140	140	190	24	1.5	0.6	34	1.63	90	108	6000	9000	B71928C.T.P4S.UL	149	180.5	0.6	0.6
	140	190	24	1.5	0.6	50	1.62	85	102	5600	8500		B71928E.T.P4S.UL	149	180.5	0.6
	140	210	33	2	2	40	3.34	146	160	5600	8500	B7028C.T.P4S.UL	152.5	197	2	1
	140	210	33	2	2	57	3.33	140	150	5000	7500		B7028E.T.P4S.UL	152.5	197	2
	140	250	42	3	3	47	7.87	220	232	5000	7500	B7228C.T.P4S.UL	163	226.5	2.5	2.5
	140	250	42	3	3	66	7.85	212	224	4500	6700		B7228E.T.P4S.UL	163	226.5	2.5
150	150	210	28	2	1	38	2.49	122	143	5600	8500	B71930C.T.P4S.UL	160.5	199	1	1
	150	210	28	2	1	56	2.48	114	134	5000	7500		B71930E.T.P4S.UL	160.5	199	1
	150	225	35	2.1	2.1	43	3.99	183	193	5300	8000	B7030C.T.P4S.UL	162	212.5	2.1	1
	150	225	35	2.1	2.1	61	3.98	173	186	4800	7000		B7030E.T.P4S.UL	162	212.5	2.1
	150	270	45	3	3	51	10.1	228	255	4500	6700	B7230C.T.P4S.UL	178	241.5	2.5	2.5
	150	270	45	3	3	71	10.1	216	240	4000	6000		B7230E.T.P4S.UL	178	241.5	2.5
160	160	220	28	2	1	40	2.62	125	150	5000	7500	B71932C.T.P4S.UL	170.5	209	1	1
	160	220	28	2	1	58	2.61	116	140	4800	7000		B71932E.T.P4S.UL	170.5	209	1
	160	240	38	2.1	2.1	46	5.01	190	208	4800	7000	B7032C.T.P4S.UL	174.5	225	2	1
	160	240	38	2.1	2.1	66	4.99	176	196	4300	6300		B7032E.T.P4S.UL	174.5	225	2

# FAG Spindle Bearings

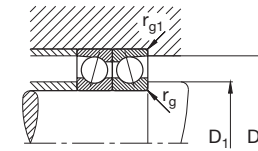
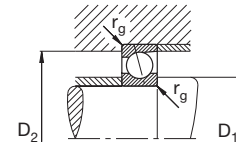
Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.



B719C, B70C, B72C  
Contact angle  $\alpha = 15^\circ$



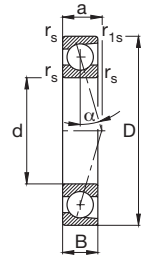
B719E, B70E, B72E  
Contact angle  $\alpha = 25^\circ$



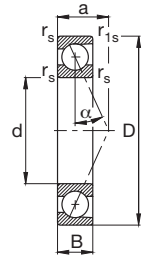
Shaft	Dimensions						Mass ≈ kg	Load rating		Attainable Speed		Code Bearing FAG	Abutment dimensions			
	d mm	D	B	r <sub>s</sub> min	r <sub>1s</sub> min	a ≈		dyn. C kN	stat. C <sub>0</sub>	Grease min <sup>-1</sup>	Oil throwaway		D <sub>1</sub> h12 mm	D <sub>2</sub> H12	r <sub>g</sub> max	r <sub>g1</sub> max
160	160	290	48	3	3	54	12.9	245	285	4300	6300	B7232C.T.P4S.UL	193	256.5	2.5	2.5
	160	290	48	3	3	76	12.9	232	270	3800	5600		B7232E.T.P4S.UL	193	256.5	2.5
170	170	230	28	2	1.5	41	2.78	129	163	4800	7000	B71934C.T.P4S.UL	180.5	219	1	1
	170	230	28	2	1.5	61	2.77	122	150	4300	6300		B71934E.T.P4S.UL	180.5	219	1
	170	260	42	2.1	2.1	50	6.51	236	270	4500	6700	B7034C.T.P4S.UL	183	246.5	2	1
	170	260	42	2.1	2.1	71	6.48	224	255	4000	6000		B7034E.T.P4S.UL	183	246.5	2
	170	310	52	4	4	58	15.6	300	360	3800	5600	B7234C.T.P4S.UL	201.5	278	3	3
	170	310	52	4	4	82	15.6	280	345	3600	5300		B7234E.T.P4S.UL	201.5	278	3
180	180	250	33	2	1	45	4.13	163	204	4500	6700	B71936C.T.P4S.UL	192.5	237	1	1
	180	250	33	2	1	67	4.11	156	193	4000	6000		B71936E.T.P4S.UL	192.5	237	1
	180	280	46	2.1	2.1	54	8.77	245	285	4000	6000	B7036C.T.P4S.UL	198	261.5	2	1
	180	280	46	2.1	2.1	77	8.74	232	275	3800	5600		B7036E.T.P4S.UL	198	261.5	2
	180	320	52	4	4	60	16.3	305	390	3800	5600	B7236C.T.P4S.UL	211.5	288	3	3
	180	320	52	4	4	84	16.3	290	365	3400	5000		B7236E.T.P4S.UL	211.5	288	3
190	190	260	33	2	1	47	4.31	166	212	4300	6300	B71938C.T.P4S.UL	202.5	247	1	1
	190	260	33	2	1	69	4.29	156	200	3800	5600		B71938E.T.P4S.UL	202.5	247	1
	190	290	46	2.1	2.1	55	9.18	250	305	3800	5600	B7038C.T.P4S.UL	208	271.5	2	1
	190	290	46	2.1	2.1	79	9.15	236	290	3600	5300		B7038E.T.P4S.UL	208	271.5	2
	190	340	55	4	4	63	20	315	415	3400	5000	B7238C.T.P4S.UL	226.5	303	3	3
	190	340	55	4	4	89	19.9	300	390	3200	4800		B7238E.T.P4S.UL	226.5	303	3
200	200	280	38	2.1	1.1	51	6.03	204	255	3800	5600	B71940C.T.P4S.UL	214.5	265	1	1
	200	280	38	2.1	1.1	75	6.01	193	240	3600	5300		B71940E.T.P4S.UL	214.5	265	1
	200	310	51	2.1	2.1	60	11.6	305	390	3600	5300	B7040C.T.P4S.UL	216.5	293	2	1
	200	310	51	2.1	2.1	85	11.5	290	365	3200	4800		B7040E.T.P4S.UL	216.5	293	2
	200	360	58	4	4	67	24.1	325	440	3200	4800	B7240C.T.P4S.UL	241.5	318	3	3
	200	360	58	4	4	94	24.1	310	415	3000	4500		B7240E.T.P4S.UL	241.5	318	3
220	220	300	38	2.1	1.1	54	6.57	216	285	3600	5300	B71944C.T.P4S.UL	234.5	285	1	1
	220	300	38	2.1	1.1	80	6.55	204	270	3200	4800		B71944E.T.P4S.UL	234.5	285	1
	220	340	56	3	3	66	15.7	325	440	3200	4800	B7044C.T.P4S.UL	241.5	318	2.5	1
	220	340	56	3	3	93	15.6	310	415	3000	4500		B7044E.T.P4S.UL	241.5	318	2.5
	220	400	65	4	4	74	33	400	560	2800	4300	B7244C.T.P4S.UL	263.5	356	3	3
	220	400	65	4	4	104	32.9	380	540	2600	4000		B7244E.T.P4S.UL	263.5	356	3

# FAG Spindle Bearings

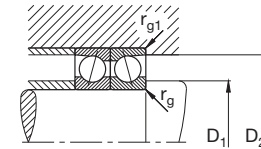
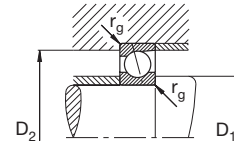
Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.



B719C, B70C  
Contact angle  $\alpha = 15^\circ$



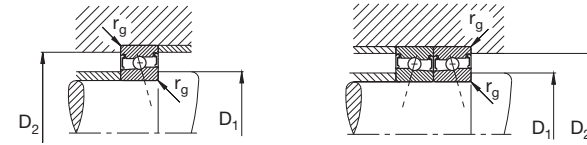
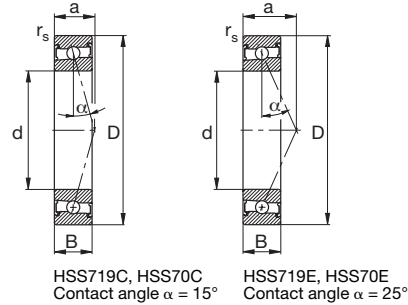
B719E, B70E  
Contact angle  $\alpha = 25^\circ$



Shaft	Dimensions						Mass ≈ kg	Load rating		Attainable Speed		Code Bearing FAG	Abutment dimensions			
	d mm	D	B	r <sub>s</sub> min	r <sub>1s</sub> min	a ≈		dyn. C kN	stat. C <sub>0</sub>	Grease min <sup>-1</sup>	Oil throwaway		D <sub>1</sub> h12 mm	D <sub>2</sub> H12	r <sub>g</sub> max	r <sub>g1</sub> max
240	240	320	38	2.1	1.1	57	7.08	224	310	3200	4800	<b>B71948C.T.P4S.UL</b>	254.5	305	1	1
	240	320	38	2.1	1.1	84	7.06	212	285	3000	4500	<b>B71948E.T.P4S.UL</b>	254.5	305	1	1
240	240	360	56	3	3	68	16.7	335	465	3000	4500	<b>B7048C.T.P4S.UL</b>	261.5	338	2.5	1
	240	360	56	3	3	98	16.7	315	440	2800	4300	<b>B7048E.T.P4S.UL</b>	261.5	338	2.5	1

# FAG Spindle Bearings

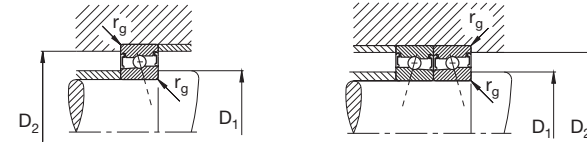
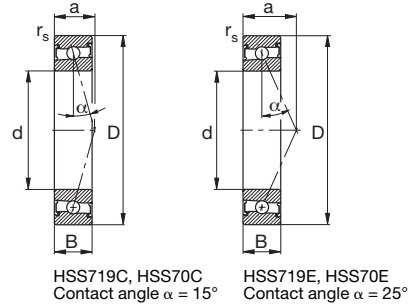
Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.



Shaft	Dimensions					Mass ≈ kg	Load rating		Attainable speed Grease min <sup>-1</sup>	Code Bearing FAG	Abutment dimensions		
	d mm	D	B	r <sub>s</sub> min	a ≈		dyn. C kN	stat. C <sub>0</sub>			D <sub>1</sub> h12 mm	D <sub>2</sub> H12	r <sub>g</sub> max
10	10	22	6	0.3	5	0.01	1.96	1.1	90000	HSS71900C.T.P4S.UL	13.5	18	0.3
	10	22	6	0.3	7	0.01	1.86	1.04	75000	HSS71900E.T.P4S.UL	13.5	18	0.3
	10	26	8	0.3	6	0.02	2.75	1.6	80000	HSS7000C.T.P4S.UL	15	20.5	0.3
	10	26	8	0.3	8	0.02	2.6	1.5	67000	HSS7000E.T.P4S.UL	15	20.5	0.3
12	12	24	6	0.3	5	0.01	2.04	1.2	80000	HSS71901C.T.P4S.UL	15.5	20	0.3
	12	24	6	0.3	7	0.01	1.93	1.14	67000	HSS71901E.T.P4S.UL	15.5	20	0.3
	12	28	8	0.3	7	0.02	2.7	1.63	70000	HSS7001C.T.P4S.UL	17	22.5	0.3
	12	28	8	0.3	9	0.02	2.55	1.53	60000	HSS7001E.T.P4S.UL	17	22.5	0.3
15	15	28	7	0.3	6	0.01	2.8	1.76	67000	HSS71902C.T.P4S.UL	18.5	24	0.3
	15	28	7	0.3	9	0.01	2.65	1.66	56000	HSS71902E.T.P4S.UL	18.5	24	0.3
	15	32	9	0.3	8	0.03	3.75	2.45	60000	HSS7002C.T.P4S.UL	20	26.5	0.3
	15	32	9	0.3	10	0.03	3.55	2.32	50000	HSS7002E.T.P4S.UL	20	26.5	0.3
17	17	30	7	0.3	7	0.02	2.9	1.9	60000	HSS71903C.T.P4S.UL	20.5	26	0.3
	17	30	7	0.3	9	0.02	2.7	1.8	50000	HSS71903E.T.P4S.UL	20.5	26	0.3
	17	35	10	0.3	9	0.04	3.8	2.65	53000	HSS7003C.T.P4S.UL	22.5	29	0.3
	17	35	10	0.3	11	0.04	3.65	2.5	45000	HSS7003E.T.P4S.UL	22.5	29	0.3
20	20	37	9	0.3	8	0.04	3.9	2.85	50000	HSS71904C.T.P4S.UL	25	31.5	0.3
	20	37	9	0.3	11	0.04	3.75	2.7	43000	HSS71904E.T.P4S.UL	25	31.5	0.3
	20	42	12	0.6	10	0.07	6.2	4.55	45000	HSS7004C.T.P4S.UL	27	34.5	0.6
	20	42	12	0.6	13	0.07	5.85	4.3	38000	HSS7004E.T.P4S.UL	27	34.5	0.6
25	25	42	9	0.3	9	0.05	4.25	3.35	43000	HSS71905C.T.P4S.UL	30	36.5	0.3
	25	42	9	0.3	12	0.05	4	3.15	36000	HSS71905E.T.P4S.UL	30	36.5	0.3
	25	47	12	0.6	11	0.08	6.3	4.9	38000	HSS7005C.T.P4S.UL	32	39.5	0.6
	25	47	12	0.6	14	0.08	6	4.65	34000	HSS7005E.T.P4S.UL	32	39.5	0.6
30	30	47	9	0.3	10	0.05	6.4	5.2	36000	HSS71906C.T.P4S.UL	34.5	42	0.3
	30	47	9	0.3	14	0.05	6	4.9	32000	HSS71906E.T.P4S.UL	34.5	42	0.3
	30	55	13	1	12	0.12	8.8	7.1	32000	HSS7006C.T.P4S.UL	37.5	47	1
	30	55	13	1	16	0.12	8.3	6.7	28000	HSS7006E.T.P4S.UL	37.5	47	1
35	35	55	10	0.6	11	0.08	6.95	6.2	32000	HSS71907C.T.P4S.UL	41	48.5	0.6
	35	55	10	0.6	16	0.08	6.55	5.85	26000	HSS71907E.T.P4S.UL	41	48.5	0.6
	35	62	14	1	14	0.17	9.3	8.3	28000	HSS7007C.T.P4S.UL	43.5	53	1
	35	62	14	1	18	0.17	8.8	7.8	24000	HSS7007E.T.P4S.UL	43.5	53	1

# FAG Spindle Bearings

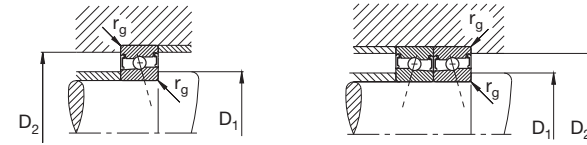
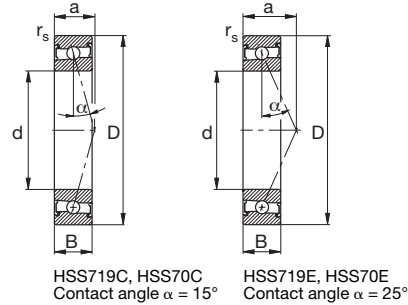
Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.



Shaft	Dimensions					Mass ≈ kg	Load rating		Attainable speed Grease min <sup>-1</sup>	Code Bearing FAG	Abutment dimensions		
	d mm	D	B	r <sub>s</sub> min	a ≈		dyn. C kN	stat. C <sub>0</sub>			D <sub>1</sub> h12 mm	D <sub>2</sub> H12	r <sub>g</sub> max
40	40	62	12	0.6	13	0.12	7.2	6.95	28000	HSS71908C.T.P4S.UL	47	54.5	0.6
	40	62	12	0.6	18	0.12	6.8	6.4	24000	HSS71908E.T.P4S.UL	47	54.5	0.6
	40	68	15	1	15	0.21	10	9.3	26000	HSS7008C.T.P4S.UL	49	58.5	1
	40	68	15	1	20	0.21	9.3	8.65	22000	HSS7008E.T.P4S.UL	49	58.5	1
45	45	68	12	0.6	14	0.13	10	9.65	24000	HSS71909C.T.P4S.UL	51.5	61	0.6
	45	68	12	0.6	19	0.13	9.5	9	22000	HSS71909E.T.P4S.UL	51.5	61	0.6
	45	75	16	1	16	0.27	12.9	12.2	24000	HSS7009C.T.P4S.UL	54	65.5	1
	45	75	16	1	22	0.27	12.2	11.4	20000	HSS7009E.T.P4S.UL	54	65.5	1
50	50	72	12	0.6	14	0.13	10.4	10.2	22000	HSS71910C.T.P4S.UL	56	65.5	0.6
	50	72	12	0.6	20	0.13	9.8	9.65	20000	HSS71910E.T.P4S.UL	56	65.5	0.6
	50	80	16	1	17	0.3	13.4	13.2	22000	HSS7010C.T.P4S.UL	59	70.5	1
	50	80	16	1	23	0.29	12.5	12.2	18000	HSS7010E.T.P4S.UL	59	70.5	1
55	55	80	13	1	16	0.2	13.4	13.7	20000	HSS71911C.T.P4S.UL	61.5	73	0.6
	55	80	13	1	22	0.2	12.7	12.7	18000	HSS71911E.T.P4S.UL	61.5	73	0.6
	55	90	18	1.1	19	0.41	18.6	19	19000	HSS7011C.T.P4S.UL	65.5	79	1
	55	90	18	1.1	26	0.41	17.6	17.6	17000	HSS7011E.T.P4S.UL	65.5	79	1
60	60	85	13	1	16	0.22	14	14.6	19000	HSS71912C.T.P4S.UL	66.5	78	0.6
	60	85	13	1	23	0.22	13.2	13.4	17000	HSS71912E.T.P4S.UL	66.5	78	0.6
	60	95	18	1.1	19	0.45	19.3	20	18000	HSS7012C.T.P4S.UL	70.5	84	1
	60	95	18	1.1	27	0.45	18.3	19	15000	HSS7012E.T.P4S.UL	70.5	84	1
65	65	90	13	1	17	0.23	14.3	15.3	18000	HSS71913C.T.P4S.UL	71.5	83	0.6
	65	90	13	1	25	0.23	13.4	14.3	15000	HSS71913E.T.P4S.UL	71.5	83	0.6
	65	100	18	1.1	20	0.47	20	21.6	17000	HSS7013C.T.P4S.UL	75.5	89	1
	65	100	18	1.1	28	0.47	19	20	15000	HSS7013E.T.P4S.UL	75.5	89	1
70	70	100	16	1	19	0.35	18.3	20	16000	HSS71914C.T.P4S.UL	78.5	91	0.6
	70	100	16	1	28	0.35	17.3	18.6	14000	HSS71914E.T.P4S.UL	78.5	91	0.6
	70	110	20	1.1	22	0.64	26	28	16000	HSS7014C.T.P4S.UL	82	97.5	1
	70	110	20	1.1	31	0.64	24.5	26	13000	HSS7014E.T.P4S.UL	82	97.5	1
75	75	105	16	1	20	0.38	19	21.2	16000	HSS71915C.T.P4S.UL	83.5	96	0.6
	75	105	16	1	29	0.38	17.6	20	13000	HSS71915E.T.P4S.UL	83.5	96	0.6
	75	115	20	1.1	23	0.68	26.5	29	15000	HSS7015C.T.P4S.UL	87	102.5	1
	75	115	20	1.1	32	0.68	25	27	13000	HSS7015E.T.P4S.UL	87	102.5	1

# FAG Spindle Bearings

Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.



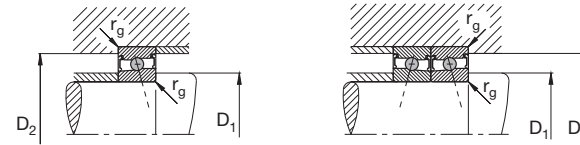
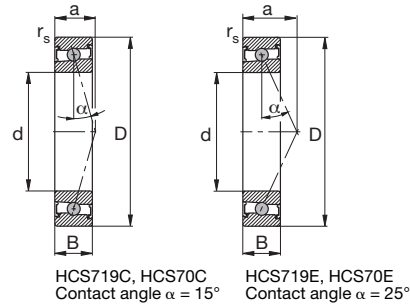
Shaft	Dimensions					Mass ≈ kg	Load rating		Attainable speed Grease min <sup>-1</sup>	Code Bearing FAG	Abutment dimensions		
	d mm	D	B	r <sub>s</sub> min	a ≈		dyn. C kN	stat. C <sub>0</sub>			D <sub>1</sub> h12 mm	D <sub>2</sub> H12	r <sub>g</sub> max
80	80	110	16	1	21	0.39	21.2	24	15000	HSS71916C.T.P4S.UL	88	101.5	0.6
	80	110	16	1	30	0.39	19.6	22.4	13000	HSS71916E.T.P4S.UL	88	101.5	0.6
	80	125	22	1.1	25	0.93	31.5	34.5	14000	HSS7016C.T.P4S.UL	93.5	111	1
	80	125	22	1.1	35	0.93	30	32.5	12000	HSS7016E.T.P4S.UL	93.5	111	1
85	85	120	18	1.1	23	0.58	22	26	14000	HSS71917C.T.P4S.UL	95.5	109	0.6
	85	120	18	1.1	33	0.58	20.4	24.5	12000	HSS71917E.T.P4S.UL	95.5	109	0.6
	85	130	22	1.1	25	0.97	32	36	13000	HSS7017C.T.P4S.UL	98.5	116	1
	85	130	22	1.1	36	0.97	30	33.5	11000	HSS7017E.T.P4S.UL	98.5	116	1
90	90	125	18	1.1	23	0.59	23.6	28.5	13000	HSS71918C.T.P4S.UL	100	114.5	0.6
	90	125	18	1.1	34	0.59	22.4	26.5	11000	HSS71918E.T.P4S.UL	100	114.5	0.6
	90	140	24	1.5	27	1.28	37.5	43	12000	HSS7018C.T.P4S.UL	105	124.5	1.5
	90	140	24	1.5	39	1.27	35.5	40	10000	HSS7018E.T.P4S.UL	105	124.5	1.5
95	95	130	18	1.1	24	0.61	24.5	30	12000	HSS71919C.T.P4S.UL	105	119.5	0.6
	95	130	18	1.1	35	0.61	22.8	28	10000	HSS71919E.T.P4S.UL	105	119.5	0.6
	95	145	24	1.5	28	1.33	38	44	11000	HSS7019C.T.P4S.UL	110	129.5	1.5
	95	145	24	1.5	40	1.33	35.5	41.5	9500	HSS7019E.T.P4S.UL	110	129.5	1.5
100	100	140	20	1.1	26	0.86	29	36	11000	HSS71920C.T.P4S.UL	112	127.5	0.6
	100	140	20	1.1	38	0.86	27.5	33.5	9500	HSS71920E.T.P4S.UL	112	127.5	0.6
	100	150	24	1.5	29	1.39	38	45.5	11000	HSS7020C.T.P4S.UL	115	134.5	1.5
	100	150	24	1.5	41	1.38	36	42.5	9000	HSS7020E.T.P4S.UL	115	134.5	1.5
105	105	145	20	1.1	27	0.9	30	38	11000	HSS71921C.T.P4S.UL	117	132.5	0.6
	105	145	20	1.1	39	0.9	28	35.5	9000	HSS71921E.T.P4S.UL	117	132.5	0.6
	105	160	26	2	31	1.71	49	58.5	10000	HSS7021C.T.P4S.UL	121	143.5	2
	105	160	26	2	44	1.71	46.5	54	8500	HSS7021E.T.P4S.UL	121	143.5	2
110	110	150	20	1.1	27	0.93	34.5	44	10000	HSS71922C.T.P4S.UL	121	138.5	0.6
	110	150	20	1.1	40	0.93	32.5	40.5	9000	HSS71922E.T.P4S.UL	121	138.5	0.6
	110	170	28	2	33	2.17	50	60	9500	HSS7022C.T.P4S.UL	128.5	151	2
	110	170	28	2	47	2.17	46.5	56	8000	HSS7022E.T.P4S.UL	128.5	151	2
120	120	165	22	1.1	30	1.3	36.5	48	9000	HSS71924C.T.P4S.UL	133.5	151	0.6
	120	165	22	1.1	44	1.3	34	45	8000	HSS71924E.T.P4S.UL	133.5	151	0.6
	120	180	28	2	34	2.33	51	63	8500	HSS7024C.T.P4S.UL	138.5	161	2
	120	180	28	2	49	2.33	48	58.5	7500	HSS7024E.T.P4S.UL	138.5	161	2



# FAG Spindle Bearings

with ceramic balls

Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.

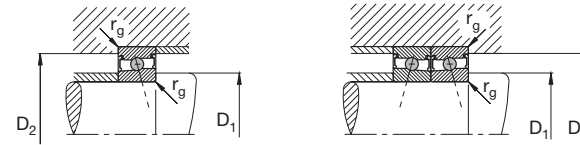
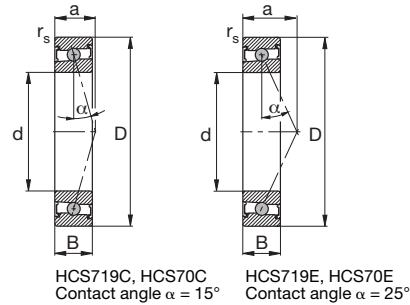


Shaft	Dimensions					Mass ≈ kg	Load rating		Attainable speed Grease min <sup>-1</sup>	Code Bearing FAG	Abutment dimensions		
	d mm	D	B	r <sub>s</sub> min	a ≈		dyn. C kN	stat. C <sub>0</sub>			D <sub>1</sub> h12 mm	D <sub>2</sub> H12	r <sub>g</sub> max
10	10	22	6	0.3	5	0.01	1.37	0.76	100000	HCS71900C.T.P4S.UL	13.5	18	0.3
	10	22	6	0.3	7	0.01	1.29	0.72	85000	HCS71900E.T.P4S.UL	13.5	18	0.3
	10	26	8	0.3	6	0.02	1.9	1.1	90000	HCS7000C.T.P4S.UL	15	20.5	0.3
	10	26	8	0.3	8	0.02	1.8	1.06	75000	HCS7000E.T.P4S.UL	15	20.5	0.3
12	12	24	6	0.3	5	0.01	1.4	0.83	90000	HCS71901C.T.P4S.UL	15.5	20	0.3
	12	24	6	0.3	7	0.01	1.34	0.8	75000	HCS71901E.T.P4S.UL	15.5	20	0.3
	12	28	8	0.3	7	0.02	1.86	1.12	80000	HCS7001C.T.P4S.UL	17	22.5	0.3
	12	28	8	0.3	9	0.02	1.76	1.08	70000	HCS7001E.T.P4S.UL	17	22.5	0.3
15	15	28	7	0.3	6	0.01	1.93	1.22	75000	HCS71902C.T.P4S.UL	18.5	24	0.3
	15	28	7	0.3	9	0.01	1.83	1.16	63000	HCS71902E.T.P4S.UL	18.5	24	0.3
	15	32	9	0.3	8	0.03	2.6	1.7	70000	HCS7002C.T.P4S.UL	20	26.5	0.3
	15	32	9	0.3	10	0.03	2.45	1.6	60000	HCS7002E.T.P4S.UL	20	26.5	0.3
17	17	30	7	0.3	7	0.02	2	1.34	70000	HCS71903C.T.P4S.UL	20.5	26	0.3
	17	30	7	0.3	9	0.02	1.9	1.27	60000	HCS71903E.T.P4S.UL	20.5	26	0.3
	17	35	10	0.3	9	0.04	2.65	1.83	63000	HCS7003C.T.P4S.UL	22.5	29	0.3
	17	35	10	0.3	11	0.04	2.5	1.73	53000	HCS7003E.T.P4S.UL	22.5	29	0.3
20	20	37	9	0.3	8	0.04	2.7	1.96	56000	HCS71904C.T.P4S.UL	25	31.5	0.3
	20	37	9	0.3	11	0.04	2.55	1.86	48000	HCS71904E.T.P4S.UL	25	31.5	0.3
	20	42	12	0.6	10	0.07	4.3	3.2	53000	HCS7004C.T.P4S.UL	27	34.5	0.6
	20	42	12	0.6	13	0.07	4.05	3	45000	HCS7004E.T.P4S.UL	27	34.5	0.6
25	25	42	9	0.3	9	0.05	2.9	2.36	48000	HCS71905C.T.P4S.UL	30	36.5	0.3
	25	42	9	0.3	12	0.05	2.75	2.2	40000	HCS71905E.T.P4S.UL	30	36.5	0.3
	25	47	12	0.6	11	0.09	4.3	3.45	45000	HCS7005C.T.P4S.UL	32	39.5	0.6
	25	47	12	0.6	14	0.09	4.05	3.25	38000	HCS7005E.T.P4S.UL	32	39.5	0.6
30	30	47	9	0.3	10	0.05	4.4	3.65	43000	HCS71906C.T.P4S.UL	34.5	42	0.3
	30	47	9	0.3	14	0.05	4.15	3.45	36000	HCS71906E.T.P4S.UL	34.5	42	0.3
	30	55	13	1	12	0.12	6	4.9	38000	HCS7006C.T.P4S.UL	37.5	47	1
	30	55	13	1	16	0.12	5.7	4.65	32000	HCS7006E.T.P4S.UL	37.5	47	1
35	35	55	10	0.6	11	0.08	4.8	4.4	36000	HCS71907C.T.P4S.UL	41	48.5	0.6
	35	55	10	0.6	16	0.08	4.5	4.05	30000	HCS71907E.T.P4S.UL	41	48.5	0.6
	35	62	14	1	14	0.17	6.4	5.85	34000	HCS7007C.T.P4S.UL	43.5	53	1
	35	62	14	1	18	0.17	6.1	5.4	28000	HCS7007E.T.P4S.UL	43.5	53	1

# FAG Spindle Bearings

with ceramic balls

Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.

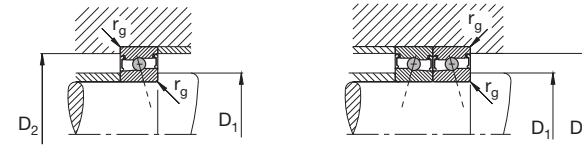
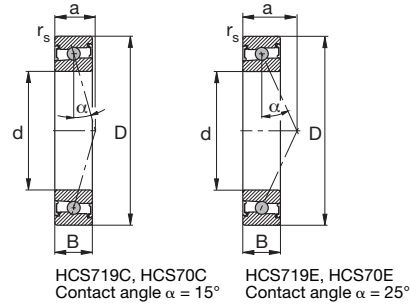


Shaft	Dimensions					Mass ≈ kg	Load rating		Attainable speed Grease min <sup>-1</sup>	Code Bearing FAG	Abutment dimensions		
	d mm	D	B	r <sub>s</sub> min	a ≈		dyn. C kN	stat. C <sub>0</sub>			D <sub>1</sub> h12 mm	D <sub>2</sub> H12	r <sub>g</sub> max
40	40	62	12	0.6	13	0.12	5	4.8	32000	HCS71908C.T.P4S.UL	47	54.5	0.6
	40	62	12	0.6	18	0.12	4.75	4.5	28000	HCS71908E.T.P4S.UL	47	54.5	0.6
	40	68	15	1	15	0.21	6.8	6.55	30000	HCS7008C.T.P4S.UL	49	58.5	1
	40	68	15	1	20	0.21	6.4	6.1	26000	HCS7008E.T.P4S.UL	49	58.5	1
45	45	68	12	0.6	14	0.14	6.95	6.7	28000	HCS71909C.T.P4S.UL	51.5	61	0.6
	45	68	12	0.6	19	0.14	6.55	6.3	24000	HCS71909E.T.P4S.UL	51.5	61	0.6
	45	75	16	1	16	0.25	8.8	8.5	26000	HCS7009C.T.P4S.UL	54	65.5	1
	45	75	16	1	22	0.25	8.3	8	24000	HCS7009E.T.P4S.UL	54	65.5	1
50	50	72	12	0.6	14	0.14	7.1	7.2	26000	HCS71910C.T.P4S.UL	56	65.5	0.6
	50	72	12	0.6	20	0.14	6.7	6.7	22000	HCS71910E.T.P4S.UL	56	65.5	0.6
	50	80	16	1	17	0.27	9.15	9.15	24000	HCS7010C.T.P4S.UL	59	70.5	1
	50	80	16	1	23	0.27	8.65	8.5	22000	HCS7010E.T.P4S.UL	59	70.5	1
55	55	80	13	1	16	0.17	9.3	9.5	24000	HCS71911C.T.P4S.UL	61.5	73	0.6
	55	80	13	1	22	0.17	8.8	8.8	20000	HCS71911E.T.P4S.UL	61.5	73	0.6
	55	90	18	1.1	19	0.35	12.9	13.2	22000	HCS7011C.T.P4S.UL	65.5	79	1
	55	90	18	1.1	26	0.35	12.2	12.2	19000	HCS7011E.T.P4S.UL	65.5	79	1
60	60	85	13	1	16	0.19	9.65	10	22000	HCS71912C.T.P4S.UL	66.5	78	0.6
	60	85	13	1	23	0.19	9	9.5	19000	HCS71912E.T.P4S.UL	66.5	78	0.6
	60	95	18	1.1	19	0.39	13.4	14	20000	HCS7012C.T.P4S.UL	70.5	84	1
	60	95	18	1.1	27	0.39	12.7	13.2	18000	HCS7012E.T.P4S.UL	70.5	84	1
65	65	90	13	1	17	0.19	9.8	10.8	20000	HCS71913C.T.P4S.UL	71.5	83	0.6
	65	90	13	1	25	0.19	9.3	10	18000	HCS71913E.T.P4S.UL	71.5	83	0.6
	65	100	18	1.1	20	0.4	13.7	15	20000	HCS7013C.T.P4S.UL	75.5	89	1
	65	100	18	1.1	28	0.4	12.9	14	17000	HCS7013E.T.P4S.UL	75.5	89	1
70	70	100	16	1	19	0.32	12.7	14	19000	HCS71914C.T.P4S.UL	78.5	91	0.6
	70	100	16	1	28	0.32	12	13.2	16000	HCS71914E.T.P4S.UL	78.5	91	0.6
	70	110	20	1.1	22	0.61	18	19.6	18000	HCS7014C.T.P4S.UL	82	97.5	1
	70	110	20	1.1	31	0.61	17	18.3	15000	HCS7014E.T.P4S.UL	82	97.5	1
75	75	105	16	1	20	0.35	12.9	15	18000	HCS71915C.T.P4S.UL	83.5	96	0.6
	75	105	16	1	29	0.35	12.2	13.7	15000	HCS71915E.T.P4S.UL	83.5	96	0.6
	75	115	20	1.1	23	0.65	18.3	20	17000	HCS7015C.T.P4S.UL	87	102.5	1
	75	115	20	1.1	32	0.64	17.3	18.6	15000	HCS7015E.T.P4S.UL	87	102.5	1

# FAG Spindle Bearings

with ceramic balls

Rolling bearings can be fail-safe if  $C_0/P_0 \geq 8$ , see page 41.



Shaft	Dimensions					Mass ≈ kg	Load rating		Attainable speed Grease min <sup>-1</sup>	Code Bearing FAG	Abutment dimensions		
	d mm	D	B	r <sub>s</sub> min	a ≈		dyn. C kN	stat. C <sub>0</sub>			D <sub>1</sub> h12 mm	D <sub>2</sub> H12	r <sub>g</sub> max
80	80	110	16	1	21	0.32	14.6	16.6	17000	HCS71916C.T.P4S.UL	88	101.5	0.6
	80	110	16	1	30	0.32	13.7	15.6	15000	HCS71916E.T.P4S.UL	88	101.5	0.6
	80	125	22	1.1	25	0.87	21.6	24.5	16000	HCS7016C.T.P4S.UL	93.5	111	1
	80	125	22	1.1	35	0.87	20.4	22.8	13000	HCS7016E.T.P4S.UL	93.5	111	1
85	85	120	18	1.1	23	0.51	15	18	16000	HCS71917C.T.P4S.UL	95.5	109	0.6
	85	120	18	1.1	33	0.51	14.3	17	13000	HCS71917E.T.P4S.UL	95.5	109	0.6
	85	130	22	1.1	25	0.92	22	25	15000	HCS7017C.T.P4S.UL	98.5	116	1
	85	130	22	1.1	36	0.92	20.8	23.2	13000	HCS7017E.T.P4S.UL	98.5	116	1
90	90	125	18	1.1	23	0.59	16.3	19.6	15000	HCS71918C.T.P4S.UL	100	114.5	0.6
	90	125	18	1.1	34	0.59	15.6	18.6	13000	HCS71918E.T.P4S.UL	100	114.5	0.6
	90	140	24	1.5	27	1.19	26	30	14000	HCS7018C.T.P4S.UL	105	124.5	1.5
	90	140	24	1.5	39	1.19	24.5	28	12000	HCS7018E.T.P4S.UL	105	124.5	1.5
95	95	130	18	1.1	24	0.61	17	20.8	14000	HCS71919C.T.P4S.UL	105	119.5	0.6
	95	130	18	1.1	35	0.61	16	19.3	12000	HCS71919E.T.P4S.UL	105	119.5	0.6
	95	145	24	1.5	28	1.24	26	31	13000	HCS7019C.T.P4S.UL	110	129.5	1.5
	95	145	24	1.5	40	1.24	24.5	28.5	11000	HCS7019E.T.P4S.UL	110	129.5	1.5
100	100	140	20	1.1	26	0.82	20.4	25	13000	HCS71920C.T.P4S.UL	112	127.5	0.6
	100	140	20	1.1	38	0.82	19	23.6	11000	HCS71920E.T.P4S.UL	112	127.5	0.6
	100	150	24	1.5	29	1.29	26.5	31.5	12000	HCS7020C.T.P4S.UL	115	134.5	1.5
	100	150	24	1.5	41	1.29	25	30	11000	HCS7020E.T.P4S.UL	115	134.5	1.5
105	105	145	20	1.1	27	0.85	20.8	26.5	12000	HCS71921C.T.P4S.UL	117	132.5	0.6
	105	145	20	1.1	39	0.85	19.6	24.5	11000	HCS71921E.T.P4S.UL	117	132.5	0.6
	105	160	26	2	31	1.59	34	40.5	12000	HCS7021C.T.P4S.UL	121	143.5	2
	105	160	26	2	44	1.59	32	38	10000	HCS7021E.T.P4S.UL	121	143.5	2
110	110	150	20	1.1	27	0.86	24	30.5	12000	HCS71922C.T.P4S.UL	121	138.5	0.6
	110	150	20	1.1	40	0.86	22.8	28.5	10000	HCS71922E.T.P4S.UL	121	138.5	0.6
	110	170	28	2	33	2.05	34.5	41.5	11000	HCS7022C.T.P4S.UL	128.5	151	2
	110	170	28	2	47	2.05	32.5	39	9000	HCS7022E.T.P4S.UL	128.5	151	2
120	120	165	22	1.1	30	1.22	25	33.5	11000	HCS71924C.T.P4S.UL	133.5	151	0.6
	120	165	22	1.1	44	1.22	23.6	31	9000	HCS71924E.T.P4S.UL	133.5	151	0.6
	120	180	28	2	34	2.2	35.5	44	10000	HCS7024C.T.P4S.UL	138.5	161	2
	120	180	28	2	49	2.2	33.5	41.5	8500	HCS7024E.T.P4S.UL	138.5	161	2

