There are many antifriction bearings ...
....but the Franke bearing is unique

...either bearing elements

1. They sustain forces from whatever direction due to their 4-point geometry

The rolling elements run on four race rings from spring steel or non-corrosive steel.
Open race rings have the advantage that they fit themselves tightly into the bearing rings of the mating structure and compensate machining tolerances. With this technology high precision even with large bearing diameters is achieved.

2. Ground or drawn race rings for easy run and high economical efficiency

Franke developed a special grinding method for the race rings aimed at producing defined race ways which are perfectly adapted to the ball diameter and the planned application. This way the balls are optimally guided, the load rating is increased and the running behaviour is improved.

Depending on the case of application the race rings are supplied in particular surface qualities. Thus the load, the capacity, and precision of the bearing elements are increased and they are better adapted to particular demands.

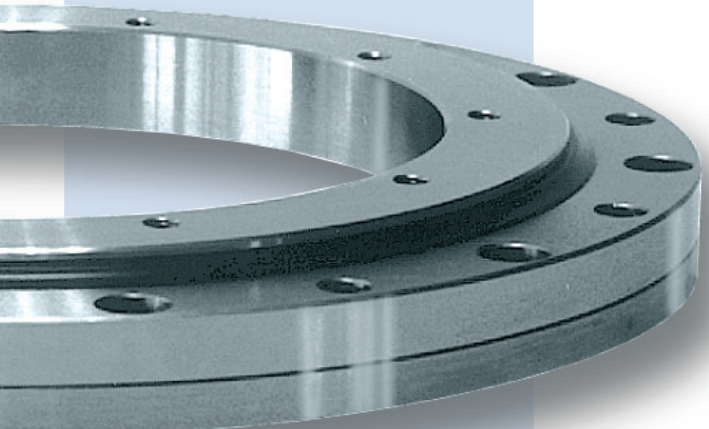
3. Ball cage with retained balls for maximum precision with very low frictional resistance

The ball cage with retained balls keeps the rolling elements in their defined position and facilitates mounting. This way friction is reduced thus improving the running behaviour and reducing the lubricant consumption of the bearing.
This cage type, the so-called ball chain, has been successfully used for many years with bearing assemblies and re-circulating ball elements.

...or complete bearing assemblies

4. Shape and material of the enclosing structure can be freely chosen

Franke bearing assemblies are ready-to-be installed complete bearings with integrated bearing elements. The outer geometrical dimensions are adapted to your requirements hence tolerances and cost of your design are reduced.



5. Many different types make the individual adaptation to a special application possible

Bearing assemblies are available in manifold variants. Owing to years of experience we are able to produce custom-made special bearings which are adapted to any specific application.

Our preferential series LDV provides the cheapest and fastest solution for many applications.

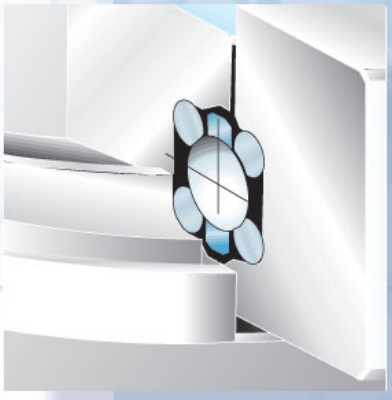
www.bergab.ru Берг АБ bergab@ya.ru Тел. (495)-228-06-21, факс (495) 223-3071

...Specific solutions for optimum performance in particular branches

Machine building

Franke bearing elements are veritable small space wonders. They adapt themselves even to the most limited space conditions and allow you a high degree of freedom in the design of the enclosing structure.
We plan the optimum bearing arrangement for your machine parts depending on your load and speed indications. Herewith the precise adaptation of the cross section, the osculation, or the angular position of the race ways are the decisive parameters for longevity and safe functioning.

Franke bearing elements are proven components in circular indexing tables.

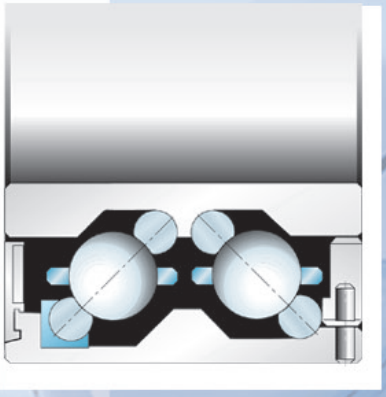


compact
torsion-free
easy assembly

Medical technology

Franke CT bearings are suited for very high speeds of revolution and can be re-adjusted without clearance even after a long period of operation.
Extreme running silence is reached by the fact that the components rest in an elastomer envelope. The elastomer reduces the bearing noise and provides the electrical insulation of the housing parts. Specific features of theses bearings are uniform run, low rotational resistance, and low structure-borne noise.
You have the choice between many different series which can be adapted to your specific wishes. The design including cross section, bearing seat, drilling configuration can be freely chosen. Adaptation is possible even to the degree that we supply complete modules.

More than 10.000 Franke bearing assemblies of series SDS are in practical service worldwide.



silent
precise
high-speed

Textile machines

Franke bearing elements are compact, sturdy and have a long life. Therefore they are ideally suited for the use in textile machines. Their high economical efficiency has convinced designers of all branches. The race rings are inserted directly into the enclosing structure. There is the choice between rings from spring steel, con-corrosive steel, or antimagnetic steel.
Until now more than 100.000 knitting machines worldwide have been equipped with Franke bearings.

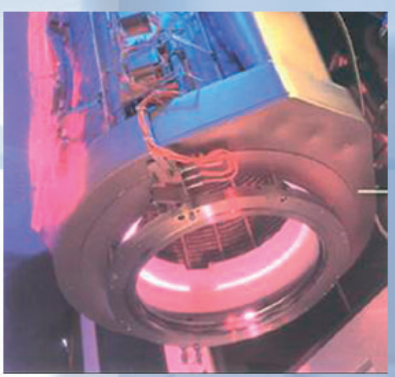
compact
high load
economical

Food industry / packaging industry

The fact that there are numerous variants of Franke bearings whose materials can be freely chosen makes them also suitable for the special requirements of the food and packaging technology. Here we offer washable components from non-corrosive steel or aluminium, or components which are suited for special lubricants, or for lubricant-free applications. Maintenance and cleaning of Franke bearings are facilitated by easy dismantling. Their longevity makes them economically very efficient.

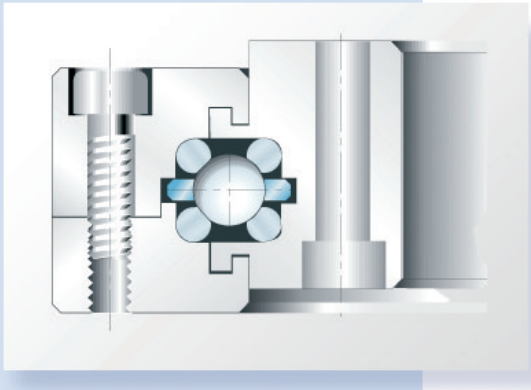
Clean room

Franke antifriction bearings are ideally suited for particular applications such as under clean room, high temperature, or vacuum conditions. Even the most demanding requirements can be met by the use of special materials like ceramics or Teflon. The design and the mating dimensions can be individually planned. Types with very low rotational resistance or lubricant-free versions are possible. There are almost no limits in the realisation of your motive needs.



clean
neutral
long-lived

Particular requirements ... ...need particular designs ...

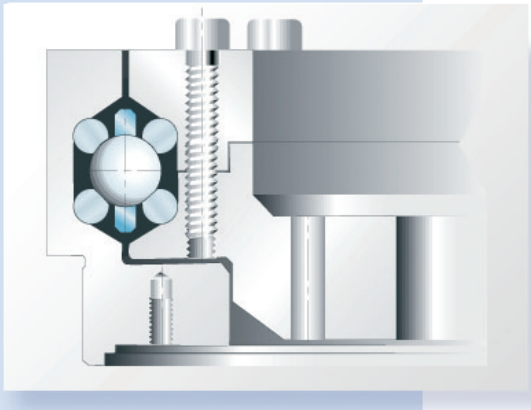


They all are called antifriction bearings but there is a difference

1. Franke 4-point contact bearing assembly with a carrying angle of 45°

The race ways are arranged with an angle of 45° thus enabling an optimum carrying capacity for loads from whatever direction. The bearings are adjusted without clearance; the rotational resistance is adapted to their application. The material for the enclosing structure can be freely chosen and has no influence on the load rating (steel, aluminium non-corrosive steel, bronze casting, plastic).

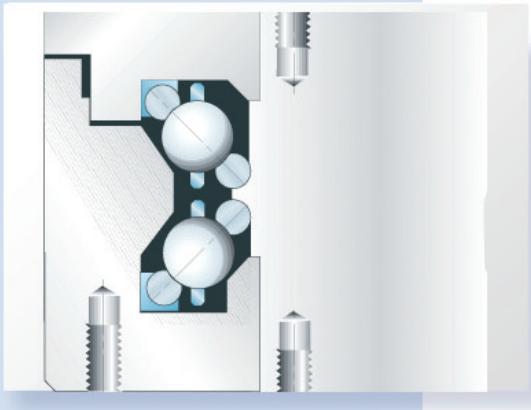
There are numerous variants of seals as for instance the labyrinth seal which is shown in the picture. We find out the appropriate variant for your special application.



2. Franke 4-point contact bearing assembly with a carrying angle of 30° for radial loads

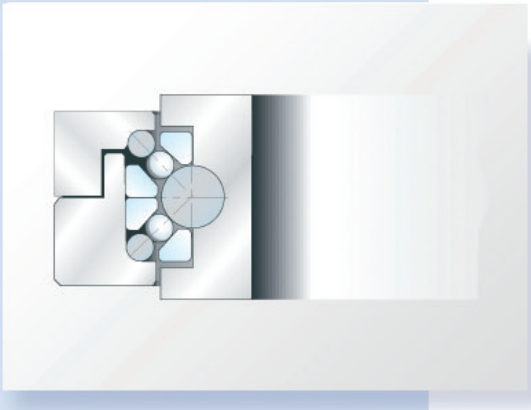
A traditional 4-point contact bearing assembly can be transformed to a radial/axial bearing by adapting its carrying angle. The bearing features can be suited to your individual needs.
The inserted race rings from spring steel provide a high carrying capacity which is independent from whether the mating structure is made of aluminium or any other material.

Very high stiffness is obtained by adjustment of the corresponding preload. The bearing runs without clearance even with relatively high loads. There are different kinds of toothing: e.g. spur toothing, helical gearing, worm gearing, toothed belt.



3. Franke double row inclined bearings for high rotational speed and very high precision

Double row inclined bearings combine the carrying capacity for loads from whatever direction with the running silence and precision which are typical for axial or radial bearings.
The defined rolling motion of both ball rows provides low friction and consequently an especially easy and silent run.
Numerous design variants have been realised, e.g. a particularly compact bearing for baggage scanning devices, which rotates at very high RPMs and at a circumferential speed of 16m/s.
Material combinations as e.g. an outer ring from steel and an inner ring from aluminium are possible. Adjustment and re-adjustment is made by means of a threaded ring.



4. Franke double row 3-point contact bearing with 3 race rings

Double row 3-point contact bearings are flexible bearings with low rotational resistance and a very good running behaviour. The bearing compensates elastic tension and deformation without any negative influence on the bearing function.
These bearings are recommended for applications where the mating structures and operating conditions produce relatively high torsion.

...Bearing solutions which are individually adapted ... to any case of application

... and they are all-rounders

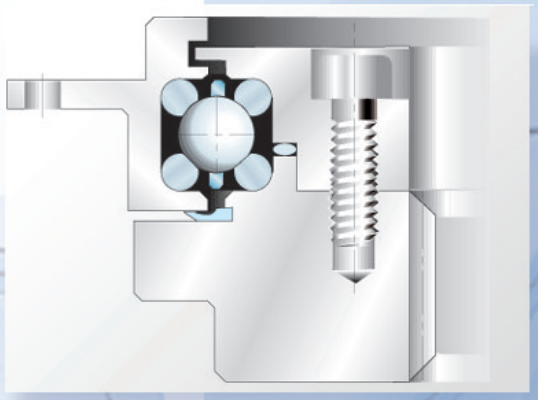
5. Franke 3-point contact bearing as movable bearing with 3 race rings

This type is optimally suited for the realisation of a movable bearing and has similar features as a 4-point contact bearing. Even the most demanding requirements can be met by its combination with a 4-point contact bearing.

6. Franke 4-point contact bearing with seal

There are many possibilities to seal Franke bearing assemblies. Sealing by an O-ring as it is shown in the picture is as well possible as a lip seal or a labyrinth seal.

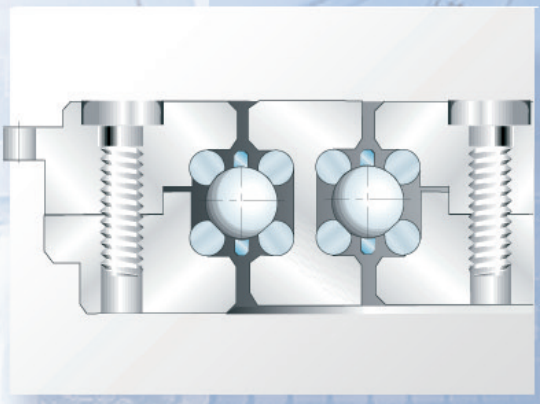
Franke bearing assemblies are complete structural units and are dimensioned according to your design. Herewith machining tolerances are reduced and mounting is simplified.



7. Franke double bearings for particular applications

Each ring can be moved individually and be turned in different directions. The number of rings is not limited and the structural shape can be individually adapted.

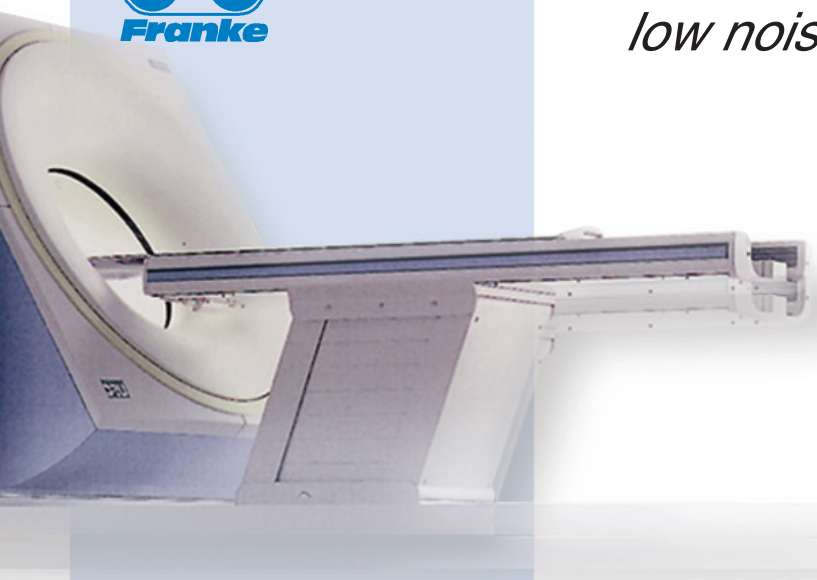
Double bearings are one example in many others showing the way how custom-designed bearings provide structural advantages for the user.



8. Franke bearing assemblies as cylindrical roller bearings

Cylindrical roller bearings are unrivalled regarding stiffness and compactness. Here the positive effect of the integrated Franke system with the inserted race rings is obvious.

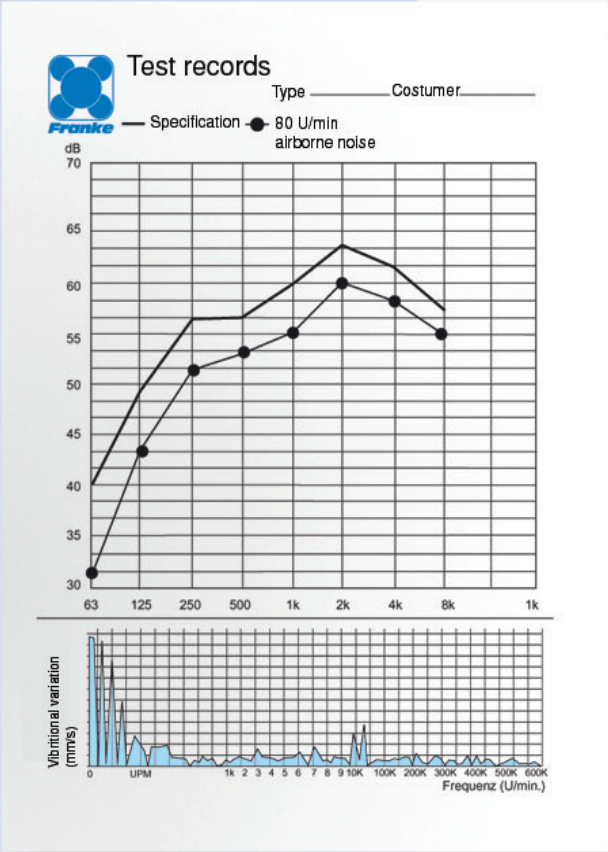
Bearing assemblies as low noise bearing



Bearing assemblies of the low noise type and double row angular bearings are bearings which are ready for installation meeting even the highest requirements concerning easy run, low noise and precision.
In the last few years we have supplied more than 5000 central bearings for computer tomographs worldwide. All the famous manufacturers from this branch have realized the advantages of the Franke system and are using them consequently.

Here we can give you only a short survey on the different bearing types. The application possibilities are too versatile, the desires are too different.

All dimensions (height, width, bore configuration, etc.) are determined according to the customer's desires and requirements. We produce antifriction bearings of these types in the diameters from 500 - 1600 mm.



The elastomer is used in the stationary ring.The inner ring is electrically insulated against the outer ring.

We supply all data according to specification. RPMs, radial and axial accuracy as well as airborne and structure-borne noise can be documented and supplied with each bearing.

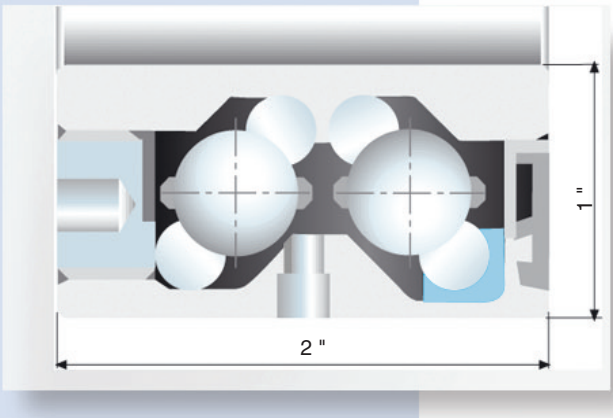
On request our bearings are tested in longtime run, here stiffness against tilt and lifetime are investigated.

In addition we make detailed calculations.

Please benefit from our 50 years of experience in the production of antifriction bearings.

New

Angular ball bearing Series LDS



Especially for small mounting space we recommend our new compact angular ball bearing. With a cross section of 1x2 inches it meets the dimensions of standard bearings and combines high stiffness and precision with silent running even with high RPMs.

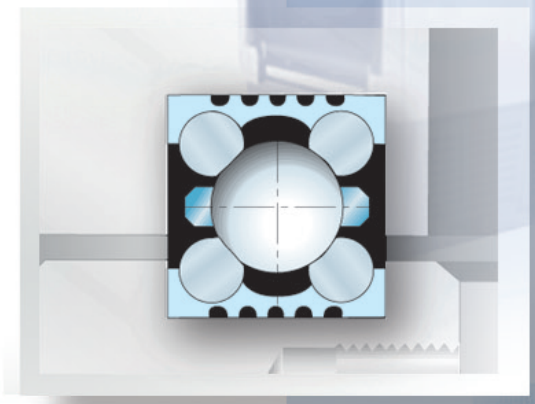
In all applications where two bearings are usually required to take the loads and moments our new compact bearings can replace them both.

Bearing assemblies for special demands

Two-sided elastomer bearing

This bearing was developed for particularly silent run and low structure borne noise. This aim was reached by race rings of high-surface quality which are embedded into elastomer. The rotational resistance is adjusted according to the application. This invention was patented.

The bearing proved to be successful in the range of computer tomographs. It is suitable for speeds up to 6 m/s. Inner and outer ring are electrically insulated against each other.

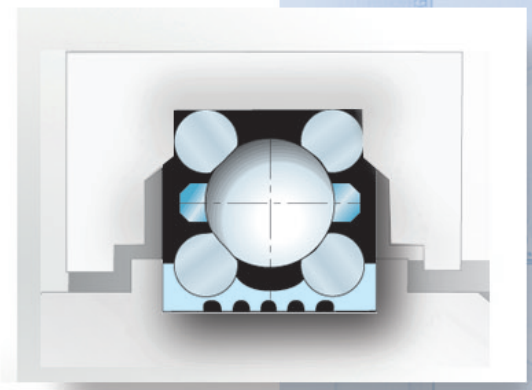


High load capacity silent running

One-sided elastomer bearing (hybrid bearing)

This bearing was developed on the basis of the low-noise bearing but it differs from that by its additional stiffness. Regarding smooth and silent run both bearings are nearly equal.

The hybrid bearing is mainly used in cases where high loads and moments are to be sustained. The inner ring is electrically insulated against the outer ring.

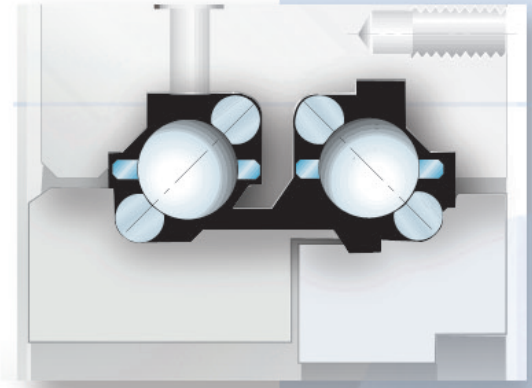


Low structure-borne noise
Free selection of dimensions

Angular ball bearing standard

The double row angular ball bearing was developed for CTs with high RPMs. Here two rows of balls are running in a defined way. The friction conditions are especially favourable and the bearings are particularly stiff and free from clearance even in the tilted condition.

This bearing type meets very high demands for precison and low running noise.

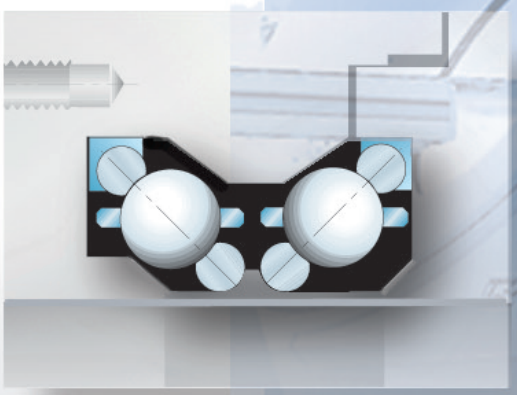


Choice of different versions

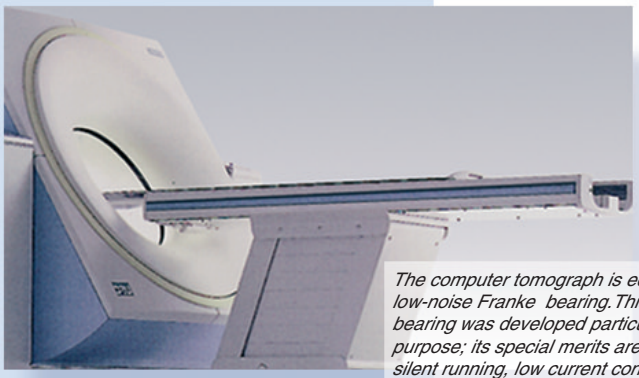
Angular ball bearing with elastomer inlay

We made good experience with the elastomer inlay from which we want to benefit also for the angular ball bearing. The loudness level was even more reduced by the elastomer, the same is true for the structure-borne noise.

The elastomer is used in the stationary ring. The inner ring is electrically isolated against the outer ring.

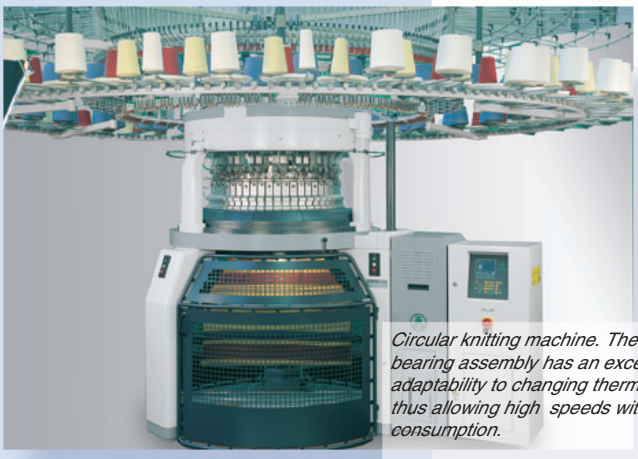


Application examples antifriction bearings



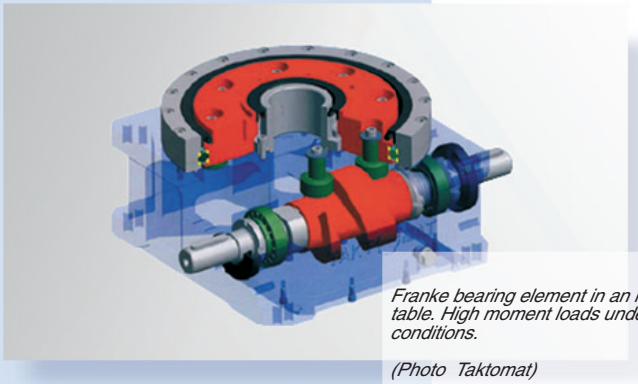
The computer tomograph is equipped with a low-noise Franke bearing. This patented bearing was developed particularly for this purpose; its special merits are very smooth and silent running, low current consumption, and high precision.

(Photo Siemens)



Circular knitting machine. The Franke bearing assembly has an excellent adaptability to changing thermal conditions, thus allowing high speeds with low energy consumption.

(Photo Mayer & Cie.)



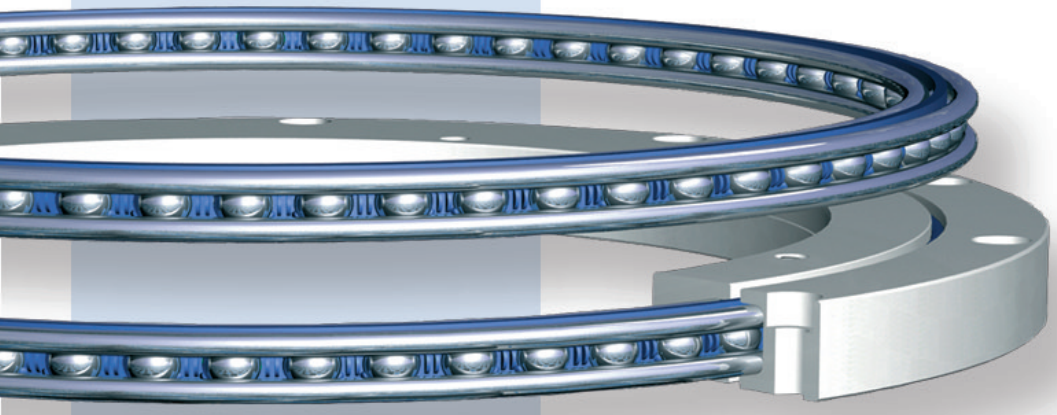
Franke bearing element in an indexing table. High moment loads under rough conditions.

(Photo Taktomat)

Franke bearings are proven in daily operation in numerous applications and markets.
In all cases where the Franke bearing system is incorporated consequently into the design, cost effective solutions result.

The special advantages of the bearings are the space saving design together with high load capacities for loads from whatever direction. The balls run on tough rings from spring steel which are embedded in the mating structure. Load capacity and running behaviour are therefore independent from the material of the mating structure, giving the designer a wide range of materials from which to choose.

Numerous series provide a wide selection range from the LowCost version to slim bearings and special solutions such as our angular ball bearings for CT-scanners.



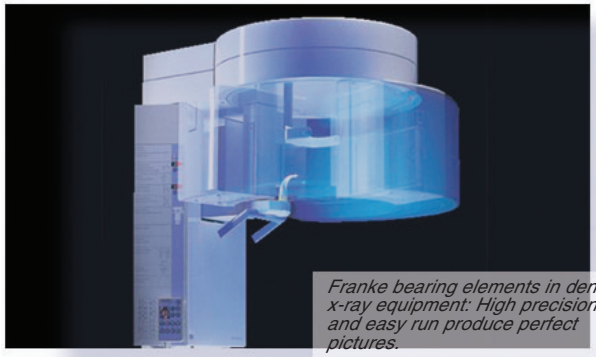
... visit our website
www.franke-gmbh.com
www.franke-bearings.com

Franke bearing elements in a vacuum-filler in food industries. Due to the space saving design and low price the vacuum-filler is small and economical.

(Photo SCHNELL)

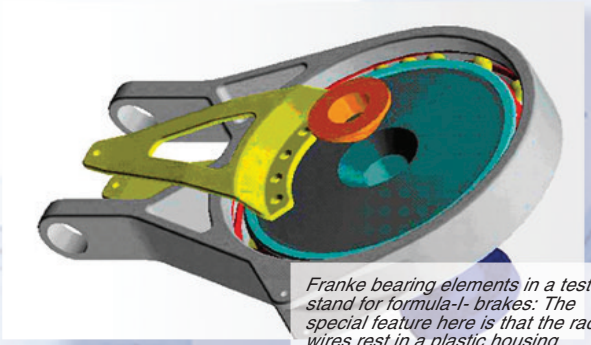
Franke angular bearing in a luggage scanner: High RPMs and the smooth and easy run produce very good results.

(Photo INVISION)



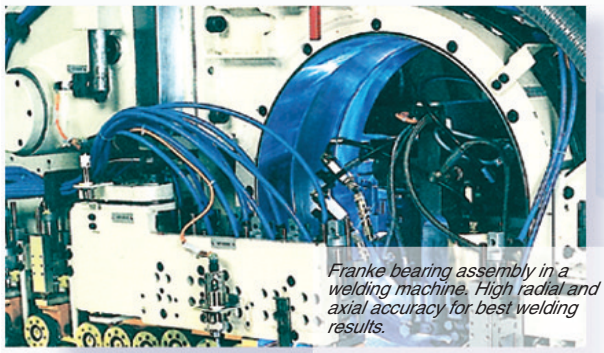
Franke bearing elements in dental x-ray equipment: High precision and easy run produce perfect pictures.

(Photo SIRONA)



Franke bearing elements in a test stand for formula-I- brakes: The special feature here is that the race wires rest in a plastic housing.

(Photo UNI STUTTGART)

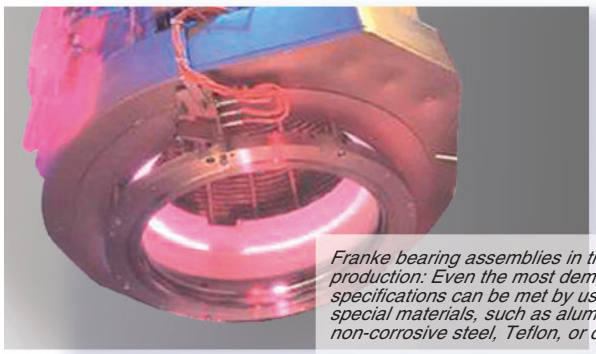


Franke bearing assembly in a welding machine. High radial and axial accuracy for best welding results.

(Photo NOTHELFER)

Franke bearings assemblies with gear, pinion, and drive: We supply bearing assemblies individually with drive according to your demands.

(Photo PTB)



Franke bearing assemblies in the chip production: Even the most demanding specifications can be met by using special materials, such as aluminium, non-corrosive steel, Teflon, or ceramics

(Photo ASML)

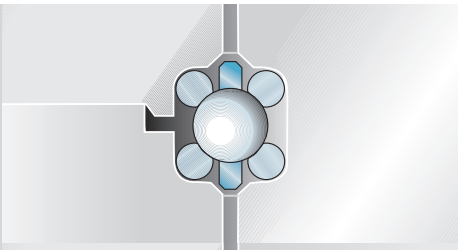
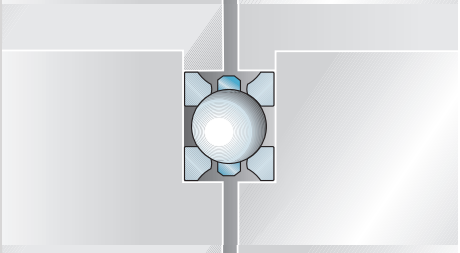
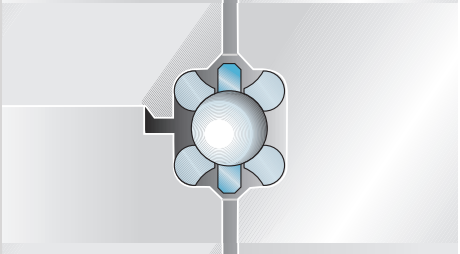
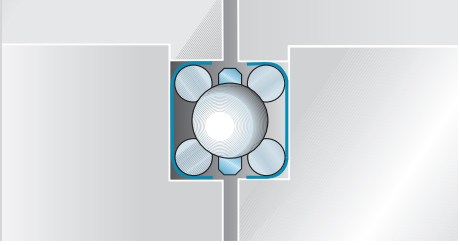
Franke bearing elements in a tree harvesting machine: The 4-point system enables these compact bearings to sustain very high leverages.

(Photo LOGMAX)

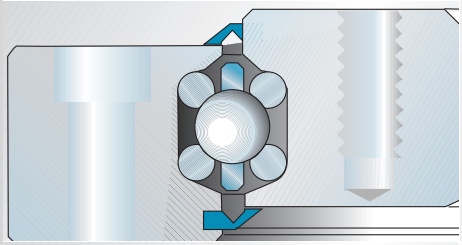
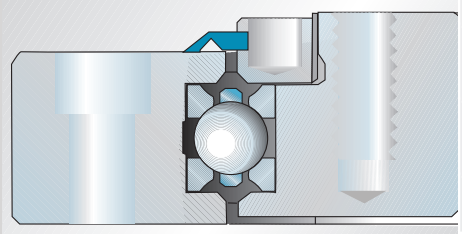
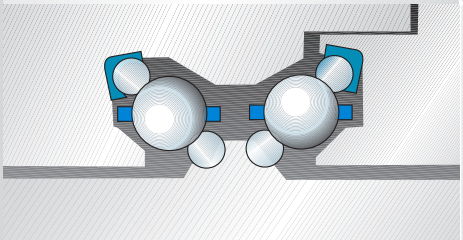
Survey antifriction bearings

Running accuracy
Circumferential speed
Radial and axial accuracy
Rotational resistance

Bearing elements

	Series	Features
	**LEL Ground races**	*the universal* Ground raceways made of spring steel for highest loads and accuracy.
	**LER Rectangular profile**	*the economical* Rectangular profile with drawn raceways for easy machining of the mating structure and low price.
	**LED Double profile**	*the double profiled* Either ground or drawn raceways for high loads and precision, very cost-effective.
	**LDD Slim bearing**	*the easy-to-mount* Slim bearings with metal sleeves for easy mounting in one piece. Ground raceways for high loads and high precision.

Bearing assemblies

	**LDL Steel Alu-minium**	*the ready-to-use* Complete bearing assembly with seal on both sides, ground raceways for high loads and precision.
	**LDV Preferential series**	*the preferential* Complete bearing assembly with seal on top and rectangular raceways with drawn surface, very cost-effective.
	**LDH Angular ball bearing**	*the high dynamic* Complete bearing assembly in customized design to match the special requests of the customer such as noise reduction, high RPMs, high accuracy.

top · very good · good · sufficient

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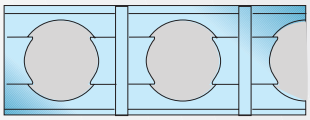
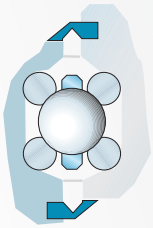
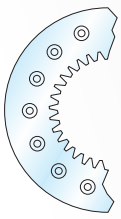
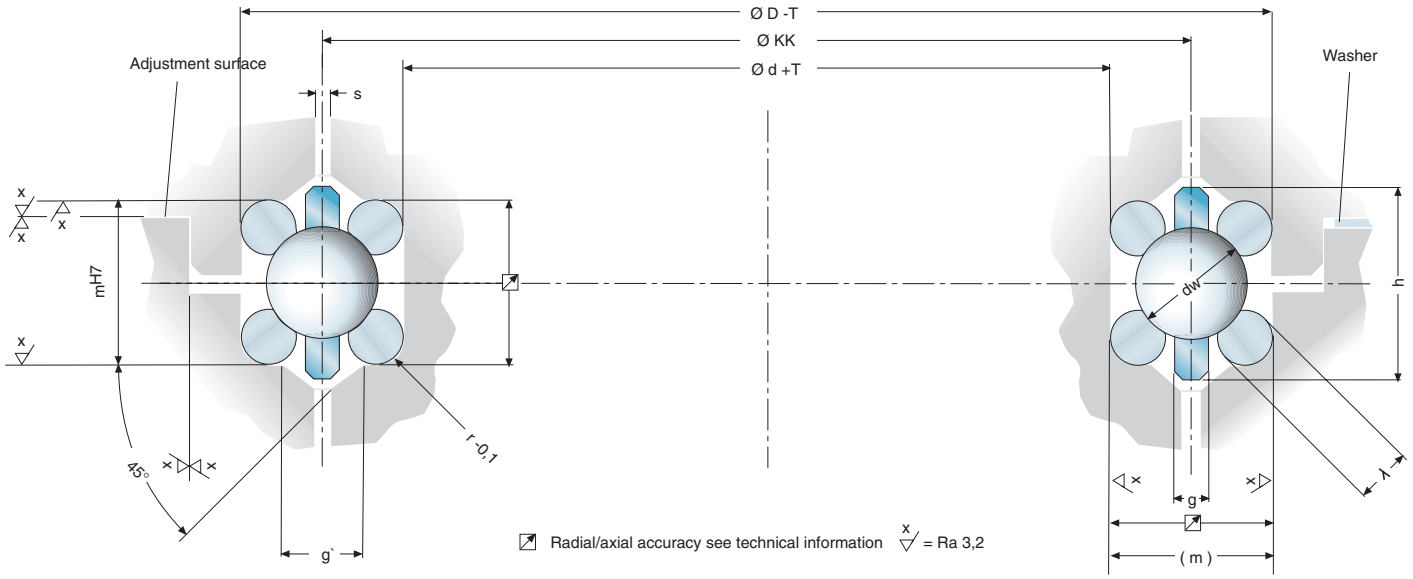
Diameter [mm]	Cross section [mm] (0 100 300 500 1000 1500 2000)	Load rating range [mm] (0 10 50 100 200 500 1000)	Page
5,9 x 5,9 7,4 x 7,4 9,2 x 9,2 10,6 x 10,6 14,1 x 14,1 18,4 x 18,4 22,6 x 22,6			16-17
11 x 13			18-19
12,86 x 12,86 12,95 x 12,95 13,19 x 13,19 14,61 x 14,61			20-21
9,525 x 9,525 12,700 x 12,700 19,050 x 19,050 25,400 x 25,400			22-23
			24-27
			28
on request		on request	29

Accessories	Page
Strip cage 	30
Washers 	31
Seal 	31
With gear 	27
Alternative materials	
Solutions with motor	

Bearing elements

with ground raceways

Series LEL



Ø KK	d_w	λ	m	r	g	h	g'	s	Tolerance T
70 - 145	5	1,5	5,9	0,65	1,5	7,6	-	2,6	
150 - 220	6	2,0	7,4	0,90	1,6	8,6	-	2,6	
225 - 295	8	2,5	9,2	1,15	2,0	10,6	4,0	1,4	KK Ø ≤ 500 mm T = (IT6*)
300 - 390	9	3,0	10,6	1,40	2,5	11,6	3,6	1,6	KK Ø ≥ 500 mm T = (IT7*)
400 - 790	12	4,0	14,1	1,90	2,5	15,0	4,5	2,0	
800 - 1180	16	5,0	18,4	2,40	3,0	19,6	5,5	2,0	
1200 - 1500	20	6,0	22,6	2,90	3,5	24,2	6,5	3,0	

Dimensions [mm], * DIN ISO 286

Consist of:
- Four ball race rings with ground raceways
- Segmented strip cage with retained balls

Features:
- Direct integration into your mating structure
- Free selection of ball pitch
- Smallest mounting space and high precision
- Best radial and axial accuracy
- Calculation programme to find the most suitable bearing
  Our calculation programme can be found in the download area of our homepage www.franke-gmbh.com. We are gladly prepared to calculate the bearing size for you

Ball race rings:
- Standard diameters from 1,5 to 6mm
- Special diameters up to 22 mm
  For special applications other race ring diameters or race rings without raceways are also available. Please consult us.

Rolling elements:
- Steel balls DIN5401, class III

Strip cage:
- Ball guided polyamide ball cage divided into segments
  The segmented strip cage runs very smoothly and silently and compensates length differences caused by high temperatures. The number of segments refers to the ball pitch diameter. For special applications and temperatures higher than 120° C we recommend ball cages made of non-corrosive steel or brass.

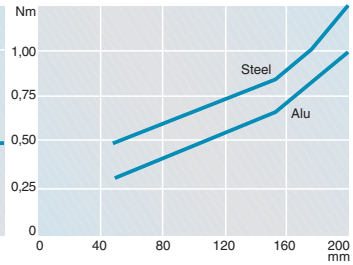
Lubrication:
- with ball bearing grease. For more information see page 34.

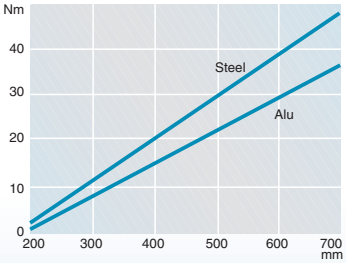
Temperature:
- Continuous operation: -40° C to +100° C, short time operation max. 120° C
- Other temperatures on request

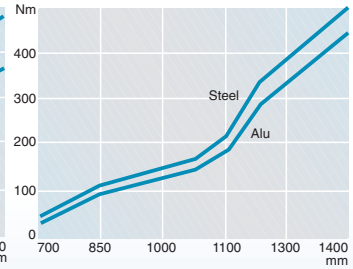
Adjustment:
- By plane surface
- By washers (see page 31)
  The preload is adjusted correctly when the rotational resistance without seal corresponds to table 1 (temperature range -40° C to +100° C).

Circumferrential speed:
- with grease lubrication max. 10 m/s
- with oil lubrication max. 12 m/s

	Ball race ring	Balls	Strip cage
Standard	54SlCr6	100Cr6	PA12
Special	X12CrNi177 X7CrNiAl177 Duratherm	X45Cr13 Oxidkeramik POM	Niro Bronze Brass hard plastics

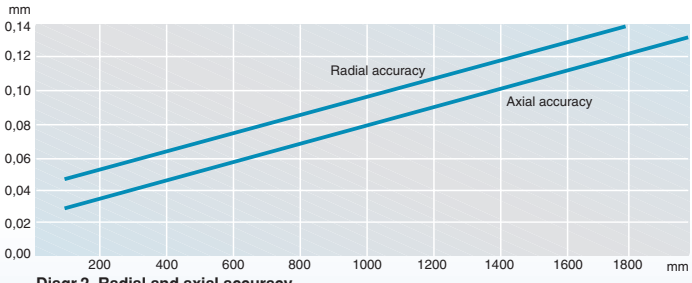






intermediate diameters on request

Ball pitch Ø KK [mm]	Load rating C [KN]	Co [KN]	Weight [kg]	Order number
70	4	5	0,03	71001A
75	4	5	0,03	71003A
80	4	6	0,03	71005A
85	4	6	0,03	71007A
90	4	6	0,04	71009A
95	4	7	0,04	71011A
100	4	7	0,04	71013A
105	4	7	0,04	71015A
110	4	8	0,04	71017A
115	4	8	0,04	71019A
120	4	9	0,04	71021A
125	4	9	0,05	71023A
130	5	9	0,05	71025A
135	5	10	0,05	71027A
140	5	10	0,05	71029A
145	5	10	0,06	71031A
150	9	19	0,09	71033A
155	9	19	0,09	71035A
160	10	20	0,09	71037A
165	10	20	0,09	71039A
170	10	21	0,10	71041A
175	10	22	0,10	71043A
180	10	23	0,10	71045A
185	10	23	0,10	71047A
190	10	24	0,11	71049A
195	10	24	0,11	71051A
200	10	25	0,12	71053A
205	10	26	0,12	71055A
210	10	26	0,12	71057A
215	11	27	0,13	71059A
220	11	28	0,14	71061A
225	16	49	0,22	71063A
230	16	51	0,22	71065A
235	16	52	0,22	71067A
240	16	53	0,22	71069A
245	17	54	0,22	71071A
250	17	55	0,23	71073A
255	17	56	0,23	71075A
260	17	58	0,23	71077A
265	17	59	0,24	71079A
270	17	59	0,24	71081A
275	17	60	0,25	71083A
280	17	62	0,25	71085A
285	17	63	0,26	71087A
290	18	64	0,27	71089A
295	18	66	0,29	71091A
300	23	93	0,42	71093A
310	23	97	0,50	71095A
320	24	100	0,50	71097A
330	24	104	0,50	71099A
340	24	106	0,60	71101A
350	25	109	0,60	71103A
360	25	113	0,70	71105A
370	25	116	0,70	71107A
380	25	119	0,80	71109A
390	26	122	0,90	71111A
400	43	161	1,00	71113A
410	44	165	1,02	71115A
420	44	170	1,00	71117A
430	44	174	1,10	71119A
440	45	178	1,10	71121A
450	45	182	1,10	71123A



Diagr.2 Radial and axial accuracy

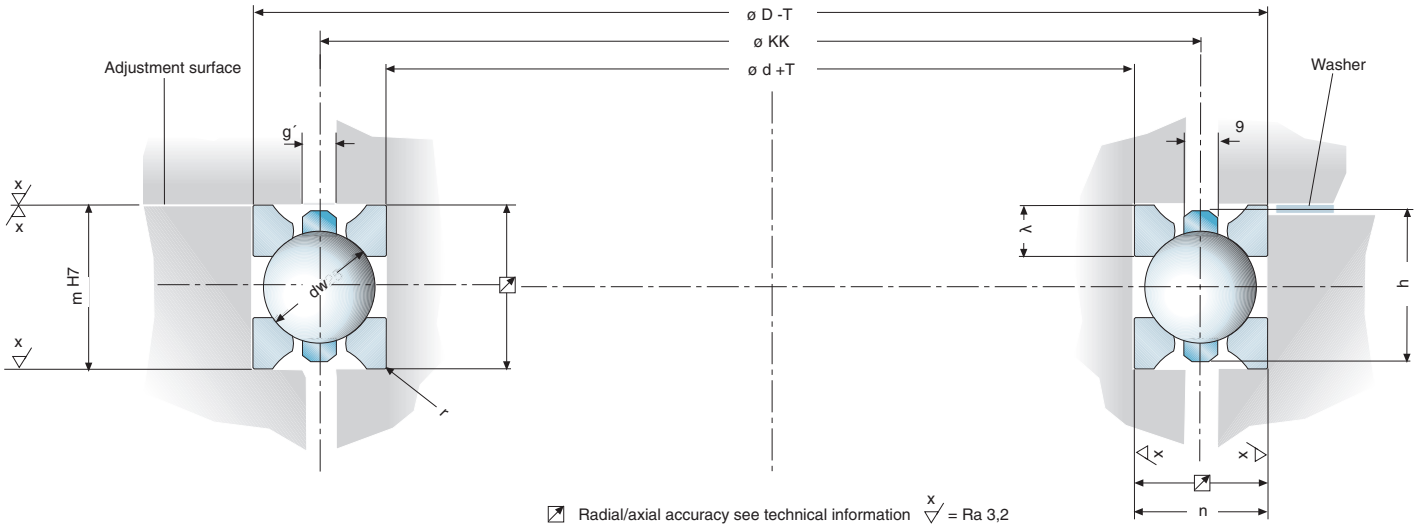
Ball pitch Ø KK [mm]	Load rating C [KN]	Co [KN]	Weight [kg]	Order number
460	46	186	1,10	71125A
470	46	191	1,10	71127A
480	46	195	1,20	71129A
490	47	199	1,20	71131A
500	47	203	1,20	71133A
510	47	207	1,20	71135A
520	48	211	1,30	71137A
530	48	216	1,30	71139A
540	49	220	1,30	71141A
550	49	222	1,30	71143A
560	49	226	1,40	71145A
570	49	230	1,40	71147A
580	50	234	1,40	71149A
590	50	239	1,50	71151A
600	50	243	1,50	71153A
610	51	245	1,50	71155A
620	51	251	1,50	71157A
630	51	255	1,60	71159A
640	51	259	1,60	71161A
650	52	264	1,60	71163A
660	52	268	1,70	71165A
670	52	272	1,70	71167A
680	53	276	1,70	71169A
690	53	280	1,80	71171A
700	53	285	1,80	71173A
710	54	289	1,80	71175A
720	54	293	1,90	71177A
730	54	297	1,90	71179A
740	54	301	2,00	71181A
750	55	305	2,00	71183A
760	55	310	2,00	71185A
770	55	314	2,10	71187A
780	56	318	2,10	71189A
790	56	322	2,10	71191A
800	83	426	3,40	71193A
810	83	433	3,50	71195A
820	84	437	3,50	71197A
830	84	444	3,60	71199A
840	84	447	3,60	71201A
850	85	454	3,70	71203A
860	85	461	3,80	71205A
870	85	464	3,80	71207A
880	86	471	3,90	71209A
890	86	474	4,00	71211A
900	87	481	4,00	71213A
920	87	492	4,10	71215A
940	88	502	4,20	71217A
960	89	512	4,20	71219A
980	89	523	4,30	71221A
1000	90	536	4,40	71223A
1020	91	547	4,50	71225A
1040	91	557	4,50	71227A
1060	92	567	4,60	71229A
1080	93	578	4,70	71231A
1100	93	588	4,80	71233A
1120	94	598	4,80	71235A
1140	95	612	4,90	71237A
1160	95	622	5,00	71239A
1180	96	633	5,00	71241A
1200	121	748	7,50	71243A
1220	122	764	7,60	71245A
1240	123	774	7,80	71247A
1260	124	790	7,90	71249A
1280	124	800	8,00	71251A
1300	125	816	8,20	71253A
1320	126	826	8,30	71255A
1340	126	837	8,50	71257A
1360	127	852	8,60	71259A
1380	128	863	8,80	71261A
1400	129	878	8,90	71263A
1420	129	889	9,10	71265A
1440	130	899	9,20	71267A
1460	130	915	9,40	71269A
1480	131	926	9,60	71271A
1500	132	941	9,60	71273A

max. Ø 7000 mm

Bearing elements

Rectangular profile with drawn races

Series LER



Ø KK	dw	λ	m	n	r max	g	h	g`	Tolerance
100 - 1500	9,525	4 x 3	13	11	0,3	2,5	12,6	3	KK Ø ≤ 500 mm T = IT6* KK Ø > 500 mm T = IT7*

Dimensions [mm], * DIN ISO 286

Consist of:
- Four ball race rings with drawn raceways
- Segmented strip cage with retained balls

Features:
- Direct integration into your mating structure
- Free selection of ball pitch
- Small mounting space and high precision
- Easy machining of the mating structure
- Calculation programme to find the most suitable bearing
  Our calculation programme can be found in the download area of our homepage www.franke-gmbh.com. We are gladly prepared to calculate the bearing size for you

Ball race rings:
- Rectangular profile 4 x 3 mm
- Drawn raceways
  For special applications other race ring diameters are also available. Please consult us.

Rolling elements:
- Steel balls DIN5401, class III

Strip cage:
- Ball guided polyamide ball cage divided into segments
  The segmented strip cage runs very smoothly and silently and compensates length differences caused by high temperatures. The number of segments refers to the ball pitch diameter. For special applications and temperatures higher than 120° C we recommend ball cages made of non-corrosive steel or brass.

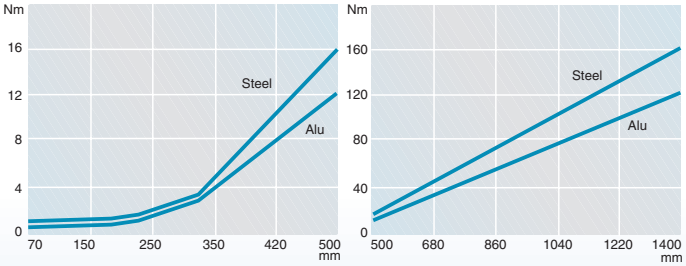
Lubrication:
- with ball bearing grease. For more information see page 34.

Temperature:
- Continuous operation: -40° C to +100° C, short time operation max. 120° C
- Other temperatures on request

Adjustment:
- By plane surface
- By washers (see page 31)
  The preload is adjusted correctly when the rotational resistance without seal corresponds to table 1 (temperature range -40° C to +100° C).

Circumferrential speed:
- with grease lubrication max. 10 m/s
- with oil lubrication max. 12 m/s

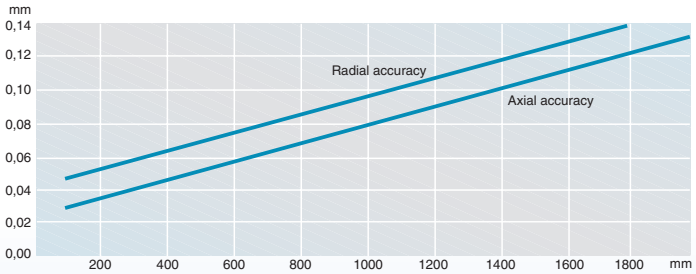
	Ball race ring	Balls	Strip cage
Standard	54SICr6	100Cr6	PA12
Special	Corrotec ATC-Beschichtung	Messing-Flachkäfig	X45Cr13



intermediate diameters on request

Ball pitch Ø KK [mm]	Load rating C [KN]	Co [KN]	Weight [kg]	Order number
100	17	25	0,20	68460A
105	17	26	0,20	68461A
110	18	28	0,20	68462A
115	18	29	0,20	68463A
120	18	30	0,20	68464A
125	19	33	0,20	68465A
130	19	34	0,20	68466A
135	20	35	0,20	68467A
140	20	36	0,20	68468A
145	20	37	0,20	68469A
150	20	39	0,30	74060A
155	20	40	0,30	74061A
160	20	41	0,30	74062A
165	21	43	0,30	74063A
170	21	45	0,30	74064A
175	21	46	0,30	74065A
180	22	47	0,30	74066A
185	22	48	0,30	74067A
190	22	49	0,30	74068A
195	22	51	0,30	74069A
200	23	52	0,30	74070A
205	23	54	0,30	74071A
210	23	55	0,30	74072A
215	23	57	0,30	74073A
220	24	58	0,40	74074A
225	24	59	0,40	74075A
230	24	60	0,40	74076A
235	24	61	0,40	74077A
240	24	63	0,40	74078A
245	24	64	0,40	74079A
250	25	66	0,40	74080A
255	25	67	0,40	74081A
260	25	69	0,40	74082A
265	25	70	0,40	74083A
270	25	71	0,40	74084A
275	26	72	0,50	74085A
280	26	73	0,50	74086A
285	26	75	0,50	74087A
290	26	77	0,50	74088A
295	26	78	0,50	74089A
300	27	79	0,50	74090A
310	27	82	0,50	74091A
320	27	84	0,50	74092A
330	28	88	0,60	74093A
340	28	90	0,60	74094A
350	28	92	0,60	74095A
360	28	95	0,60	74096A
370	29	98	0,60	74097A
380	29	100	0,60	74098A
390	29	103	0,60	74099A
400	29	106	0,70	74100A
410	30	109	0,70	74101A
420	30	112	0,70	74102A
430	30	114	0,70	74103A
440	31	116	0,70	74104A
450	31	119	0,70	74105A
460	31	122	0,80	74106A
470	31	125	0,80	74107A
480	32	127	0,80	74108A
490	32	130	0,80	74109A
500	32	133	0,80	74110A

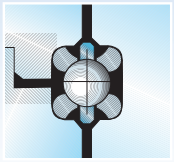
Ball pitch Ø KK [mm]	Load rating C [KN]	Co [KN]	Weight [kg]	Order number
510	32	136	0,80	74111A
520	33	138	0,90	74112A
530	33	140	0,90	74113A
540	33	144	0,90	74114A
550	33	146	0,90	74115A
560	33	149	1,00	74116A
570	34	151	1,00	74117A
580	34	155	1,00	74118A
590	34	157	1,00	74119A
600	34	159	1,10	74120A
610	34	162	1,10	74121A
620	35	165	1,10	74122A
630	35	168	1,10	74123A
640	35	170	1,20	74124A
650	35	173	1,20	74125A
660	36	176	1,20	74126A
670	36	179	1,20	74127A
680	36	181	1,30	74128A
690	36	183	1,30	74129A
700	36	187	1,30	74130A
710	36	189	1,40	74131A
720	37	192	1,40	74132A
730	37	194	1,40	74133A
740	37	198	1,50	74134A
750	37	200	1,50	74135A
760	37	203	1,50	74136A
770	38	205	1,50	74137A
780	38	209	1,60	74138A
790	38	211	1,60	74139A
800	38	213	1,60	74140A
810	38	216	1,60	74141A
820	39	219	1,70	74142A
830	39	222	1,70	74143A
840	39	224	1,70	74144A
850	39	226	1,70	74145A
860	39	229	1,80	74146A
870	39	232	1,80	74147A
880	40	235	1,80	74148A
890	40	237	1,90	74149A
900	40	240	1,90	74150A
920	40	246	1,90	74151A
940	40	250	1,90	74152A
960	41	256	2,00	74153A
980	41	261	2,00	74154A
1000	41	267	2,00	74155A
1020	42	272	2,10	74156A
1040	42	278	2,10	74157A
1060	42	283	2,10	74158A
1080	43	289	2,20	74159A
1100	43	293	2,20	74160A
1120	43	299	2,20	74161A
1140	43	304	2,30	74162A
1160	44	310	2,30	74163A
1180	44	315	2,40	74164A
1200	44	321	2,40	74165A
1220	45	326	2,40	74166A
1240	45	332	2,50	74167A
1260	45	337	2,50	74168A
1280	45	343	2,50	74169A
1300	46	347	2,60	74170A
1320	46	353	2,60	74171A
1340	46	358	2,70	74172A
1360	46	364	2,70	74173A
1380	47	369	2,80	74174A
1400	47	375	2,80	74175A
1420	47	377	2,80	74176A
1440	47	386	2,90	74177A
1460	48	390	2,90	74178A
1480	48	396	3,00	74179A
1500	48	401	3,00	74180A



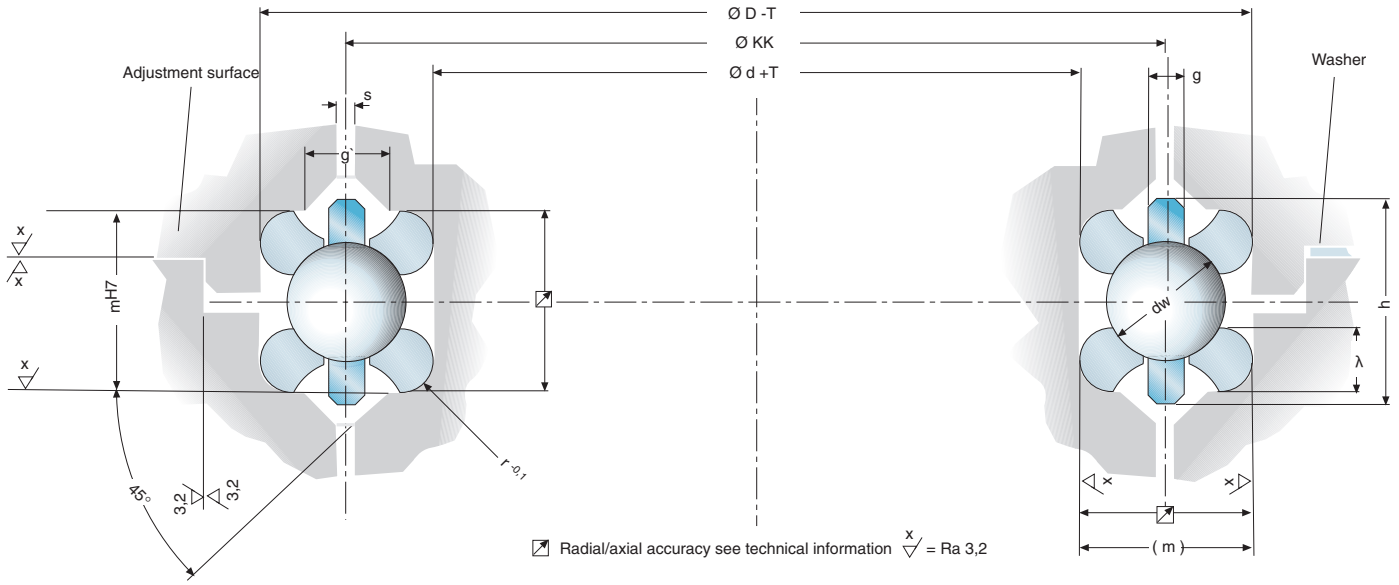
Diagr.2 Radial and axial accuracy

Bearing elements

Double profile with ground resp. drawn races



Series LED



Version	Ø KK		d_w	λ	m	r	g	h	g`	s	Tolerance T
A	100 - 1500	drawn	9,525	4	12,86	1,9	2,5	12,6	3,5	1,6	
B	100 - 1500	ground	9,525	4	12,95	1,9	2,5	12,6	3,5	1,6	KK Ø ≤ 500 mm T = IT6*
C	100 - 1500	ground	10,000	4	13,19	1,9	2,5	13,2	4,0	1,6	KK Ø > 500 mm T = IT7*
D	100 - 1500	ground	12,000	4	14,61	1,9	2,5	15,0	4,5	2,0	

Dimensions [mm], * DIN ISO 286

Consist of:
- Four ball race rings with ground resp. drawn raceways
- Segmented strip cage with retained balls

Features:
- Direct integration into your mating structure
- Free selection of ball pitch
- Small mounting space and high precision
- High radial and axial accuracy with best cost/performance ratio
- Calculation programme to find the most suitable bearing
  Our calculation programme can be found in the download area of our homepage www.franke-gmbh.com. We are gladly prepared to calculate the bearing size for you.

Ball race rings:
- Standard diameters 4 mm
- Ground or drawn raceways
- For special applications other race ring diameters or race rings without raceways are also available. Please consult us.

Rolling elements:
- Steel balls DIN5401, class III

Strip cage:
- Ball guided polyamide ball cage divided into segments
  The segmented strip cage runs very smoothly and silently and compensates length differences caused by high temperatures. The number of segments refers to the ball pitch diameter. For special applications and temperatures higher than 120° C we recommend ball cages made of non-corrosive steel or brass.

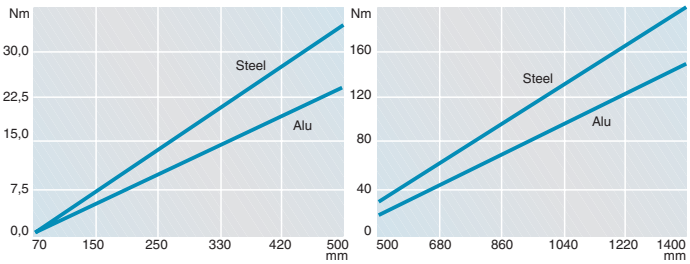
Lubrication:
- with ball bearing grease. For more information see page 34.

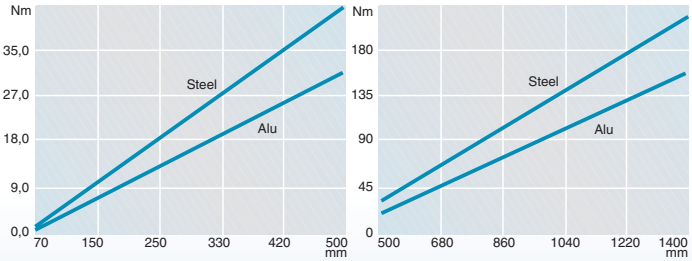
Temperature:
- Continuous operation: -40° C to +100° C, short time operation max. 120° C
- Other temperatures on request

Adjustment:
- By plane surface
- By washers (see page 31)
  The preload is adjusted correctly when the rotational resistance without seal corresponds to table 1 (temperature range -40° C to +100°C).

Circumferrential speed:
- with grease lubrication max. 10 m/s
- with oil lubrication max. 12 m/s

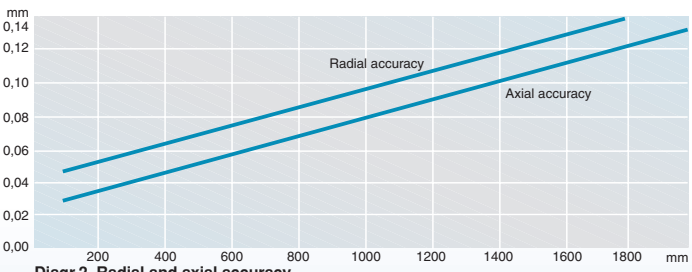
	Ball race ring	Balls	Stripe cage
Standard	54SICr6	100Cr6	PA12
Special	Corrotec ATC-covered	X45Cr13	Brass flat cage





intermediate diameters on request

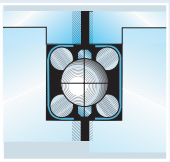
Ball pitch Ø KK	Load rating A,B		Load rating C		Load rating D		Weight	Order number Version B	Order number Version A	Order number Version C	Order number Version D
[mm]	C [KN]	Co [KN]	C [KN]	Co [KN]	C [KN]	Co [KN]	[kg]	drawn	ground	drawn	ground
100	17	25	22	28	24	30	0,26	68310B	68310A	68310C	68310D
105	17	26	23	30	25	31	0,27	68311B	68311A	68311C	68311D
110	18	28	23	31	26	33	0,27	68312B	68312A	68312C	68312D
115	18	29	24	33	26	35	0,28	68313B	68313A	68313C	68313D
120	18	30	24	34	26	36	0,28	68314B	68314A	68314C	68314D
125	19	33	24	35	27	38	0,29	68315B	68315A	68315C	68315D
130	19	34	25	37	27	39	0,30	68316B	68316A	68316C	68316D
135	20	35	25	38	28	41	0,30	68317B	68317A	68317C	68317D
140	20	36	26	41	28	42	0,31	68318B	68318A	68318C	68318D
145	20	37	26	42	29	45	0,31	68319B	68319A	68319C	68319D
150	20	39	27	43	30	47	0,32	77200B	77200A	77200C	77200D
155	20	40	27	45	30	49	0,33	77201B	77201A	77201C	77201D
160	20	41	27	46	30	50	0,34	77202B	77202A	77202C	77202D
165	21	43	27	47	31	52	0,34	77203B	77203A	77203C	77203D
170	21	45	28	49	31	53	0,35	77204B	77204A	77204C	77204D
175	21	46	28	50	31	53	0,36	77205B	77205A	77205C	77205D
180	22	47	28	51	32	56	0,37	77206B	77206A	77206C	77206D
185	22	48	29	54	32	58	0,37	77207B	77207A	77207C	77207D
190	22	49	29	55	32	59	0,38	77208B	77208A	77208C	77208D
195	22	51	29	57	33	61	0,39	77209B	77209A	77209C	77209D
200	23	52	30	58	33	63	0,40	77210B	77210A	77210C	77210D
205	23	54	30	59	33	64	0,41	77211B	77211A	77211C	77211D
210	23	55	30	61	34	66	0,42	77212B	77212A	77212C	77212D
215	23	57	30	62	34	67	0,42	77213B	77213A	77213C	77213D
220	24	58	31	63	34	69	0,43	77214B	77214A	77214C	77214D
225	24	59	31	66	34	70	0,44	77215B	77215A	77215C	77215D
230	24	60	31	67	35	72	0,45	77216B	77216A	77216C	77216D
235	24	61	32	69	35	73	0,46	77217B	77217A	77217C	77217D
240	24	63	32	70	35	75	0,47	77218B	77218A	77218C	77218D
245	24	64	32	71	36	77	0,48	77219B	77219A	77219C	77219D
250	25	66	32	73	36	78	0,49	77220B	77220A	77220C	77220D
255	25	67	32	74	36	80	0,50	77221B	77221A	77221C	77221D
260	25	69	33	75	36	81	0,51	77222B	77222A	77222C	77222D
265	25	70	33	77	37	84	0,52	77223B	77223A	77223C	77223D
270	25	71	33	80	37	86	0,54	77224B	77224A	77224C	77224D
275	26	72	34	81	38	87	0,55	77225B	77225A	77225C	77225D
280	26	73	34	82	38	89	0,56	77226B	77226A	77226C	77226D
285	26	75	34	84	38	91	0,57	77227B	77227A	77227C	77227D
290	26	77	34	85	38	92	0,58	77228B	77228A	77228C	77228D
295	26	78	34	86	38	94	0,60	77229B	77229A	77229C	77229D
300	27	79	35	88	39	95	0,61	77230B	77230A	77230C	77230D
310	27	82	35	90	39	98	0,62	77231B	77231A	77231C	77231D
320	27	84	36	94	40	101	0,64	77232B	77232A	77232C	77232D
330	28	88	36	97	40	105	0,65	77233B	77233A	77233C	77233D
340	28	90	36	100	40	108	0,66	77234B	77234A	77234C	77234D
350	28	92	37	102	41	111	0,68	77235B	77235A	77235C	77235D
360	28	95	37	106	41	114	0,69	77236B	77236A	77236C	77236D
370	29	98	38	109	42	117	0,71	77237B	77237A	77237C	77237D
380	29	100	38	112	42	120	0,72	77238B	77238A	77238C	77238D
390	29	103	38	114	43	125	0,74	77239B	77239A	77239C	77239D
400	29	106	39	118	43	128	0,75	77240B	77240A	77240C	77240D
410	30	109	39	121	44	131	0,77	77241B	77241A	77241C	77241D
420	30	112	39	124	44	134	0,79	77242B	77242A	77242C	77242D
430	30	114	40	126	44	137	0,80	77243B	77243A	77243C	77243D
440	31	116	40	130	45	140	0,82	77244B	77244A	77244C	77244D
450	31	119	40	133	45	143	0,84	77245B	77245A	77245C	77245D
460	31	122	41	136	45	147	0,86	77246B	77246A	77246C	77246D
470	31	125	41	139	46	150	0,87	77247B	77247A	77247C	77247D
480	32	127	41	141	46	153	0,89	77248B	77248A	77248C	77248D
490	32	130	42	145	46	156	0,91	77249B	77249A	77249C	77249D
500	32	133	42	148	47	159	0,93	77250B	77250A	77250C	77250D



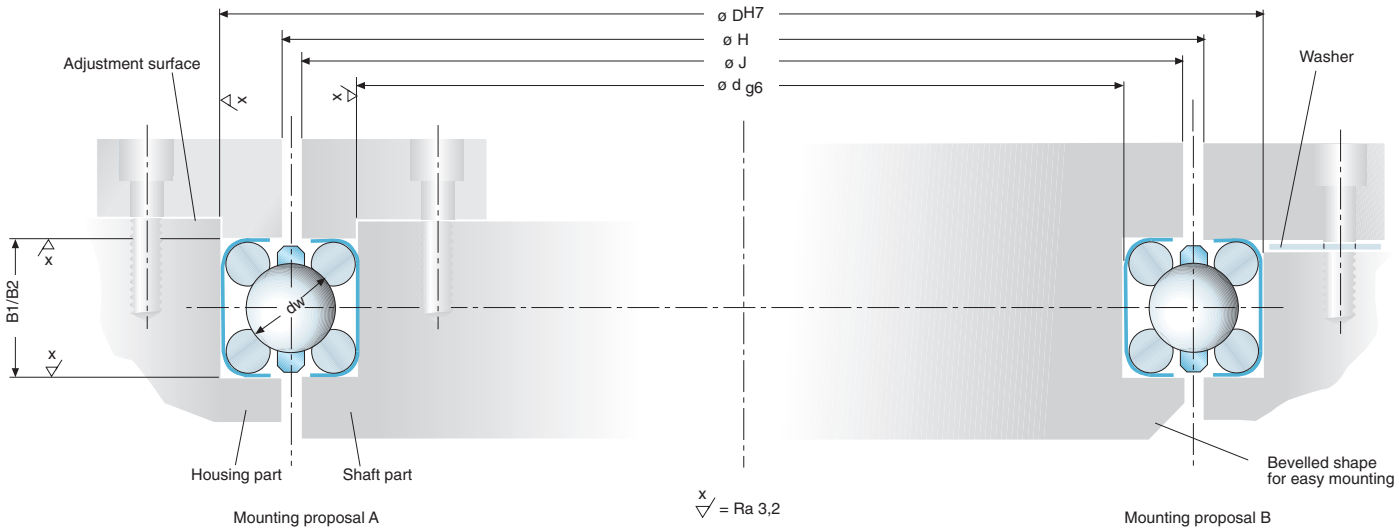
Diagr.2 Radial and axial accuracy

Ball pitch Ø KK	Load rating A,B		Load rating C		Load rating D		Weight	Order number Version B	Order number Version A	Order number Version C	Order number Version D
[mm]	C [KN]	Co [KN]	C [KN]	Co [KN]	C [KN]	Co [KN]	[kg]	drawn	ground	drawn	ground
510	32	136	42	151	47	164	0,95	77251B	77251A	77251C	77251D
520	33	138	43	153	48	167	0,97	77252B	77252A	77252C	77252D
530	33	140	43	157	48	170	0,99	77253B	77253A	77253C	77253D
540	33	144	43	160	48	173	1,01	77254B	77254A	77254C	77254D
550	33	146	43	163	49	176	1,04	77255B	77255A	77255C	77255D
560	33	149	44	165	49	179	1,06	77256B	77256A	77256C	77256D
570	34	151	44	169	49	182	1,08	77257B	77257A	77257C	77257D
580	34	155	44	172	49	185	1,10	77258B	77258A	77258C	77258D
590	34	157	45	175	50	189	1,13	77259B	77259A	77259C	77259D
600	34	159	45	147	50	192	1,15	77260B	77260A	77260C	77260D
610	34	162	45	180	50	195	1,18	77261B	77261A	77261C	77261C
620	35	165	45	184	51	189	1,20	77262B	77262A	77262C	77262D
630	35	168	46	187	51	201	1,23	77263B	77263A	77263C	77263D
640	35	170	46	189	51	206	1,25	77264B	77264A	77264C	77264D
650	35	173	46	192	52	209	1,28	77265B	77265A	77265C	77265D
660	36	176	47	196	52	212	1,31	77266B	77266A	77266C	77266D
670	36	179	47	199	52	215	1,34	77267B	77267A	77267C	77267D
680	36	181	47	202	53	218	1,37	77268B	77268A	77268C	77268D
690	36	183	47	204	53	221	1,40	77269B	77269A	77269C	77269D
700	36	187	48	208	53	224	1,43	77270B	77270A	77270C	77270D
710	36	189	48	211	53	228	1,46	77271B	77271A	77271C	77271D
720	37	192	48	214	54	231	1,49	77272B	77272A	77272C	77272D
730	37	194	48	216	54	234	1,52	77273B	77273A	77273C	77273D
740	37	198	48	219	54	237	1,55	77274B	77274A	77274C	77274D
750	37	200	49	223	55	242	1,59	77275B	77275A	77275C	77275D
760	37	203	49	226	55	245	1,62	77276B	77276A	77276C	77276D
770	38	205	49	228	55	248	1,65	77277B	77277A	77277C	77277D
780	38	209	49	231	55	251	1,69	77278B	77278A	77278C	77278D
790	38	211	50	235	56	254	1,73	77279B	77279A	77279C	77279D
800	38	213	50	238	56	257	1,76	77280B	77280A	77280C	77280D
810	38	216	50	240	56	260	1,80	77281B	77281A	77281C	77281D
820	39	219	50	243	56	263	1,84	77282B	77282A	77282C	77282D
830	39	222	51	246	57	266	1,88	77283B	77283A	77283C	77283D
840	39	224	51	250	57	270	1,92	77284B	77284A	77284C	77284D
850	39	226	51	253	57	273	1,96	77285B	77285A	77285C	77285D
860	39	229	51	255	57	276	2,00	77286B	77286A	77286C	77286D
870	39	232	51	258	58	280	2,05	77287B	77287A	77287C	77287D
880	40	235	52	62	58	284	2,09	77288B	77288A	77288C	77288D
890	40	237	52	265	58	287	2,14	77289B	77289A	77289C	77289D
900	40	240	52	267	58	290	2,18	77290B	77290A	77290C	77290D
920	40	246	53	274	59	296	2,23	77291B	77291A	77291C	77291D
940	40	250	53	279	59	302	2,28	77292B	77292A	77292C	77292D
960	41	256	54	286	60	308	2,33	77293B	77293A	77293C	77293D
980	41	261	54	291	60	315	2,38	77294B	77294A	77294C	77294D
1000	41	267	54	297	60	321	2,43	77295B	77295A	77295C	77295D
1020	42	272	55	304	61	329	2,48	77296B	77296A	77296C	77296D
1040	42	278	55	309	61	335	2,53	77297B	77297A	77297C	77297D
1060	42	283	55	316	62	341	2,59	77298B	77298A	77298C	77298D
1080	43	289	56	321	62	347	2,64	77299B	77299A	77299C	77299D
1100	43	293	56	328	63	354	2,70	77300B	77300A	77300C	77300D
1120	43	299	57	333	63	360	2,76	77301B	77301A	77301C	77301D
1140	43	304	57	340	64	368	2,82	77302B	77302A	77302C	77302D
1160	44	310	57	345	64	374	2,88	77303B	77303A	77303C	77303D
1180	44	315	58	350	64	380	2,94	77304B	77304A	77304C	77304D
1200	44	321	58	357	65	386	3,00	77305B	77305A	77305C	77305D
1220	45	326	58	363	65	393	3,07	77306B	77306A	77306C	77306D
1240	45	332	59	369	65	399	3,13	77307B	77307A	77307C	77307D
1260	45	337	59	375	66	407	3,20	77308B	77308A	77308C	77308D
1280	45	343	59	381	66	413	3,27	77309B	77309A	77309C	77309D
1300	46	347	60	387	67	419	3,34	77310B	77310A	77310C	77310D
1320	46	353	60	393	67	425	3,41	77311B	77311A	77311C	77311D
1340	46	358	60	399	67	431	3,48	77312B	77312A	77312C	77312D
1360	46	364	61	405	68	438	3,56	77313B	77313A	77313C	77313D
1380	47	369	61	411	68	445	3,64	77314B	77314A	77314C	77314D
1400	47	375	61	418	69	452	3,71	77315B	77315A	77315C	77315D
1420	47	400	62	423	69	458	3,79	77316B	77316A	77316C	77316D
1440	47	386	62	430	69	464	3,87	77317B	77317A	77317C	77317D
1460	48	390	62	435	70	470	3,96	77318B	77318A	77318C	77318D
1480	48	396	63	442	70	478	4,00	77319B	77319A	77319C	77319D
1500	48	401	63	447	70	484	4,00	77320B	77320A	77320C	77320D

Slim bearings



Series LDD



Cross section	Diameter D	Nominal dim. B	Ball Ø d_w	Mounting dim. class PL1 B1	Starting torque	Mounting dim. class PL2 B2	Starting torque
3/8"	139 - 654	9,525	6	9,57 - 0,02	3 + 2,0	9,53 - 0,02	5 + 2,5
1/2"	177 - 660	12,700	8	12,76 - 0,03	4 + 2,5	12,72 - 0,03	6 + 3,0
3/4"	215 - 673	19,050	15	19,12 - 0,03	5 + 2,5	19,07 - 0,03	7 + 3,0
1"	254 - 685	25,400	20	25,48 - 0,03	6 + 2,5	25,42 - 0,03	8 + 3,0

Dimensions [mm], Moments [Nm]

Consist of:
- Two metal sleeves that hold the bearing
- Four ball race rings with ground raceways
- Segmented strip cage with retained balls

Features:
- Direct integration into your mating structure
- Easy mounting of the machine structure
- Small mounting space and high precision
- Calculation programme to find the most suitable bearing
  Our calculation programme can be found in the download area of our homepage www.franke-gmbh.com. We are gladly prepared to calculate the bearing size for you

Sleeves:
- Ready-to-mount bearing elements with inner and outer sleeve

Rolling elements:
- Steel balls DIN5401, class III

Strip cage:
- Ball guided polyamide ball cage divided into segments
  The segmented strip cage runs very smoothly and silently and compensates length differences caused by high temperatures. The number of segments refers to the ball pitch diameter. For special applications and temperatures higher than 120°C we recommend ball cages made of non-corrosive steel or brass.

Lubrication:
- With ball bearing grease. For more information see page 34.

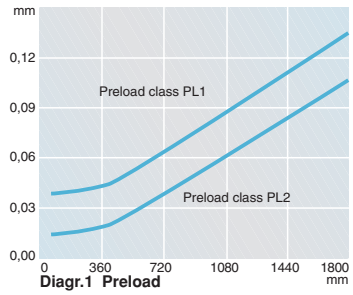
Temperature:
- Continuous operation: -10°C to +70°C, short time operation max. 120° C
- Other temperatures on request

Adjustment:
- By plane surface
- By washers (see page 31)
  The preload is adjusted correctly when the rotational resistance without seal corresponds to table 1 (temperature range -40° C to +100° C).

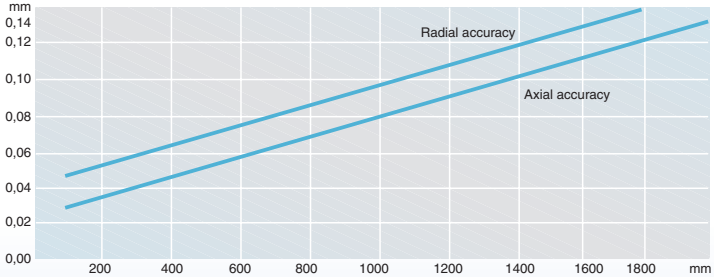
Circumferrential speed:
- with grease lubrication max. 10 m/s
- with oil lubrication max. 12 m/s

	Sleeve	Ball race ring	Balls	Stripe cage
Standard	Ck55	54SiCr6	100Cr6	PA12
Special				Niro Bronce Brass Hard plastics

Tab.1 Material



Diagr.1 Preload



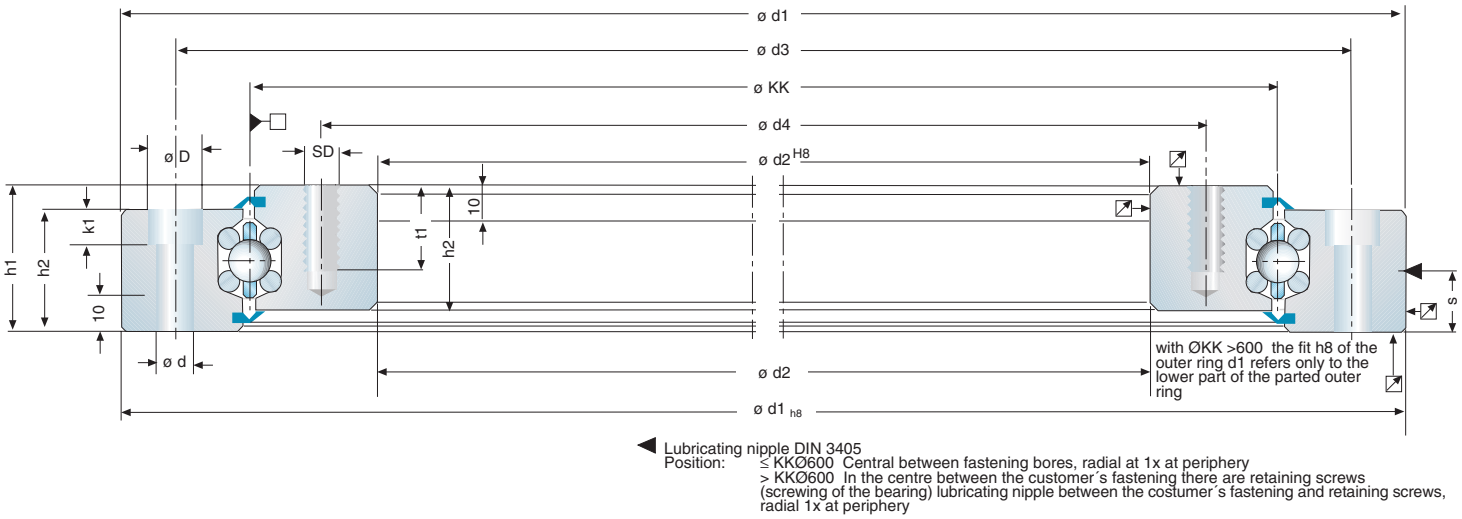
Diagr.2 Radial and axial accuracy

		Dimensions						Load rating		Weight	Order number
		d [inch]	D [inch]	d [mm]	D [mm]	H (min.) [mm]	J (max.) [mm]	dyn. C [KN]	stat. C_0 [KN]	ca. [kg]	
Cross section	**3/8"**	4,75	5,50	120,65	139,70	132	128	15	24	0,15	**75067A**
		5	5,75	127,00	146,05	139	134	16	25	0,16	**75068A**
		5,5	6,25	139,70	158,75	151	147	16	28	0,18	**75069A**
		6	6,75	152,40	171,45	164	159	17	30	0,19	**75070A**
		6,5	7,25	165,10	184,15	177	172	17	33	0,21	**75071A**
		7	7,75	177,80	196,85	189	185	18	35	0,22	**75072A**
		7,5	8,25	190,50	209,55	202	197	18	37	0,24	**75073A**
		8	8,75	203,20	222,25	215	210	19	40	0,25	**75074A**
		9	9,75	228,60	247,65	240	236	20	45	0,29	**75075A**
		10	10,75	254,00	273,05	266	261	20	50	0,32	**75076A**
		11	11,75	279,40	298,45	291	286	21	54	0,35	**75077A**
		12	12,75	304,80	323,85	316	312	22	59	0,38	**75078A**
		14	14,75	355,60	374,65	367	363	23	69	0,44	**75079A**
		16	16,75	406,40	425,45	418	413	24	78	0,50	**75080A**
		18	18,75	457,20	476,25	469	464	25	88	0,56	**75081A**
		20	20,75	508,00	527,05	520	515	26	98	0,63	**75082A**
		25	25,75	635,00	654,05	647	642	28	122	0,78	**75083A**
Cross section	**1/2"**	6	7,00	152,40	177,80	168	162	27	33	0,34	**75010A**
		6,5	7,50	165,10	190,50	181	174	28	35	0,36	**75011A**
		7	8,00	177,80	203,20	193	187	29	37	0,39	**75012A**
		7,5	8,50	190,50	215,90	206	200	30	41	0,42	**75013A**
		8	9,00	203,20	228,60	219	213	30	43	0,45	**75014A**
		9	10,00	228,60	254,00	244	238	31	48	0,50	**75015A**
		10	11,00	254,00	279,40	270	263	32	53	0,56	**75016A**
		11	12,00	279,40	304,80	295	289	34	58	0,61	**75017A**
		12	13,00	304,80	330,20	320	314	35	64	0,66	**75018A**
		14	15,00	355,60	381,00	371	365	37	74	0,77	**75019A**
		16	17,00	406,40	431,80	422	416	39	84	0,88	**75020A**
		18	19,00	457,20	482,60	473	467	40	95	0,99	**75021A**
		20	21,00	508,00	533,40	524	517	42	105	1,09	**75022A**
		25	26,00	635,00	660,40	651	644	45	131	1,36	**75023A**
Cross section	**3/4"**	7	8,50	177,80	215,90	201	192	73	73	0,89	**75032A**
		7,5	9,00	190,50	228,60	214	205	75	78	0,95	**75033A**
		8	9,50	203,20	241,30	227	217	77	82	1,01	**75034A**
		9	10,50	228,60	266,70	252	243	80	92	1,13	**75035A**
		10	11,50	254,00	292,10	278	268	84	103	1,26	**75036A**
		11	12,50	279,40	317,50	303	293	87	112	1,38	**75037A**
		12	13,50	304,80	342,90	328	319	89	121	1,49	**75038A**
		14	15,50	355,60	393,70	379	370	95	142	1,74	**75039A**
		16	17,50	406,40	444,50	430	420	100	160	1,97	**75040A**
		18	19,50	457,20	495,30	481	471	103	180	2,22	**75041A**
		20	21,50	508,00	546,10	532	522	108	201	2,47	**75042A**
		25	26,50	635,00	673,10	659	649	116	249	3,07	**75043A**
Cross section	**1"**	8	10,00	203,20	254,00	235	222	118	127	1,81	**75054A**
		9	11,00	228,60	279,40	260	247	124	141	2,01	**75055A**
		10	12,00	254,00	304,80	286	273	128	156	2,26	**75056A**
		11	13,00	279,40	330,20	311	298	133	170	2,47	**75057A**
		12	14,00	304,80	355,60	336	324	137	184	2,67	**75058A**
		14	16,00	355,60	406,40	387	374	146	218	3,09	**75059A**
		16	18,00	406,40	457,20	438	425	154	247	3,54	**75060A**
		18	20,00	457,20	508,00	489	476	160	276	3,96	**75061A**
		20	22,00	508,00	558,80	540	527	166	305	4,41	**75062A**
		25	27,00	635,00	685,80	667	654	179	378	5,45	**75063A**

Bearing assemblies

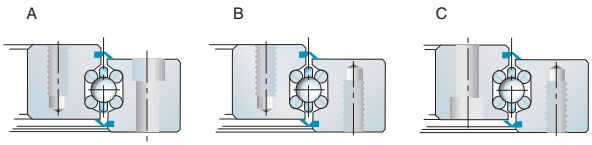
Steel version

Series LDL



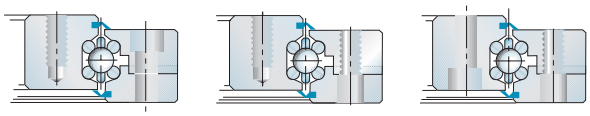
Lubricating nipple DIN 3405
Position: ≤ KKØ600 Central between fastening bores, radial at 1x at periphery
> KKØ600 In the centre between the customer´s fastening there are retaining screws (screwing of the bearing) lubricating nipple between the costumer´s fastening and retaining screws, radial 1x at periphery

Bore shape:



Ø KK 100 - 600 | Ø KK 100 - 600 | Ø KK 100 - 600

Ring design:



Ø KK > 600 | Ø KK > 600 | Ø KK > 600

Consist of:
- Inner and outer ring of steel
- Bearing element with ground raceways
- Seal on both sides of the bearing
- Optional with inner or outer gear

Features:
- Ready-to-mount bearing assembly
- Free selection of material and coating
- Free selection of bearing geometry
- Free selection of bore shape
- Free selection of gear from 60 to 1500mm
- Highest radial and axial accuracy with max. stiffness
- Specified rotational resistance ex works
- Rotational resistance adjustable from clearance to preload
- Calculation programme to find the most suitable bearing
  Our calculation programme can be found in the download area of our homepage www.franke-gmbh.com. We are gladly prepared to calculate the bearing size for you

Lubrication:
- With ball bearing grease. For more information see page 34.

Temperature:
- Standard:Continuous operation: -30°C to +80°C, short time operation max. 100°C
- Optional: Continous operation -30°C to +180°C
  Please consult us

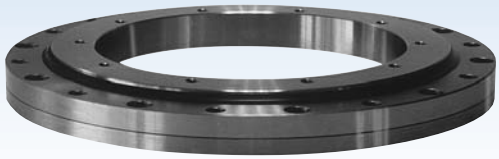
Adjustment:
- Preload ex works (see diagram 1)

Circumferential speed:
- with seal max. 5m/s
- without seal max. 10 m/s

Gear:
- Standard see page 27
- Optional: toothed belt gear, worm gear, angular gear, etc.
  Please consult us.

	Inner outer ring	Race ways	Antifriction bearing	Strip cage	Seal
Standard	C45N	54SiCr6	100Cr6	PA12	NBR
	Teeth:42CrMo4V				
Special	Alu AlZnMgCu05 Brass CuSn12 Niro X5CrNi18.10 Plastic Magneszum	Niro X12CrNi177 X7CrNi177 Duratherm 600F1450 Corrotec, ATC coating	Niro X45Cr13 Oxydkeramik POM	Niro Bronce Hard plastics Brass	Viton Teflon Labyrinth Wave seal Metal seal

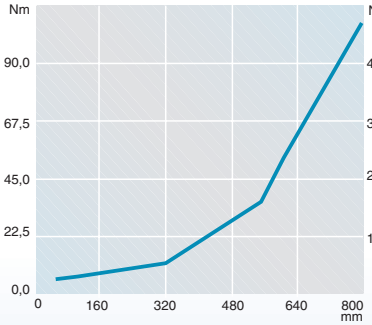
Tab.1 Material

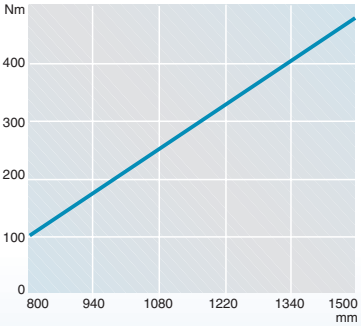


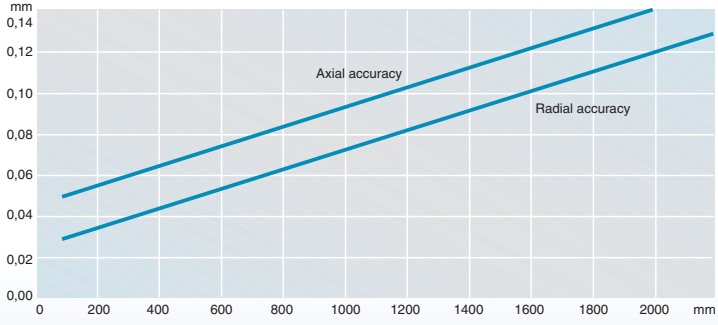
intermediate diameters on request

Diameter			Height		Fastening							Number		Load rating		Weight	Order number		
KK	d1 [mm]	d2 [mm]	h1 [mm]	h2 [mm]	d3 [mm]	d4 [mm]	D [mm]	d [mm]	k1 [mm]	SD [mm]	t1 [mm]	a [Num.]	s	C [kN]	Co [kN]	[kg]	A	B	C
100	150	50	30	24	135	65	11	6,6	6,8	M6	15	6x	15,0	17	25	2,5	66401Y	66402Y	66403Y
150	200	100	30	24	185	115	11	6,6	6,8	M6	15	6x	15,0	18	40	3,7	73000Y	73001Y	73002Y
160	210	110	30	24	195	125	11	6,6	6,8	M6	15	6x	15,0	18	43	4,0	73003Y	73004Y	73005Y
170	220	120	30	24	205	135	11	6,6	6,8	M6	15	6x	15,0	19	46	4,2	73006Y	73007Y	73008Y
180	230	130	30	24	215	145	11	6,6	6,8	M6	15	8x	15,0	19	49	4,5	73009Y	73010Y	73011Y
190	240	140	30	24	225	155	11	6,6	6,8	M6	15	8x	15,0	20	51	4,7	73012Y	73013Y	73014Y
200	250	150	30	24	235	165	11	6,6	6,8	M6	15	8x	15,0	20	54	5,0	73015Y	73016Y	73017Y
210	260	160	30	24	245	175	11	6,6	6,8	M6	15	8x	15,0	21	57	5,2	73018Y	73019Y	73020Y
220	270	170	30	24	255	185	11	6,6	6,8	M6	15	8x	15,0	21	60	5,5	73021Y	73022Y	73023Y
230	290	170	34	27	270	190	15	9,0	9,0	M8	20	8x	17,5	24	64	7,7	73024Y	73025Y	73026Y
240	300	180	34	27	280	200	15	9,0	9,0	M8	20	8x	17,5	24	67	8,1	73027Y	73028Y	73029Y
250	310	190	34	27	290	210	15	9,0	9,0	M8	20	10x	17,5	25	70	8,4	73030Y	73031Y	73032Y
260	320	200	34	27	300	220	15	9,0	9,0	M8	20	10x	17,5	25	73	8,8	73033Y	73034Y	73035Y
270	330	210	34	27	310	230	15	9,0	9,0	M8	20	10x	17,5	25	76	9,1	73036Y	73037Y	73038Y
280	340	220	34	27	320	240	15	9,0	9,0	M8	20	10x	17,5	26	78	9,4	73039Y	73040Y	73041Y
290	350	230	34	27	330	250	15	9,0	9,0	M8	20	10x	17,5	26	82	9,8	73042Y	73043Y	73044Y
300	360	240	38	31	340	260	15	9,0	9,0	M8	20	12x	19,5	27	84	11,6	73045Y	73046Y	73047Y
310	370	250	38	31	350	270	15	9,0	9,0	M8	20	12x	19,5	27	87	12,0	73048Y	73049Y	73050Y
320	380	260	38	31	360	280	15	9,0	9,0	M8	20	12x	19,5	27	90	12,4	73051Y	73052Y	73053Y
330	390	270	38	31	370	290	15	9,0	9,0	M8	20	14x	19,5	28	93	12,8	73054Y	73055Y	73056Y
340	400	280	38	31	380	300	15	9,0	9,0	M8	20	14x	19,5	28	96	13,2	73057Y	73058Y	73059Y
350	410	290	38	31	390	310	15	9,0	9,0	M8	20	14x	19,5	28	98	13,5	73060Y	73061Y	73062Y
360	420	300	38	31	400	320	15	9,0	9,0	M8	20	14x	19,5	28	101	13,9	73063Y	73064Y	73065Y
370	430	310	38	31	410	330	15	9,0	9,0	M8	20	14x	19,5	29	105	14,3	73066Y	73067Y	73068Y
380	440	320	38	31	420	340	15	9,0	9,0	M8	20	14x	19,5	29	107	14,7	73069Y	73070Y	73071Y
390	450	330	38	31	430	350	15	9,0	9,0	M8	20	14x	19,5	29	110	15,1	73072Y	73073Y	73074Y
400	470	330	44	37	445	355	18	11,0	11,0	M10	25	14x	22,5	28	128	21,6	73075Y	73076Y	73077Y
410	480	340	44	37	455	365	18	11,0	11,0	M10	25	14x	22,5	28	133	22,1	73078Y	73079Y	73080Y
420	490	350	44	37	465	375	18	11,0	11,0	M10	25	14x	22,5	28	136	22,7	73081Y	73082Y	73083Y
430	500	360	44	37	475	385	18	11,0	11,0	M10	25	14x	22,5	29	139	23,2	73084Y	73085Y	73086Y
440	510	370	44	37	485	395	18	11,0	11,0	M10	25	14x	22,5	29	142	23,7	73087Y	73088Y	73089Y
450	520	380	44	37	495	405	18	11.0	11,0	M10	25	14x	22,5	29	144	24,3	73090Y	73091Y	73092Y
460	530	390	44	37	505	415	18	11,0	11,0	M10	25	14x	22,5	29	149	24,8	73093Y	73094Y	73095Y
470	540	400	44	37	515	425	18	11,0	11,0	M10	25	14x	22,5	29	152	25,4	73096Y	73097Y	73098Y
480	550	410	44	37	525	435	18	11,0	11,0	M10	25	14x	22,5	30	155	25,9	73099Y	73100Y	73101Y
490	560	420	44	37	535	445	18	11,0	11,0	M10	25	14x	22,5	30	158	26,4	73102Y	73103Y	73104Y
500	580	420	49	42	550	450	20	14,0	13,0	M12	30	14x	25,0	30	162	35,0	73105Y	73106Y	73107Y
510	590	430	49	42	560	460	20	14,0	13,0	M12	30	14x	25,0	30	165	35,7	73108Y	73109Y	73110Y
520	600	440	49	42	570	470	20	14,0	13,0	M12	30	14x	25,0	31	168	36,4	73111Y	73112Y	73113Y
530	610	450	49	42	580	480	20	14,0	13,0	M12	30	16x	25,0	31	171	37,1	73114Y	73115Y	73116Y
540	620	460	49	42	590	490	20	14,0	13,0	M12	30	16x	25,0	31	175	37,8	73117Y	73118Y	73119Y
550	630	470	49	42	600	500	20	14,0	13,0	M12	30	16x	25,0	31	178	38,5	73120Y	73121Y	73122Y
560	640	480	49	42	610	510	20	14,0	13,0	M12	30	16x	25,0	31	181	39,2	73123Y	73124Y	73125Y
570	650	490	49	42	620	520	20	14,0	13,0	M12	30	16x	25,0	32	184	39,9	73126Y	73127Y	73128Y
580	660	500	49	42	630	530	20	14,0	13,0	M12	30	16x	25,0	32	188	40,6	73129Y	73130Y	73131Y
590	670	510	49	42	640	540	20	14,0	13,0	M12	30	16x	25,0	32	191	41,3	73132Y	73133Y	73134Y
600	680	520	49	42	650	550	20	14,0	13,0	M12	30	16x	25,0	32	194	42,0	73135Y	73136Y	73137Y
620	710	530	53	45	670	570	20	14,0	13,0	M12	30	22x	29,0	75	330	56,9	66141A	66142A	66143A
640	730	550	53	45	690	590	20	14,0	13,0	M12	30	22x	29,0	76	341	58,8	66144A	66145A	66146A
660	750	570	53	45	710	610	20	14,0	13,0	M12	30	22x	29,0	77	351	60,7	66147A	66148A	66149A
680	770	590	53	45	730	630	20	14,0	13,0	M12	30	22x	29,0	78	361	62,5	66150A	66151A	66152A
700	790	610	53	45	750	650	20	14,0	13,0	M12	30	22x	29,0	79	371	64,4	66153A	66154A	66155A
720	810	630	53	45	770	670	20	14,0	13,0	M12	30	22x	29,0	80	385	66,3	66156A	66157A	66158A
740	830	650	53	45	790	690	20	14,0	13,0	M12	30	24x	29,0	81	396	68,0	66159A	66160A	66161A
760	850	670	53	45	810	710	20	14,0	13,0	M12	30	24x	29,0	81	406	69,9	66162A	66163A	66164A
780	870	690	53	45	830	730	20	14,0	13,0	M12	30	24x	29,0	82	416	71,8	66156A	66157A	66158A
800	900	700	60	52	865	735	26	18,0	17,5	M16	35	24x	33,0	104	497	93,9	66168A	66169A	66170A
820	920	720	60	52	885	755	26	18,0	17,5	M16	35	24x	33,0	106	513	96,3	66171A	66172A	66173A
840	940	740	60	52	905	775	26	18,0	17,5	M16	35	24x	33,0	106	523	98,7	66174A	66175A	66176A
860	960	760	60	52	925	795	26	18,0	17,5	M16	35	24x	33,0	107	534	101,1	66177A	66178A	66179A
880	980	780	60	52	945	815	26	18,0	17,5	M16	35	24x	33,0	108	549	103,5	66180A	66181A	66182A
900	1000	800	60	52	965	835	26	18,0	17,5	M16	35	24x	33,0	109	560	105,9	66183A	66184A	66185A
920	1020	820	60	52	985	855	26	18,0	17,5	M16	35	24x	33,0	110	575	108,4	66186A	66187A	66188A
940	1040	840	60	52	1005	875	26	18,0	17,5	M16	35	24x	33,0	111	586	110,8	66189A	66190A	66191A
960	1060	860	60	52	1025	895	26	18,0	17,5	M16	35	26x	33,0	112	596	113,0	66192A	66193A	66194A
980	1080	880	60	52	1045	915	26	18,0	17,5	M16	35	26x	33,0	113	612	115,4	66195A	66196A	66197A
1000	1100	900	60	52	1065	935	26	18,0	17,5	M16	35	26x	33,0	113	623	117,8	66198A	66199A	66200A
1100	1200	1000	60	52	1165	1035	26	18,0	17,5	M16	35	30x	33,0	115	664	129,6	66386A	66387A	66388A
1200	1300	1100	60	52	1265	1135	26	18,0	17,5	M16	35	30x	33,0	121	747	141,6	66389A	66390A	66391A
1300	1400	1200	60	52	1365	1235	26	18,0	17,5	M16	35	36x	33,0	124	799	153,1	66392A	66393A	66394A
1400	1500	1300	60	52	1465	1335	26	18,0	17,5	M16	35	36x	33,0	128	872	165,1	66395A	66396A	66397A
1500	1600	1400	60	52	1565	1435	26	18,0	17,5	M16	35	40x	33,0	129	914	177,7	66398A	66399A	66400A

Other versions on request

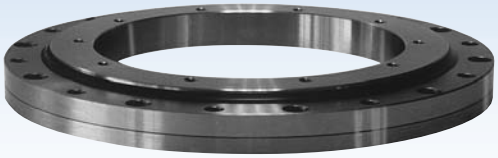






Bearing assemblies

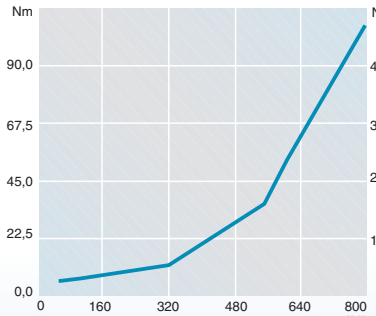
Series LDL Aluminium version



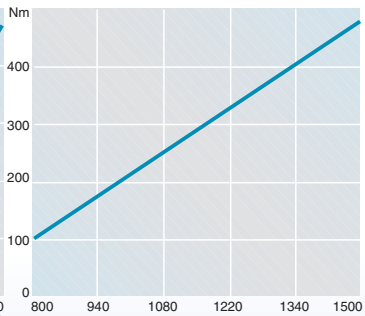
intermediate diameters on request

Diameter			Height		Fastening							Number	Load rating		Weight	Order number		
KK	d1 [mm]	d2 [mm]	h1 [mm]	h2 [mm]	d3 [mm]	d4 [mm]	D [mm]	d [mm]	k1 [mm]	SD [mm]	t1 [mm]	a [Stück]	C [kN]	Co [kN]	[kg]	Bore shape A	B	C
100	150	50	30	24	135	65	11	6,6	6,8	M6	15	6x	17	25	1,00	66401L	66402L	66403L
150	200	100	30	24	185	115	11	6,6	6,8	M6	15	6x	18	40	1,48	73000L	73001L	73002L
160	210	110	30	24	195	125	11	6,6	6,8	M6	15	6x	18	43	1,60	73003L	73004L	73005L
170	220	120	30	24	205	135	11	6,6	6,8	M6	15	6x	19	46	1,68	73006L	73007L	73008L
180	230	130	30	24	215	145	11	6,6	6,8	M6	15	8x	19	49	1,80	73009L	73010L	73011L
190	240	140	30	24	225	155	11	6,6	6,8	M6	15	8x	20	51	1,88	73012L	73013L	73014L
200	250	150	30	24	235	165	11	6,6	6,8	M6	15	8x	20	54	2,00	73015L	73016L	73017L
210	260	160	30	24	245	175	11	6,6	6,8	M6	15	8x	21	57	2,08	73018L	73019L	73020L
220	270	170	30	24	255	185	11	6,6	6,8	M6	15	8x	21	60	2,20	73021L	73022L	73023L
230	290	170	34	27	270	190	15	9,0	9,0	M8	20	8x	24	64	2,96	73024L	73025L	73026L
240	300	180	34	27	280	200	15	9,0	9,0	M8	20	8x	24	67	3,12	73027L	73028L	73029L
250	310	190	34	27	290	210	15	9,0	9,0	M8	20	10x	25	70	3,23	73030L	73031L	73032L
260	320	200	34	27	300	220	15	9,0	9,0	M8	20	10x	25	73	3,38	73033L	73034L	73035L
270	330	210	34	27	310	230	15	9,0	9,0	M8	20	10x	25	76	3,50	73036L	73037L	73038L
280	340	220	34	27	320	240	15	9,0	9,0	M8	20	10x	26	78	3,62	73039L	73040L	73041L
290	350	230	34	27	330	250	15	9,0	9,0	M8	20	10x	26	82	3,77	73042L	73043L	73044L
300	360	240	38	31	340	260	15	9,0	9,0	M8	20	12x	27	84	4,46	73045L	73046L	73047L
310	370	250	38	31	350	270	15	9,0	9,0	M8	20	12x	27	87	4,62	73048L	73049L	73050L
320	380	260	38	31	360	280	15	9,0	9,0	M8	20	12x	27	90	4,77	73051L	73052L	73053L
330	390	270	38	31	370	290	15	9,0	9,0	M8	20	14x	28	93	4,92	73054L	73055L	73056L
340	400	280	38	31	380	300	15	9,0	9,0	M8	20	14x	28	96	5,08	73057L	73058L	73059L
350	410	290	38	31	390	310	15	9,0	9,0	M8	20	14x	28	98	5,19	73060L	73061L	73062L
360	420	300	38	31	400	320	15	9,0	9,0	M8	20	14x	28	101	5,35	73063L	73064L	73065L
370	430	310	38	31	410	330	15	9,0	9,0	M8	20	14x	29	105	5,50	73066L	73067L	73068L
380	440	320	38	31	420	340	15	9,0	9,0	M8	20	14x	29	107	5,65	73069L	73070L	73071L
390	450	330	38	31	430	350	15	9,0	9,0	M8	20	14x	29	110	5,81	73072L	73073L	73074L
400	470	330	44	37	445	355	18	11,0	11,0	M10	25	14x	28	128	8,00	73075L	73076L	73077L
410	480	340	44	37	455	365	18	11,0	11,0	M10	25	14x	28	133	8,19	73078L	73079L	73080L
420	490	350	44	37	465	375	18	11,0	11,0	M10	25	14x	28	136	8,41	73081L	73082L	73083L
430	500	360	44	37	475	385	18	11,0	11,0	M10	25	14x	29	139	8,59	73084L	73085L	73086L
440	510	370	44	37	485	395	18	11,0	11,0	M10	25	14x	29	142	8,78	73087L	73088L	73089L
450	520	380	44	37	495	405	18	11,0	11,0	M10	25	14x	29	144	9,00	73090L	73091L	73092L
460	530	390	44	37	505	415	18	11,0	11,0	M10	25	14x	29	149	9,19	73093L	73094L	73095L
470	540	400	44	37	515	425	18	11,0	11,0	M10	25	14x	29	152	9,41	73096L	73097L	73098L
480	550	410	44	37	525	435	18	11,0	11,0	M10	25	14x	30	155	9,59	73099L	73100L	73101L
490	560	420	44	37	535	445	18	11,0	11,0	M10	25	14x	30	158	9,78	73102L	73103L	73104L
500	580	420	49	42	550	450	20	14,0	13,0	M12	30	14x	30	162	12,96	73105L	73106L	73107L
510	590	430	49	42	560	460	20	14,0	13,0	M12	30	14x	30	165	13,22	73108L	73109L	73110L
520	600	440	49	42	570	470	20	14,0	13,0	M12	30	14x	31	168	13,48	73111L	73112L	73113L
530	610	450	49	42	580	480	20	14,0	13,0	M12	30	16x	31	171	13,74	73114L	73115L	73116L
540	620	460	49	42	590	490	20	14,0	13,0	M12	30	16x	31	175	14,00	73117L	73118L	73119L
550	630	470	49	42	600	500	20	14,0	13,0	M12	30	16x	31	178	14,26	73120L	73121L	73122L
560	640	480	49	42	610	510	20	14,0	13,0	M12	30	16x	31	181	14,52	73123L	73124L	73125L
570	650	490	49	42	620	520	20	14,0	13,0	M12	30	16x	32	184	14,78	73126L	73127L	73128L
580	660	500	49	42	630	530	20	14,0	13,0	M12	30	16x	32	188	15,04	73129L	73130L	73131L
590	670	510	49	42	640	540	20	14,0	13,0	M12	30	16x	32	191	15,30	73132L	73133L	73134L
600	680	520	49	42	650	550	20	14,0	13,0	M12	30	16x	32	194	15,56	73135L	73136L	73137L
620	710	530	53	45	670	570	20	14,0	13,0	M12	30	22x	75	330	21,07	66141L	66142L	66143L
640	730	550	53	45	690	590	20	14,0	13,0	M12	30	22x	76	341	21,78	66144L	66145L	66146L
660	750	570	53	45	710	610	20	14,0	13,0	M12	30	22x	77	351	22,48	66147L	66148L	66149L
680	770	590	53	45	730	630	20	14,0	13,0	M12	30	22x	78	361	23,15	66150L	66151L	66152L
700	790	610	53	45	750	650	20	14,0	13,0	M12	30	22x	79	371	23,85	66153L	66154L	66155L
720	810	630	53	45	770	670	20	14,0	13,0	M12	30	22x	80	385	24,56	66156L	66157L	66158L
740	830	650	53	45	790	690	20	14,0	13,0	M12	30	24x	81	396	25,19	66159L	66160L	66161L
760	850	670	53	45	810	710	20	14,0	13,0	M12	30	24x	81	406	25,89	66162L	66163L	66164L
780	870	690	53	45	830	730	20	14,0	13,0	M12	30	24x	82	416	26,59	66156L	66157L	66158L
800	900	700	60	52	865	735	26	18,0	17,5	M16	35	24x	104	497	36,12	66168L	66169L	66170L
820	920	720	60	52	885	755	26	18,0	17,5	M16	35	24x	106	513	37,04	66171L	66172L	66173L
840	940	740	60	52	905	775	26	18,0	17,5	M16	35	24x	106	523	37,96	66174L	66175L	66176L
860	960	760	60	52	925	795	26	18,0	17,5	M16	35	24x	107	534	38,88	66177L	66178L	66179L
880	980	780	60	52	945	815	26	18,0	17,5	M16	35	24x	108	549	39,81	66180L	66181L	66182L
900	1000	800	60	52	965	835	26	18,0	17,5	M16	35	24x	109	560	40,73	66183L	66184L	66185L
920	1020	820	60	52	985	855	26	18,0	17,5	M16	35	24x	110	575	41,69	66186L	66187L	66188L
940	1040	840	60	52	1005	875	26	18,0	17,5	M16	35	24x	111	586	42,62	66189L	66190L	66191L
960	1060	860	60	52	1025	895	26	18,0	17,5	M16	35	26x	112	596	43,46	66192L	66193L	66194L
980	1080	880	60	52	1045	915	26	18,0	17,5	M16	35	26x	113	612	44,38	66195L	66196L	66197L
1000	1100	900	60	52	1065	935	26	18,0	17,5	M16	35	26x	113	623	45,31	66198L	66199L	66200L
1100	1200	1000	60	52	1165	1035	26	18,0	17,5	M16	35	30x	115	664	49,85	66386L	66387L	66388L
1200	1300	1100	60	52	1265	1135	26	18,0	17,5	M16	35	30x	121	747	54,46	66389L	66390L	66391L
1300	1400	1200	60	52	1365	1235	26	18,0	17,5	M16	35	36x	124	799	58,88	66392L	66393L	66394L
1400	1500	1300	60	52	1465	1335	26	18,0	17,5	M16	35	36x	128	872	63,50	66395L	66396L	66397L
1500	1600	1400	60	52	1565	1435	26	18,0	17,5	M16	35	40x	129	914	68,35	66398L	66399L	66400L

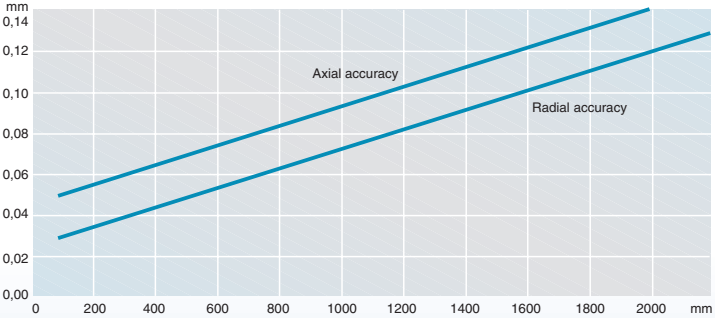
Other versions on request



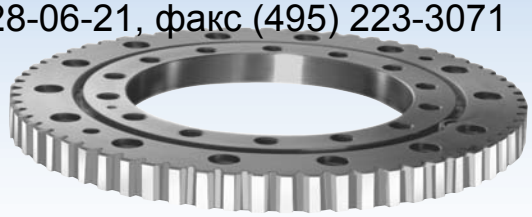
Diagr.1.1 Preload



Diagr.1.2 Preload



Diagr.2 Axial and radial accuracy



Bearing assemblies

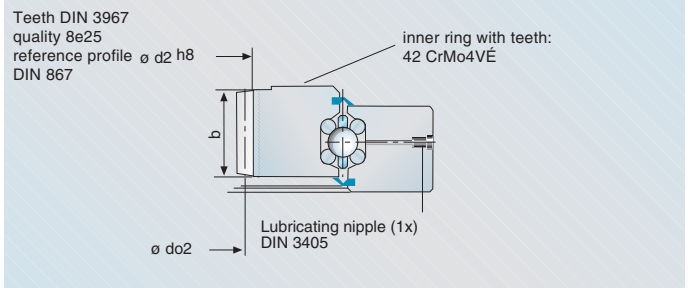
Series LDL with gear

intermediate diameters on request

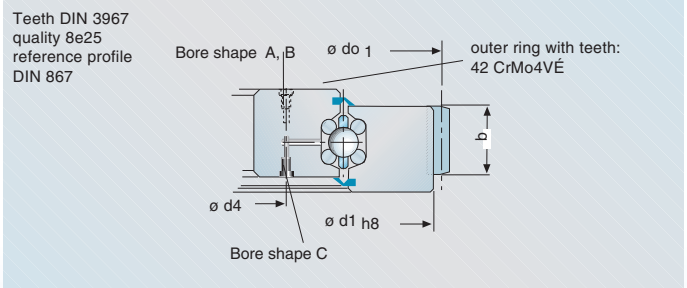
KK Ø	Wide b [mm]	Module m [mm]	Ball pitch d02 [mm]	Teeth number Z [Number]	Ø d2 [mm]	Order number Bore shape A	B	C
100	19	2	40	20	50	66401W	66402W	66403W
150	19	2	90	45	100	73000W	73001W	73002W
160	19	2	100	50	110	73003W	73004W	73005W
170	19	2	110	55	120	73006W	73007W	73008W
180	19	2	120	60	130	73009W	73010W	73011W
190	19	2	130	65	140	73012W	73013W	73014W
200	19	2	140	70	150	73015W	73016W	73017W
210	19	2	150	75	160	73018W	73019W	73020W
220	19	2	160	80	170	73021W	73022W	73023W
230	22	2	160	80	170	73024W	73025W	73026W
240	22	2	170	85	180	73027W	73028W	73029W
250	22	2	180	90	190	73030W	73031W	73032W
260	22	2	190	95	200	73033W	73034W	73035W
270	22	2	200	100	210	73036W	73037W	73038W
280	22	2	210	105	220	73039W	73040W	73041W
290	22	2	220	110	230	73042W	73043W	73044W
300	26	3	228	76	240	73045W	73046W	73047W
310	26	3	237	79	250	73048W	73049W	73050W
320	26	3	249	83	260	73051W	73052W	73053W
330	26	3	258	86	270	73054W	73055W	73056W
340	26	3	264	88	280	73057W	73058W	73059W
350	26	3	276	92	290	73060W	73061W	73062W
360	26	3	288	96	300	73063W	73064W	73065W
370	26	3	297	99	310	73066W	73067W	73068W
380	26	3	306	102	320	73069W	73070W	73071W
390	26	3	318	106	330	73072W	73073W	73074W
400	32	3	318	106	330	73075W	73076W	73077W
410	32	3	324	108	340	73078W	73079W	73080W
420	32	3	336	112	350	73081W	73082W	73083W
430	32	3	348	116	360	73084W	73085W	73086W
440	32	3	357	119	370	73087W	73088W	73089W
450	32	3	366	122	380	73090W	73091W	73092W
460	32	3	378	126	390	73093W	73094W	73095W
470	32	3	387	129	400	73096W	73097W	73098W
480	32	3	396	123	410	73099W	73100W	73101W
490	32	3	408	136	420	73102W	73103W	73104W
500	35	3	408	136	420	73105W	73106W	73107W
510	35	3	414	138	430	73108W	73109W	73110W
520	35	3	426	142	440	73111W	73112W	73113W
530	35	3	438	146	450	73114W	73115W	73116W
540	35	3	444	148	460	73117W	73118W	73119W
550	35	3	456	152	470	73120W	73121W	73122W
560	35	3	468	156	480	73123W	73124W	73125W
570	35	3	477	159	490	73126W	73127W	73128W
580	35	3	486	162	500	73129W	73130W	73131W
590	35	3	498	166	510	73132W	73133W	73134W
600	35	3	507	169	520	73135W	73136W	73137W
620	38	4	512	128	530	66141W	66142W	66143W
640	38	4	532	133	550	66144W	66145W	66146W
660	38	4	552	138	570	66147W	66148W	66149W
680	38	4	572	143	590	66150W	66151W	66152W
700	38	4	592	148	610	66153W	66154W	66155W
720	38	4	612	153	630	66156W	66157W	66158W
740	38	4	632	158	650	66159W	66160W	66161W
760	38	4	648	162	670	66162W	66163W	66164W
780	38	4	672	168	690	66156W	66157W	66158W
800	45	5	680	136	700	66168W	66169W	66170W
820	45	5	700	140	720	66171W	66172W	66173W
840	45	5	720	144	740	66174W	66175W	66176W
860	45	5	740	148	760	66177W	66178W	66179W
880	45	5	760	152	780	66180W	66181W	66182W
900	45	5	780	156	800	66183W	66184W	66185W
920	45	5	800	160	820	66186W	66187W	66188W
940	45	5	820	164	840	66189W	66190W	66191W
960	45	5	840	168	860	66192W	66193W	66194W
980	45	5	860	172	880	66195W	66196W	66197W
1000	45	5	880	176	900	66198W	66199W	66200W
1100	45	5	980	196	1000	66386W	66387W	66388W
1200	45	5	1080	216	1100	66389W	66390W	66391W
1300	45	5	1180	236	1200	66392W	66393W	66394W
1400	45	5	1280	256	1300	66395W	66396W	66397W
1500	45	5	1380	276	1400	66398W	66399W	66400W

Other version on request

Ball pitch Ø d01 [mm]	Teeth number Z [Number]	Ø d1 [mm]	Order number Bore shape A	B	C
160	80	150	66401V	66402V	66403V
210	105	200	73000V	73001V	73002V
220	110	210	73003V	73004V	73005V
230	115	220	73006V	73007V	73008V
240	120	230	73009V	73010V	73011V
250	125	240	73012V	73013V	73014V
260	130	250	73015V	73016V	73017V
270	135	260	73018V	73019V	73020V
280	140	270	73021V	73022V	73023V
300	150	290	73024V	73025V	73026V
310	155	300	73027V	73028V	73029V
320	160	310	73030V	73031V	73032V
330	165	320	73033V	73034V	73035V
340	170	330	73036V	73037V	73038V
350	175	340	73039V	73040V	73041V
360	180	350	73042V	73043V	73044V
372	124	360	73045V	73046V	73047V
384	128	370	73048V	73049V	73050V
396	132	380	73051V	73052V	73053V
402	134	390	73054V	73055V	73056V
414	138	400	73057V	73058V	73059V
423	141	410	73060V	73061V	73062V
432	144	420	73063V	73064V	73065V
444	148	430	73066V	73067V	73068V
456	152	440	73069V	73070V	73071V
462	154	450	73072V	73073V	73074V
483	161	470	73075V	73076V	73077V
492	164	480	73078V	73079V	73080V
504	168	490	73081V	73082V	73083V
513	171	500	73084V	73085V	73086V
522	174	510	73087V	73088V	73089V
534	178	520	73090V	73091V	73092V
546	182	530	73093V	73094V	73095V
552	184	540	73096V	73097V	73098V
564	188	550	73099V	73100V	73101V
576	192	560	73102V	73103V	73104V
594	189	580	73105V	73106V	73107V
603	201	590	73108V	73109V	73110V
612	204	600	73111V	73112V	73113V
624	208	610	73114V	73115V	73116V
636	212	620	73117V	73118V	73119V
642	214	630	73120V	73121V	73122V
654	218	640	73123V	73124V	73125V
663	221	650	73126V	73127V	73128V
672	224	660	73129V	73130V	73131V
684	228	670	73132V	73133V	73134V
693	231	680	73135V	73136V	73137V
728	182	710	66141V	66142V	66143V
748	187	730	66144V	66145V	66146V
768	192	750	66147V	66148V	66149V
792	198	770	66150V	66151V	66152V
808	202	790	66153V	66154V	66155V
828	207	810	66156V	66157V	66158V
848	212	830	66159V	66160V	66161V
868	217	850	66162V	66163V	66164V
888	222	870	66156V	66157V	66158V
920	184	900	66168V	66169V	66170V
940	188	920	66171V	66172V	66173V
960	192	940	66174V	66175V	66176V
980	196	960	66177V	66178V	66179V
1000	200	980	66180V	66181V	66182V
1020	204	1000	66183V	66184V	66185V
1040	208	1020	66186V	66187V	66188V
1060	212	1040	66189V	66190V	66191V
1080	216	1060	66192V	66193V	66194V
1100	220	1080	66195V	66196V	66197V
1120	224	1100	66198V	66199V	66200V
1220	244	1200	66386V	66387V	66388V
1320	264	1300	66389V	66390V	66391V
1420	284	1400	66392V	66393V	66394V
1520	304	1500	66395V	66396V	66397V
1620	324	1600	66398V	66399V	66400V



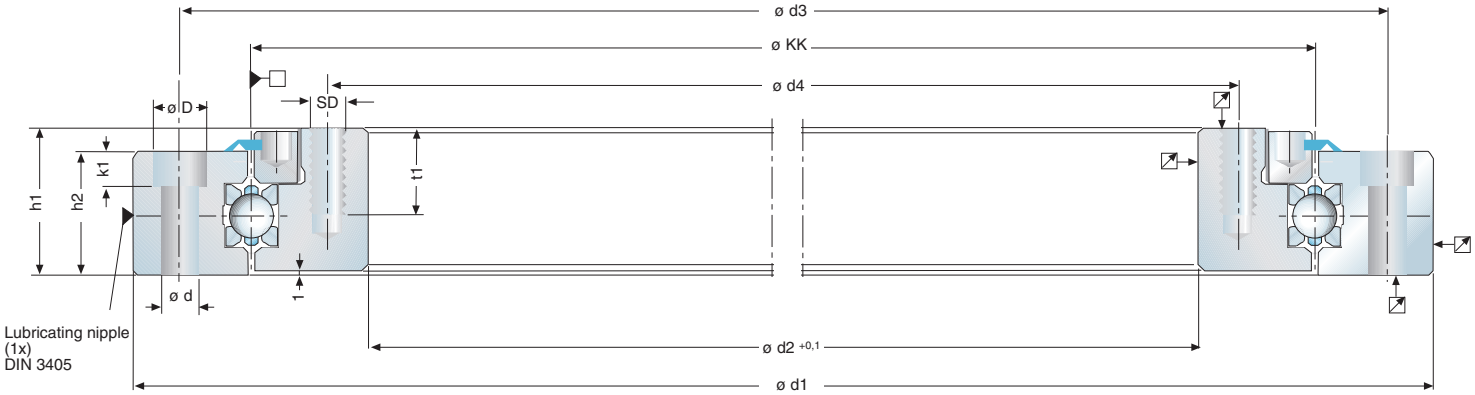
Inner gear



Outer gear

Bearing assemblies

Series LDV, preferential series



Diameter					Height		Fastening						Load rating		Weight	Order number
KK	D	d	d1	d2	h1	h2	d3	d4	Screws per ring	k1	SD	t1	C	Co		
200	11	6,6	250 $_{-0,1}$	150	30$^{\pm0,3}$	24	235	165	8xM6	6,8	M6	15	18	50	5,0	66276A
300	15	9,0	360 $_{-0,1}$	240	38$^{\pm0,4}$	31	340	260	12xM8	9,0	M8	20	21	78	11,6	66277A
400	18	11,0	470 $_{-0,15}$	330	44$^{\pm0,5}$	37	445	355	14xM10	11,0	M10	25	24	105	21,6	66278A

Dimensions [mm], Weight [kg] * DIN ISO 286

Consist of:
- Inner and outer ring of steel
- Bearing element series LER
- Seal on upper side of the bearing

Features:
- Ready-to-mount bearing assembly
- Three diameters available from stock
- Standard bore shape
- Highest stiffness
- Cost effective
- With serial request also available in other diameters
- With serial request also available in other material
- Calculation programme to find the most suitable bearing
  Our calculation programme can be found in the download area of our homepage www.franke-gmbh.com. We are gladly prepared to calculate the bearing size for you.

Lubrication:
- with ball bearing grease. For more information see page 34.

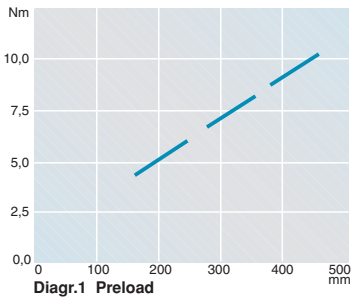
Temperature:
- Standard:Continuous operation: -30°C to +80°C, short time operation max. 100°C

Adjustment:
- Preload ex works (see diagram 1) via thread ring

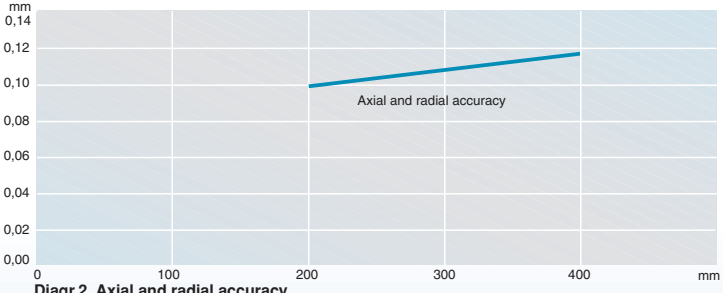
Circumferential speed:
- With seal max. 5 m/s
- Without seal max. 10 m/s

	Inner outer ring	Race ways	Antifric-tion bearing	Strip cage	Seal
Standard	C45N	54SiCr6	100Cr6	PA12	NBR
Special					

Tab.1 Material



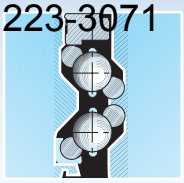
Diagr.1 Preload

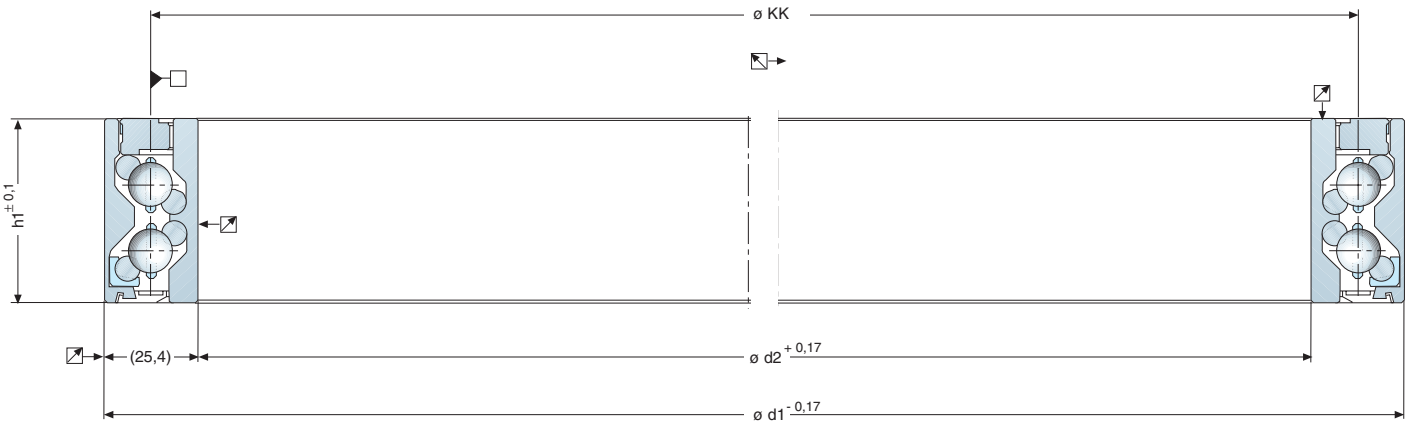


Diagr.2 Axial and radial accuracy

Bearing assemblies

Series LDH, highly dynamical





Special and metrical dimensions on request

Ø KK		d1		d2		h1		Load rating		Weight	Order number
[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	C [mm]	Co [KN]	[KN]	[kg]	
21	533,4	22	558,8	20	508	2	50,8	57	335	11,5	66602A
26	660,4	27	685,8	25	635	2	50,8	61	413	14,0	66603A
31	787,4	32	812,8	30	762	2	50,8	65	494	16,5	66604A
36	914,4	37	939,8	35	889	2	50,8	69	575	19,0	66605A
41	1041,4	42	1066,8	40	1016	2	50,8	73	656	21,5	66606A

Dimensions [mm]

Components:
- Inner and outer ring
- Special bearing element with ground raceways
- Elastomer insert reduces oscillation

Features:
- Bearing assembly ready to mount
- Low noise with high RPMs
- Material combinations respectively coatings can freely be chosen
- The geometry can freely be chosen (gearing and drilling configuration possible)
- Maximum radial and axial running accuracy with maximum stiffness
- Rotational resistance is adjusted in our works
- Intermediate sizes and particular dimensions possible (inch/metrical system possible)
- Custom-made solutions are possible.

Lubrication:
- With ball bearing grease. Further information on page 34

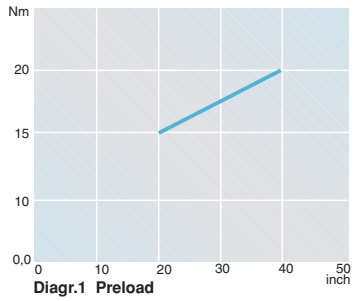
Temperature range:
- In permanent operation: -30°C up to +80°C

Adjustment
- Adjusted by threaded ring in our works
- Rotational resistance see diagram 1

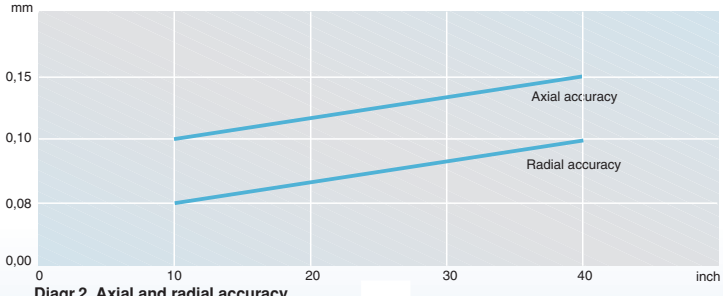
Further information:
Until now we have supplied more that 10.000 central bearings for computer tomographs worldwide. Many manufacturers of this branch became aware of the advantages of the Franke system and have been using them consequently in the core of their products.

	Inner outer ring	Race ways	Antifriction bearing	Cage
Standard	C45N	54SiCr6	100Cr6	PA12
Special				

Tab.1 Material



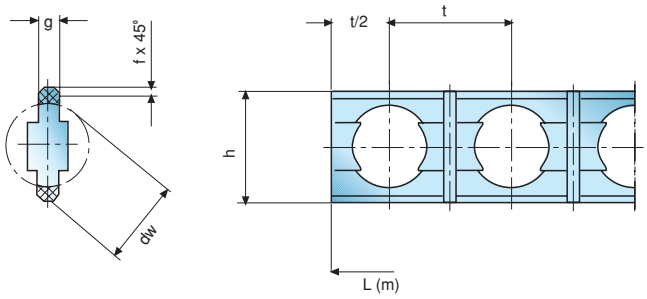
Diagr.1 Preload



Diagr.2 Axial and radial accuracy

Stripe cages

Series LKB



Cage Size	dw mm	dw Zoll	h	g	t	f	Order number (per meter)
LKB5	5,0	3/16	7,6	1,5	7,5	0,4	78916A
LKB6	6,0		8,6	1,6	8,8	0,4	78917A
LKB8	8,0	5/16	10,6	2,0	12,0	0,6	78918A
LKB9,5	9,5	3/8	12,6	2,5	14,0	0,7	78920A
LKB10	10,0		13,2	2,5	14,0	0,7	78921A
LKB11	11,0		13,7	2,5	14,0	0,7	78922A
LKB12	12,0		15,0	2,5	16,0	0,7	78923A
LKB15	15,0		18,6	3,0	18,6	0,7	78924A
LKB16	16,0		19,6	3,0	20,0	0,7	78925A
LKB20	20,0	25/32	24,2	3,5	26,0	0,7	78926A

Material: PA12 Dimensions [mm]

The strip cage consists of wear resistant HD polyamide. It is suitable for high circumferential speeds for bearings with horizontal and vertical axis of rotation. We supply strip cages ready for installation equipped with balls. The required number of balls is calculated as follows:

$$Z = \left[\frac{ØKK \cdot \pi}{t} \right] -1$$

Z = Number of balls
KK Ø = Ball pitch diameter
t = Ball spacing

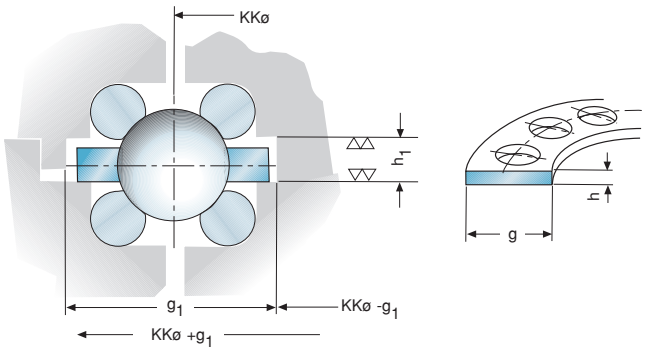
The number of segments depends on the diameter of the bearing and on the ball size. The reference values are:

KKØ	< 200	200-399	400-799	800-1500
Number of segments	3-4	4-6	6-8	8-12

For special applications the cage can be delivered in one piece.

Cage (Special)

Series FK



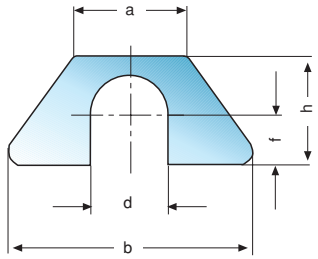
dw	h x g	h1 x g1	Order number
5,0	2 x 10	2,7 x 13	on request
6,0	2 x 12	2,7 x 15	on request
8.0	2 x 15	4,0 x 18	on request
9,0	3 x 16	4,0 x 18	on request
12,0	4 x 20	5,5 x 23	on request
16,0	5 x 26	6,5 x 30	on request
20,0	6 x 31	7,5 x 35	on request
25,0	8 x 38	10,0 x 43	on request
30,0	8 x 45	10,0 x 50	on request
40,0	12 x 56	14,0 x 61	on request
50,0	15 x 80	17,5 x 88	on request

Material: fabric-base laminate, brass, Niro Dimensions [mm]

Tolerances
DIN 7168

Flat cages have to be used with temperatures over 100°C and ball diameters bigger than 20 mm. Special solutions like complete corrosion-protection or radiation-resistance are possible.

Washers



Size	a	b	d	f	h
M6	11,0	24,4	7	5	11,0
M8	14,7	34,2	9	6	13,5
M10	16,4	42,3	11	7	16,0
M12	20,3	46,0	13	8	18,0
M16	25,4	54,0	17	11	24,0

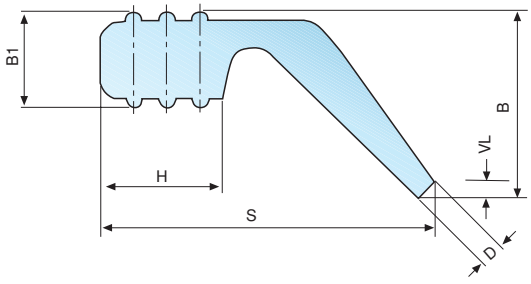
Dimensions [mm]

	Order number							
Dicke	0,025	0,1	0,15	0,2	0,25	0,3	0,5	1,0
M6	79015A	79034A	79035A	79036A	79037A	79038A	79039A	79040A
M8	79041A	79023A	79042A	79000A	79026A	79043A	79044A	79045A
M10	79046A	79012A	79010A	79011A	79047A	79048A	79049A	79050A
M12	79118A	79051A	79052A	79053A	79054A	79055A	79056A	79065A
M16	79119A	79024A	79066A	79057A	79058A	79059A	79060A	79061A

Dimensions [mm]

With large bearing diameters adjustment is simplified by inserting washers between the parted inner or outer rings. The washers are made of non-corrosive steel sheet.

Seal



Profile S$^{\pm0,5}$	H	B$^{\pm0,3}$	B1$^{\pm0,2}$	D	Material			Preload VL[1]	Weight	Order No.
10	4,2	5,3	3,0	0,8	Perbunan 170	NBR/221	Viton	0,5...1,5	0,026	09080
15	5,5	8,5	4,3	1,0	Perbunan 170	NBR/221		0,5...2,0	0,051	09190

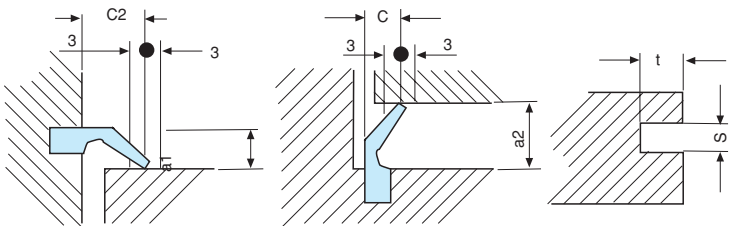
1) Depending on the required rotational resistance (approx. 1 Nm/m seal)

Dimensions [mm], Preload [Nm/mm], Weight [kg/m]

Franke bearing assemblies are equipped with the S10-seal.

Temperatue -30°C - +80°C. Max. circumferential speed 5 m/s.

To use seal with bearing elements you may order the seal by meter. To glue the seal ends we recommend Loctite 401®.



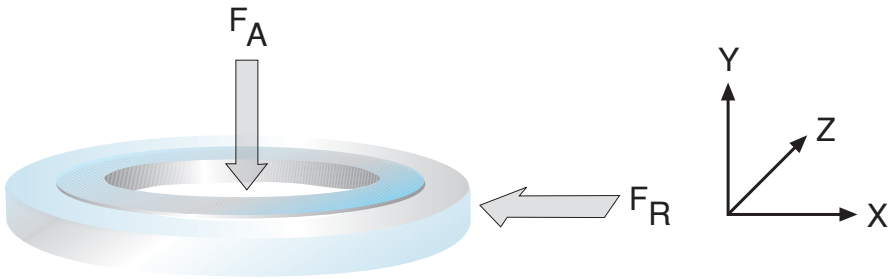
Profile S	Dimensions c	c2	a1	a2	Groove dimensions t$^{+0,2}$	s$^{+0,1}$
10$^{\pm0,5}$	5+1	5,5^{+1}	3,6...4,6	4,3...5,3	4,2	3,0
15$^{\pm0,5}$	8+1,5	9,0$^{+1,5}$	6,3...7,7	7,5...9,0	5,5	3,9

Dimensions [mm]

Technical data for the determination of antifriction bearings

Bearing elements, slim bearing, bearing assemblies

Company:	**Intended application:** short description
Name:	
Department:	
Address:	
Phone:	
Telefax:	
Email:	
Branch:	



Application: Series _____ Material _____ Order number _____

Force: Load Lever (x,y,z)

				Static	Dynamic
+ or -	F_A+ or -X - coordinates (+ or -)	Z - coordinates	(+ or -)	☐	☐
+ or -	F_R+ or -Y - coordinates (+ or -)	Z - coordinates	(+ or -)	☐	☐

Example: + F_A = 100 N + x = 30 mm ☒ ☐

The loads resulting of accelerations have to be calculated by $F_A = m \cdot 9{,}81\ m/s^2$

Dynamic: Revolution n = _____ $min.^{-1}$

Torque MD = _____ Nm (that might effect a gear)

Gear: Drive moment _____ Nm

Diameter Ø _____ mm

Module _____ mm

Tooth width _____ mm

Material _____

☐ Transmission ☐ Negative Transmission

Mounting position: ☐ Horizontal ☐ Vertikal

Environment: ☐ Humidity ☐ High temperature

☐ Dirty environment ☐ Shock impact

Please return the filled copy

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Technical Information

1. How to chose a bearing element or a bearing assembly

The selection respectively dimensioning of the bearing should be made before the beginning of the design work.

Parameters for the choice:
- Permissible dimension and requirements to the material of the bearing
- Loading with collective loads and pertinent time shares in %
- Number of revolutions respectively number of slewing motions and slewing angle per time unit
- Circumferential forces which are to be transferred by the gear
- Any other operating conditions such as temperature, vacuum, clean-room, humidity

(Please use the form on page 32.)

The catalogue serves to make an approximate selection of the bearing. All the necessary data are found on the corresponding page of the respective series.

1.2 Static and dynamical load capacity, calculation

The indications concerning static and dynamical load capacity given in the catalogue should be used for the pre-dimensioning. They are not sufficient for the precise final dimensioning. The given load rating applies to radial loads. For optimal dimensioning you need the static, axial, radial, and moment load rating, respectively the dynamical, axial, and radial load rating.
The axial values normally are higher by the factor 2. We recommend you to use the Franke calculation programme or to have the calculation made by us.

2. Assembly and adjustment of bearing elements.

Bearing elements are composed of two inner and two outer race rings and a multipart segmented cage with balls. The race rings are open and therefore their cross section can be elastically adapted when mounting.

The quality class of the balls is 3 (DIN5401). Only the balls which are contained in the Franke consignment are allowed to be used. If balls get lost all the balls have to be replaced.
The adjustment with preload is an important condition for longevity. It guarantees that all races carry load and that the balls run optimally in their defined track.

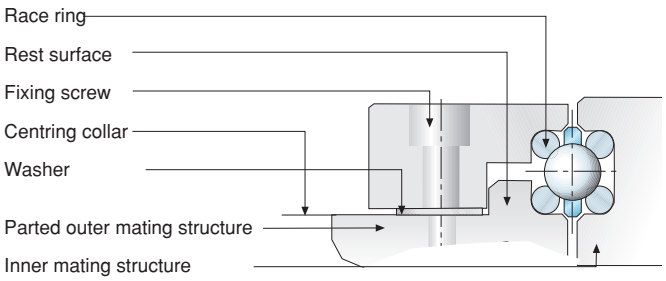
2.1 Adjustment by means of washers

Adjustment by means of washers is the most flexible and economically most efficient way of adjustment because it allows the user to change the rotational resistance subsequently. Washers can be ordered in different thicknesses depending on the screw diameter (see accessories on page 31).

Condition:

- Inner and outer structure have to be parted
- The height “mH7” on the side of the parted mating structure must be by 0.3 to 0.5mm smaller. The gap serves to take the washer.
- The parted side of the mating structure should be fixed by a centring collar to guarantee the parallelism of the races.

Mounting and adjustment



The race rings are inserted into the mating structure. The race ring beds can be coated with grease in order to keep the rings in their position during the mounting process. The joints of the race rings which are on the opposite side of the same part are turned by 180°. Afterwards the parted side of the mating structure is put into its provided position*. Then the cage segments with the balls are inserted and the bearing element is greased (see page 34: lubrication). Before the mating structure of the parted side is closed the washers are put on the holes for the fixing screws. Their thickness depends on the gap which is provided for them (see above). After tightening of the screws (see screws) the bearing assembly is turned 2 to 3 times by 360° and the rotational resistance is checked. If the measured value differs by more than 5-10% the thickness of the washers has to be changed and the procedure has to be repeated.

(* Applies to both adjustment methods 2.1 and 2.2)

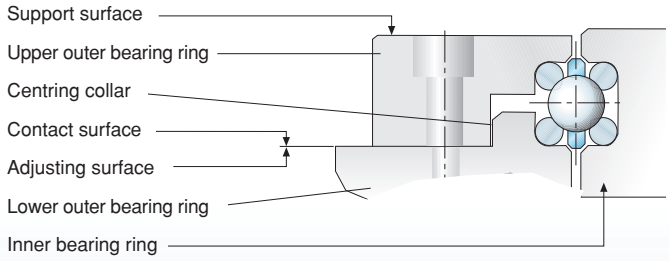
2.2 Massive adjustment

With the massive adjustment the dimensional determination of the adjustment surface is obtained by grinding. With this method the highest precision is reached because the separating surface of the parted side is form-fit and no tension bridges can be produced.

Condition:

- Inner and outer structure has to be parted.
- An appropriate surface grinding machine has to be at disposal
- The dimension “mH7” on the side of the parted mating structure must be by 0,1 mm higher. This over measure is needed for adjustment.
- The parted side of the mating structure should be fixed by a centring collar which determines the parallelism of the raceways.

Mounting and adjustment
Procedure as described under 2.1) until *.



Afterwards the cage segments with the balls are inserted and the bearing assembly is closed with the second parted side of the mating structure (adjustment ring). The clearance should be measured by means of a dial gauge after securing of the screws according to the instructions (see under “screws”) and after turning of the bearing assembly two to three times by a full rotation of 360°. Now the adjustment ring is again detached and the measured value plus additional 0,02 to 0,03 mm is ground off by means of a flat grinding machine. (In order to guarantee the parallelism between this surface and the rest surface of the raceway the designer should provide a suitable rest surface beforehand!)
After the grinding dust has carefully been cleaned off the ring is mounted again as described, and the bearing is moved. Now the rotational resistance is measured. If this value differs by more than 5-10% the procedure has to be repeated. Finally the bearing assembly is greased via the provided lubrication holes (see “lubrication”).

Hint:

We recommend you to adjust a preload because tolerances which have to be compensated are always to be encountered, even with optimum machining

3. Mounting and installation of bearing assemblies

Franke bearing assemblies are completed bearings and ready for installation, no matter whether it is a standard bearing from the catalogue or a custom-made specific version. The defined running accuracy, the rotational resistance, the stiffness and the general features depend on the mating structure and the correctness of the data indicated when ordering. So please pay attention to this aspect.

3.1 Lubrication and maintenance

The bearing should always be provided with sufficient lubricant in order to keep the friction low and to avoid corrosion. All lubricants undergo an ageing process which limits the durability. The best durability is reached by fully synthetic lubricants. For the first lubrication of our bearings we use ISOFLEX TOAS NCA 52 (Special grease of the firm Klüber, designation according to DIN 51502: KHC2N-50). The durability of this lubricant is about 3 years. We recommend this grease also for our bearing elements.

As an alternative you can also use high-grade lithium soap greases on the basis of poly-alpha-olefin or greases on the basis of mineral oil, according to DIN 51825-K2K-40. Any questions regarding specific features e.g. miscibility, aggressiveness, extreme temperatures, disposal, or application fields of a lubricant should be cleared up with the lubricant producer.

3.2 First lubrication

The quantity of lubricant needed by an antifriction bearing is relatively low and adapts itself to the RPM. In cases where too much lubricant is used the flexing work increases the temperatures and consequently the lubricity could be reduced or completely lost.
This way the increased wear of the bearing reduces its longevity. The quantity of lubricant is determined according to the free space inside the bearing assembly. 20 to 30% of the calculated volume has to be filled with lubricant. With slewing bearings we recommend 30-40%.

3.3 Re-lubrication and lubrication periods

The lubricity decreases as a consequence of wear and ageing. Therefore it is necessary to complete lubricant or to exchange the total lubricant quantity (e.g. in case of heavy contamination). During the re-lubrication process the bearing has to be turned, the temperature should be the normal operating temperature.

The re-lubrication quantity is calculated as follows:
M = KKØ x h2/3 x X

h2 = height of bearing ring n mm (see page 20 resp. 24)
KK¯ = Ball pitch diameter in mm
m = Re-lubrication quantity
X = Factor according to table 1 in mm $^{-1}$

Re-lubrication periods:

The precise determination of the periods has to be based on the specific application and should therefore be defined by experiments. Approximate values are found in table 1. The factor X (table 2) is determined by the time value in relation to the operation time provided for your application.

Table 1:

Vu [m/s]	Interval [h]
0 bis < 3	5000
3 bis < 5	1000
5 bis < 8	600
3 bis <10	200

Table 2:

interval	weekly	monthly	annually	2-3 years
X	0,002	0,003	0,004	0,005

Hint:

With standard bearings it is sufficient to attach one re-lubrication facility because the lubricant is evenly applied by the bearing motion. With slewing bearings you should provide at least 3 re-lubrication facilities (3X120¡). Generally it is possible to install a circular oil lubrication system. Please consult the lubricant supplier. For special applications (e.g. clean room or ultra high vacuum) we can manufacture lubricant-free bearings.

Calculation example:

Bearing assembly LDL, KKØ 500 mm, order no. 73105Y, circumferential speed 3m/s

Operation time approximately 16 hours per day

The re-lubrication period for 3m/s is 1000 hours (see table 1)
= 1000 (h) /16 (h/day) = 63 days ~ three months with an operation time of 16 hours per day.

Re-lubrication should be made every 3 months hence the factor X (table 2) is rounded and amounts to 0.0003. The dimension h2 is 42 mm (according to page 25 in this catalogue).

m = 500mm x 42/3mm x 0.003g = 21 g

Hence the quantity for re-lubrication amounts to 21g ISOFLEX TOPAS NCA52; it should be applied every 3 months. The durability of the lubricant is 3 years.

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3.4 Lubrication and lubrication periods for the gear

We recommend an automatic lubrication device for the gear. With manual lubrication gear and pinion have to be sufficiently greased before being set to work. The lubrication period depends on the design and the circumferential speed and therefore it has to be considered individually.

3.5 Screws

Principally the number and diameter of screws to be used for fixing the bearing to the mating structure has to be checked. The fastening screws should be tightened crosswise by means of a moment key. The moment depends on the screw quality. (See table 3).

Table 3

	Quality	
	8.8 [Nm]	12.9 [Nm]
M6	10	17
M8	25	41
M10	49	83
M12	86	145
M16	210	355

To compensate settling effects the screws have to be re-tightened with the prescribed tightening moment. During the re-tightening process no other forces should be exerted on the screws. The control has to be made after 100 and after 600 operating hours. Where particular conditions occur (e.g. heavy vibrations) this period should be considerably reduced.

3.6 Rotational resistance

The preload of a bearing determines the rotational resistance. The preload depends on the respective series and on the ball pitch diameter (See respective diagrams). However these values are not irreversible but they can be adjusted individually according the application.
The stiffness of a bearing depends indirectly on the rotational resistance. The following thumb rule applies: the higher the rotational resistance the higher the stiffness.

The increase of the rotational resistance caused by the seal S10 (see accessories) is approx. 1Nm/m circumference per seal. This value can vary due to dry run or and depends also on the surface quality.

3.7 Gear

Normally we supply the straight-tooth type (material 42CrMo4V) unhardened without offset profile. Material, type and quality can be changed on request at any time.

The definition of the permissible circumferential forces in the catalogue is based on the permissible bending stress at the tooth root. The maximum forces are related to extreme loads which are to be encountered e.g. with short time shock loads which occur during starting and stopping. These are approximate values which can only be defined by a gear calculation on the basis of the data given for both components (bearing assembly and pinion).

3.8 Tolerances and precision

All tolerances and precision values are given on the respective catalogue pages. The highest possible precision is obtained, where the enclosing structural parts are designed in such a manner that all diameters and surfaces which correspond to each other can be machined in one chucking.

The running precision indicated in the catalogue refers to maximum values and can be improved by reducing of the tolerances.

The tolerance indication T=IT6 or T = IT7 is referred to the basic tolerances depending on the bearing diameter according to DIM ISO 286 (see table 4).

Table 4

Nominal dimensional range ..up to [mm]	Basic tolerances	
	[µm]	[µm]
80... 120	22	35
120... 180	25	40
180... 250	29	46
250... 315	32	52
315... 400	36	57
400... 500	40	63
500... 630	44	70
630... 800	50	80
800... 1000	56	90
1000... 1250	66	105
1250... 1600	78	125

DIN ISO 286 T1 (11.90)