

Axial deep groove ball bearings



Matrix for bearing preselection 1041

1 Axial deep groove ball bearings **1042**

- 1.1 Bearing design 1042
- 1.2 Load carrying capacity 1044
- 1.3 Compensation of angular misalignments 1044
- 1.4 Lubrication 1044
- 1.5 Sealing 1045
- 1.6 Speeds 1045



1.7	Noise	1045	1.17	Mounting and dismounting	1050
1.8	Temperature range	1046	1.18	Legal notice regarding data freshness	1050
1.9	Cages	1046	1.19	Further information	1051
1.10	Internal clearance	1047		Product tables	1052
1.11	Dimensions, tolerances	1047		<i>Axial deep groove ball bearings, single direction</i>	1052
1.12	Suffixes	1048		<i>Axial deep groove ball bearings, double direction</i>	1064
1.13	Structure of bearing designation	1048			
1.14	Dimensioning	1048			
1.15	Minimum load	1049			
1.16	Design of bearing arrangements	1049			



Matrix for bearing preselection



The matrix gives an overview of the types and design features of axial deep groove ball bearings.

It can be used to make a preliminary assessment of whether a bearing is fundamentally suitable for the envisaged application.

The additional information provided in the product chapter (see column "detailed information") and in the Technical principles must, however, be observed in addition to this overview in selection of the bearing.

Design features and suitability			Axial deep groove ball bearings		
			single direction	double direction	detailed information
					1042
Load carrying capacity	radial		–	–	1044 1.2
	axial, one direction		++	++	1044 1.2
	axial, both directions		–	++	1044 1.2
	moments		–	–	1044 1.2
Compensation of angular misalignments	static		(+) ¹⁾	(+) ¹⁾	1044 1.3
	dynamic		–	–	1044 1.3
Bearing design	cylindrical bore		✓	✓	1042 1.1
	tapered bore		–	–	1042 1.1
	separable		✓	✓	1050 1.17
Lubrication	greased		–	–	1044 1.4
Sealing	open		✓	✓	1045 1.5
	non-contact		–	–	–
	contact		–	–	–
Operating temperature in °C		from to	–30 +150 ¹⁾	–30 +150 ¹⁾	1046 1.8
Suitability for	high speeds		+	+	1045 1.6
	high running accuracy		+	+	1047 1.11 114
	low-noise running		(+)	(+)	1045 1.7 27
	high rigidity		++	++	54
	reduced friction		+	+	56
	length compensation within bearing		–	–	–
	non-locating bearing arrangement		–	–	139
	locating bearing arrangement		+++	+++	139
X-life bearings			–	–	–
Bearing bore d in mm		from to	10 260 ²⁾	10 190	1052 1064
Product tables		from page	1052	1064	

¹⁾ Valid for bearings with spherical housing locating washer

²⁾ Larger catalogue bearings
 GL 1

1 Axial deep groove ball bearings



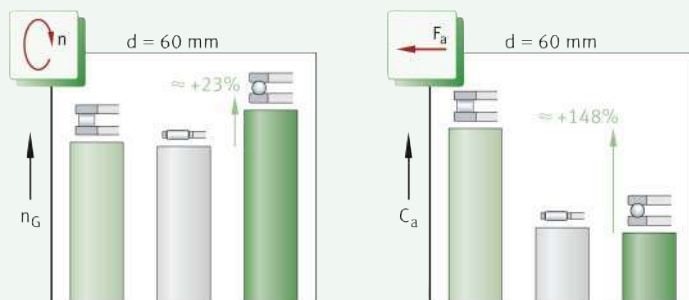
Axial deep groove ball bearings:

- are standardised, ready-to-fit units with high axial load carrying capacity ► 1043 | 2 and ► 1043 | 3
- are suitable exclusively for the support of predominantly axial loads ► 1044 | 1.2
- are particularly suitable where the bearing position is subjected to high axial loads from one or both sides, but the requirements for axial load carrying capacity of the bearings are not so high that axial cylindrical roller bearings with even higher load carrying capacity must be used
- permit higher speeds than roller or needle roller and cage assemblies ► 1042 | 1
- compensate, in conjunction with a spherical housing locating washer, static misalignments between the shaft and housing ► 1044 | 1.3.

For an overview of other product-specific features, see the Matrix for bearing preselection ► 1041.

1
Axial deep groove ball bearing:
comparison of speed and
load carrying capacity
with axial cylindrical
roller bearing and axial needle
roller and cage assembly

n_G = limiting speed
 F_a = axial load
 C_a = basic axial dynamic
load rating



1.1 Bearing design

Design variants

Axial deep groove ball bearings are available as:

- single direction bearings ► 1043 | 2
- double direction bearings ► 1043 | 3.

Basic bearing design

Non-self-retaining, easy-to-fit bearing units

Axial deep groove ball bearings are part of the group of axial ball bearings. The bearings are of a multi-piece construction and, due to their design, are not self-retaining. As a result, it is possible to mount the bearing parts (shaft locating washer, housing locating washer, ball and cage assembly, support washer) separately from each other. In order to guide the balls, the shaft and housing locating washer have raceway grooves (formed rolling element raceways) with a defined osculation, in which the rolling elements circulate. The ball set is retained by a sheet steel cage or a solid brass cage ► 1046 | 2. When using these bearings, the designer does not need to produce the bearing parts for his bearing arrangement and match these to each other himself, but can instead use a standardised, ready-to-fit unit.



Ready-to-fit bearing unit for compact axial designs

Single direction axial deep groove ball bearings

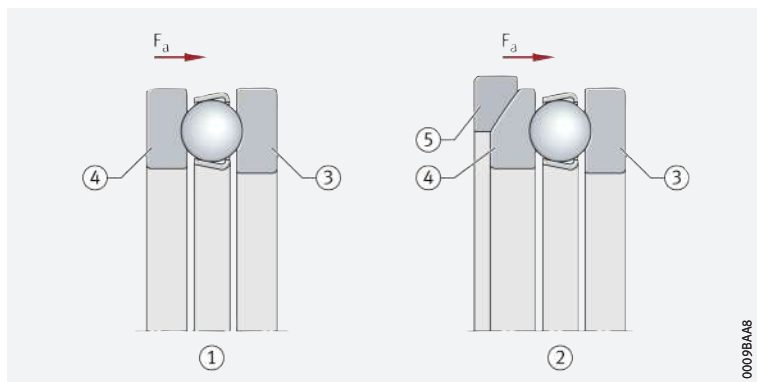
These axial deep groove ball bearings comprise a shaft locating washer, a housing locating washer and a ball and cage assembly ► 1043 | 2. In order to ensure centring of the washers with a precise fit, the bore of the shaft locating washer (d) is ground. In contrast, the bore of the housing locating washer (D_1) is more generously dimensioned and is turned. The housing locating washer can be flat or spherical and can be configured with or without a support washer. The support washers U2 and U3 must be ordered in addition to the bearing. Load carrying capacity of single direction bearings ► 1044 | 1.2.



2
Axial deep groove ball bearings, single direction

F_a = axial load

- ① Axial deep groove ball bearing with flat housing locating washer
- ② Axial deep groove ball bearing with spherical housing locating washer and support washer
- ③ Shaft locating washer
- ④ Housing locating washer
- ⑤ Support washer (flat or spherical)



0009BA48

Double direction axial deep groove ball bearings

Ready-to-fit bearing unit, suitable for combination with support washers

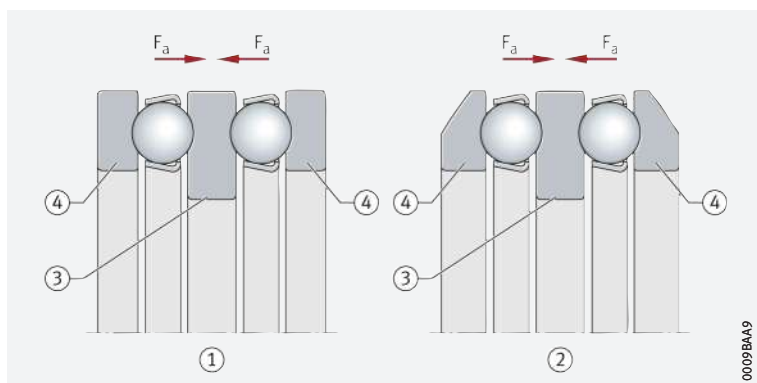
Double direction bearings comprise a shaft locating washer, two housing locating washers and two ball and cage assemblies ► 1043 | 3. They can also be combined with support washers U2 and U3. The housing locating washers and ball sets correspond to the designs of the single direction bearings. Load carrying capacity of double direction bearings ► 1044 | 1.2.



3
Axial deep groove ball bearings, double direction

F_a = axial load

- ① Axial deep groove ball bearing with flat housing locating washers
- ② Axial deep groove ball bearing with spherical housing locating washers, without support washer
- ③ Shaft locating washer
- ④ Housing locating washer (flat or spherical)



0009BA49

1.2 Load carrying capacity



Axial deep groove ball bearings are suitable for the support of predominantly axial loads. They must not be subjected to predominantly radial loads.

Single direction bearings

Single direction axial deep groove ball bearings can support axial forces in one direction and support the shaft on one side ► 1043 |  2.

Double direction bearings

Double direction axial deep groove ball bearings support axial forces in both directions and can guide the shaft on both sides ► 1043 |  3.

1.3 Compensation of angular misalignments



Axial deep groove ball bearings react with high sensitivity to angular misalignments. In cases where the contact face for the housing locating washer is not vertical (perpendicular) to the bearing axis, the angular misalignment can be compensated by means of bearings with a spherical housing locating washer and support washer ► 1043 |  2.

Single direction bearings

Series 511, 512, 513, 514 do not permit angular adjustment

Bearings of series 511, 512, 513 and 514 have a flat housing locating washer. As a result, they do not permit angular misalignment or skewing between the shaft and housing.

Series 532, 533 permit angular adjustment

Bearings of series 532 and 533 have a spherical housing locating washer. With an appropriate housing design and in conjunction with support washers U2 and U3, they are variable in angle as a result and can therefore tolerate static misalignments of the shaft relative to the housing within certain limits.

Double direction bearings

Series 522, 523 do not permit angular adjustment

Bearings of series 522 and 523 have two flat housing locating washers and do not permit angular adjustment.

Series 542, 543 permit angular adjustment

Bearings of series 542 and 543 have spherical housing locating washers. With an appropriate housing design and in conjunction with support washers U2 and U3, they are variable in angle as a result and can therefore tolerate static misalignments of the shaft relative to the housing within certain limits.

1.4 Lubrication

Oil or grease lubrication is possible

The bearings are not greased. In order to prevent direct metallic contact between rolling elements, raceways and cages, they must be lubricated. Oil or grease lubrication is suitable. The lubricant reduces the wear and also protects the surfaces against corrosion. The choice of lubricant is essentially dependent on the operating temperatures and the speeds; it is also influenced, however, by the load, mounting position, oscillations etc.



If there is any uncertainty regarding the suitability of the selected lubricant for the application, please consult Schaeffler or the lubricant manufacturer.



1.5 Sealing

The bearings are of an open design

Axial deep groove ball bearings are supplied without seals. As a result, sealing of the bearing position must be carried out in the adjacent construction. This must reliably prevent:

- moisture and contaminants from entering the bearing
- the egress of lubricant from the bearing.

1.6 Speeds

Limiting speeds and reference speeds in the product tables

Two speeds are generally indicated in the product tables ► 1052 :

- the kinematic limiting speed n_G
- the thermal speed rating n_{Gr} .

Limiting speed



The limiting speed n_G is the kinematically permissible speed of a bearing. Even under favourable mounting and operating conditions, this value should not be exceeded without prior consultation with Schaeffler ► 64. The values in the product tables are valid for oil lubrication.

Values for grease lubrication

For grease lubrication, 75% of the value stated in the product tables is permissible in each case.

Reference speeds

n_{Gr} is used to calculate n_{θ}

The thermal speed rating n_{Gr} is not an application-oriented speed limit, but is a calculated ancillary value for determining the thermally safe operating speed n_{θ} ► 64.

1.7 Noise

Schaeffler Noise Index

The Schaeffler Noise Index (SGI) is not yet available for this bearing type ► 69. The data for these bearing series will be introduced and updated in stages.

Further information:

- **medias** ► <https://medias.schaeffler.com>.

1.8 Temperature range

 Limiting values

The operating temperature of the bearings is limited by:

- the dimensional stability of the bearing washers and rolling elements
- the support washers
- the cage
- the lubricant.

 -30 °C to +150 °C

Possible operating temperatures for axial deep groove ball bearings ► 1046 |  1. The support washers are made from rolling bearing steel and are suitable for the same temperatures as the bearing washers and rolling elements. The temperature limit values of the lubricant must be observed.

 1
Permissible temperature ranges

Operating temperature	Axial deep groove ball bearings with sheet steel or brass cages
	-30 °C to +150 °C



In the event of anticipated temperatures which lie outside the stated values, please contact Schaeffler.

1.9 Cages

 Sheet steel cages or solid brass cages are used as standard

Standard cages for axial deep groove ball bearings ► 1046 |  2. Other cage designs are available by agreement. With such cages, however, suitability for high speeds and temperatures as well as the basic load ratings may differ from the values for the bearings with standard cages. Bearings with sheet steel cages do not have a cage suffix ► 1046 |  2.



If there is any uncertainty regarding cage suitability for a specific application, please consult Schaeffler.

 2
Cage, cage suffix, bore code

Bearing series	Sheet steel cage	Solid brass cage
	–	MP
Bore code		
511	up to 28	from 30
512	up to 28	from 30
513	up to 20	from 22
514	up to 11	from 12
522	up to 28	from 30
523	up to 20	from 22
524	06 to 11	–
532	up to 28	from 30
533	up to 20	from 22
534	06 to 11	–
542	up to 28	from 30
543	up to 20	22, 24
544	06 to 11	–

1.10

Internal clearance

⚙ Axial clearance and preload is determined by the application

In the case of axial deep groove ball bearings, the internal clearance (axial clearance) is only achieved when the bearings are mounted. The requisite axial clearance of the bearing arrangement is dependent on the application and must take account of the conditions in the bearing arrangement while warm from operation and subjected to load. If axial deep groove ball bearings are subjected to vibrations while under predominantly static load for example, they must be lightly preloaded. Preload can be applied, for example, using housing nuts ▶1047| 4. Other suitable means include shaft nuts, disc springs, calibrated sheets (shims) etc. It must always be ensured that no slippage occurs in operation between the rolling elements and raceways ▶1049| 1.15. It must also be ensured that the preload does not exceed the optimum value, otherwise there will be an increase in friction and therefore in heat generation in the bearing. These will both have a negative effect on the operating life of the bearings.

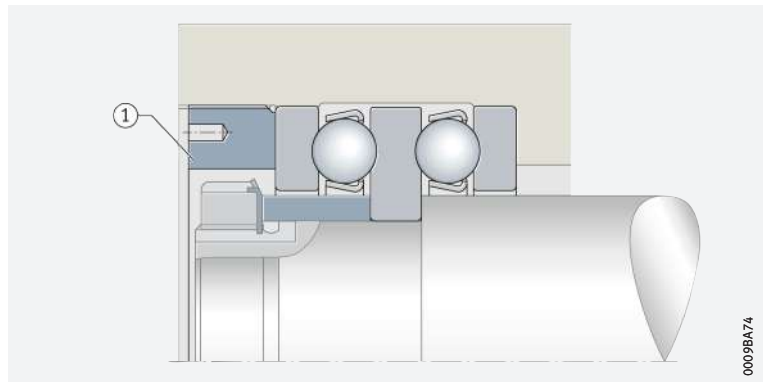


If there is any uncertainty regarding the setting of the axial clearance, Schaeffler must always be consulted.



Setting the axial clearance of a double direction axial deep groove ball bearing by means of a housing nut

① Housing nut



1.11

Dimensions, tolerances

Dimension standards



Bearings with a flat locating surface on the housing locating washer correspond to ISO 104:2015 or DIN 616:2000 and DIN 711:2010 as well as DIN 715:2011.

Bearings with a spherical locating surface on the housing locating washer correspond to ISO 20516:2007 and DIN 711:2010 as well as DIN 715:2011.

Chamfer dimensions



The limiting dimensions for chamfer dimensions correspond to DIN 620-6:2004. Overview and limiting values ▶138. Nominal value of chamfer dimension ▶1052| 28.

Tolerances



The tolerances for the dimensional and running accuracy of axial deep groove ball bearings correspond to tolerance class Normal in accordance with ISO 199:2014. Tolerance values in accordance with ISO 199 ▶133| 25 to ▶135| 28.

1.12 Suffixes

For a description of the suffixes used in this chapter ▶ 1048 | 3 and medias interchange ▶ <https://www.schaeffler.de/std/1D52>.

3
Suffixes and
corresponding descriptions

Suffix	Description of suffix	
MP	Solid brass cage, ball-guided	Standard
P5	Bearing in tolerance class 5	Special design, available by agreement
P6	Bearing in tolerance class 6	

1.13 Structure of bearing designation

Examples of composition
of bearing designation

The designation of bearings follows a set model.
Examples ▶ 1048 | 5 and ▶ 1048 | 6.
The composition of designations is subject to DIN 623-1 ▶ 102 | 10.

5
Axial deep groove ball bearing,
single direction, with spherical
housing locating washer and
support washer:
designation structure



6
Axial deep groove ball bearing,
double direction, with spherical
housing locating washers:
designation structure



1.14 Dimensioning

Equivalent dynamic bearing load

$P = F_a$ Axial deep groove ball bearings can only support axial forces ▶ 1044 | 1.2.
As a result, $P = F_a$ ▶ 1048 | 1.

1
Equivalent dynamic load
Legend

$P = F_a$		
P	N	Equivalent dynamic bearing load
F_a	N	Axial load.

Equivalent static bearing load

$P_0 = F_{0a}$ Since the bearings can only support axial loads, $P_0 = F_{0a}$ ▶ 1048 | 2.

2
Equivalent static load
Legend

$P_0 = F_{0a}$		
P_0	N	Equivalent static bearing load
F_{0a}	N	Largest axial load present (maximum load).



$$S_0 = C_0/P_0$$

Static load safety factor

In addition to the basic rating life $L (L_{10h})$, it is also always necessary to check the static load safety factor S_0 ► 227 | f. 5.

f. 3
Static load safety factor

$$S_0 = \frac{C_0}{P_0}$$

Legend

S_0	–	Static load safety factor
C_0	N	Basic static load rating
P_0	N	Equivalent static bearing load.

1.15

Minimum load

In order to prevent damage due to slippage, a minimum axial load of $F_{a \min}$ is required

Under axial load, the balls are guided under favourable rolling conditions at the base of the groove. This deteriorates, however, if the centrifugal force occurring at higher speeds and very low loads presses the balls outwards. In this case, detrimental sliding motions can occur between the rolling elements and the raceways due to centrifugal forces and gyroscopic moments. In order to prevent these sliding motions, the bearings must be subjected to the minimum axial load $F_{a \min}$ ► 1049 | f. 4.

This can also be achieved by means of preloading, for example using springs. The minimum load factor A is given in the product tables. For $n_{\max}$, the maximum operating speed must be used.

f. 4
Minimum axial load

$$F_{a \min} = 1000 \cdot A \cdot \left(\frac{n_{\max}}{1000} \right)^2$$

Legend

$F_{a \min}$	N	Minimum axial load
A	–	Minimum load factor ► 1052 f. 4
$n_{\max}$	min^{-1}	Maximum operating speed.

1.16

Design of bearing arrangements

In the case of misalignments: use spherical support washers or produce the locating surface in the housing to a spherical design

Bearings with spherical housing locating washers can compensate, in conjunction with a spherical bearing seating surface, misalignments between the locating surface in the housing and on the shaft ► 1044 | 1.3. These bearings can be mounted together with support washers also of a spherical design or directly in the housing. In this case, however, the locating surface in the housing must also be of a spherical design.

Shaft tolerances

Single direction bearings should have the shaft tolerance j6 ©, while k6 © should be selected for double direction bearings.

Tolerances for the housing bore

The tolerance of the locating bore is dependent on the running accuracy to be achieved. For normal running accuracy, it should be in the tolerance class E8 ©, for high running accuracy, it should be in the tolerance class H6 ©.

The contact surfaces for the washers must be of sufficient height

Mounting dimensions for the contact surfaces of bearing rings

The shoulders on the adjacent construction (shaft and housing) must be sufficiently high that the shaft and housing locating washers are supported over at least half their height. The abutment shoulders should be rigid, flat and perpendicular to the axis of rotation. Proven mounting dimensions for the radii and diameters of abutment shoulders are given in the product tables ► 1052 | f. 4. These dimensions are limiting dimensions (maximum or minimum dimensions); the actual values should not be higher or lower than specified.

1.17 Mounting and dismounting

⚠ *Do not transpose the shaft and housing locating washer*



In the case of single direction bearings, it must be ensured that the shaft and housing locating washer are not exchanged with each other but are mounted in the correct position.

On the shaft locating washer, the bore d is ground and the outside diameter d_1 is not ground ➤ 1050 | 7. For reliable operation, the shaft locating washer should always abut a shoulder of corresponding dimensions or a support ring securely located on the shaft.

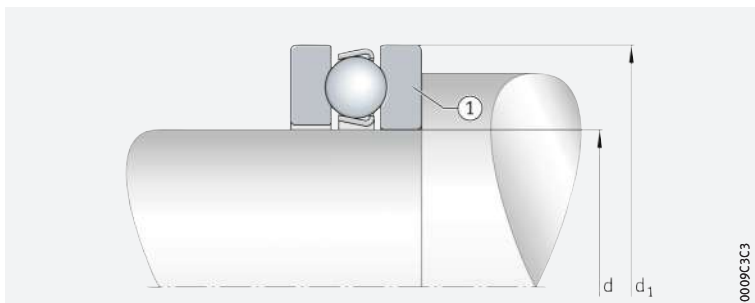
⚠ *As the bearings are not self-retaining, they are easy to mount*

Axial deep groove ball bearings are not self-retaining. As a result, the bearing washers and the ball and cage assembly can be mounted separately from each other ➤ 1042 | 1.1. This gives simplified mounting of the bearings.



Axial deep groove ball bearing,
single direction

- ① Shaft locating washer,
bore d ground,
outside diameter d_1 not ground



⚠ *Rolling bearings must be handled with great care*

Schaeffler Mounting Handbook

Rolling bearings are well-proven precision machine elements for the design of economical and reliable bearing arrangements, which offer high operational security. In order that these products can function correctly and achieve the envisaged operating life without detrimental effect, they must be handled with care.



The Schaeffler Mounting Handbook MH 1 gives comprehensive information about the correct storage, mounting, dismounting and maintenance of rotary rolling bearings ➤ <https://www.schaeffler.de/std/1D53>. It also provides information which should be observed by the designer, in relation to the mounting, dismounting and maintenance of bearings, in the original design of the bearing position. This book is available from Schaeffler on request.

1.18 Legal notice regarding data freshness

⚠ *The further development of products may also result in technical changes to catalogue products*

Of central interest to Schaeffler is the further development and optimisation of its products and the satisfaction of its customers. In order that you, as the customer, can keep yourself optimally informed about the progress that is being made here and with regard to the current technical status of the products, we publish any product changes which differ from the printed version in our electronic product catalogue.



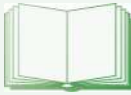
We therefore reserve the right to make changes to the data and illustrations in this catalogue. This catalogue reflects the status at the time of printing. More recent publications released by us (as printed or digital media) will automatically precede this catalogue if they involve the same subject. Therefore, please always use our electronic product catalogue to check whether more up-to-date information or modification notices exist for your desired product.

Link to electronic product catalogue



The following link will take you to the Schaeffler electronic product catalogue: ➤ <https://medias.schaeffler.com>.

1.19 Further information

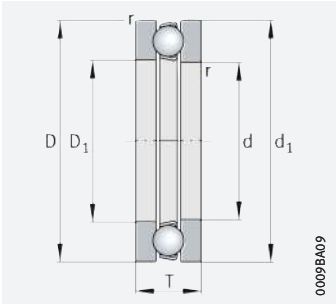


In addition to the data in this chapter, the following chapters in Technical principles must also be observed in the design of bearing arrangements:

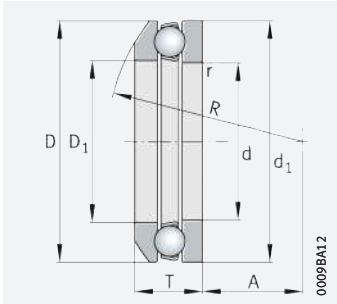
- Determining the bearing size ➤ 34
- Rigidity ➤ 54
- Friction and increases in temperature ➤ 56
- Speeds ➤ 64
- Bearing data ➤ 97
- Lubrication ➤ 70
- Sealing ➤ 182
- Design of bearing arrangements ➤ 139
- Mounting and dismounting ➤ 191.



Axial deep groove ball bearings
Single direction



511, 512, 513, 514

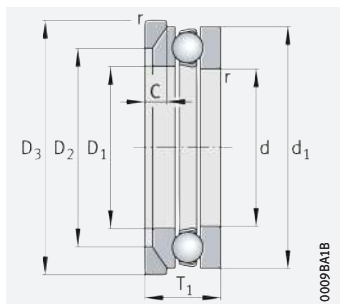


532, 533
Spherical housing locating washer

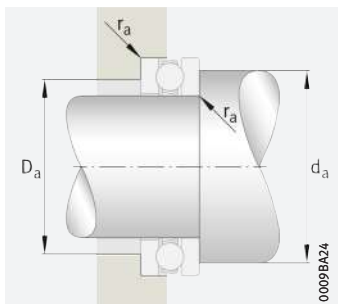
d = 10 – 30 mm

Main dimensions			Basic load ratings		Fatigue limit load	Minimum load factor	Limiting speed	Speed rating	Mass m		Designation	
d	D	T	dyn. C _a	stat. C _{0a}	C _{ua}	A	n _G	n _{dr}	Bearing	Support washer	Bearing	Support washer
			N	N	N		min ⁻¹	min ⁻¹	≈ kg	≈ kg		
10	24	9	10 000	14 000	620	0,001	12 700	19 200	0,018	–	51100	–
	26	11	12 700	17 100	760	0,002	10 900	19 100	0,03	–	51200	–
	26	11,6	12 700	17 100	760	0,002	10 900	19 100	0,028	0,008	53200	U200
12	26	9	10 300	15 400	690	0,001	13 100	16 900	0,021	–	51101	–
	28	11	13 200	19 000	840	0,002	11 300	16 900	0,03	–	51201	–
	28	11,4	13 200	19 000	840	0,002	11 300	16 900	0,03	0,009	53201	U201
15	28	9	10 500	16 800	750	0,002	13 100	14 000	0,027	–	51102	–
	32	12	16 600	24 800	1 100	0,003	9 800	14 300	0,049	–	51202	–
	32	13,3	16 600	24 800	1 100	0,003	9 800	14 300	0,048	0,013	53202	U202
17	30	9	11 300	19 600	870	0,002	12 900	12 500	0,028	–	51103	–
	35	12	17 200	27 500	1 210	0,004	9 700	13 200	0,052	–	51203	–
	35	13,2	17 200	27 500	1 210	0,004	9 700	13 200	0,055	0,015	53203	U203
20	35	10	15 000	26 500	1 180	0,004	10 900	11 100	0,04	–	51104	–
	40	14	21 100	37 500	1 660	0,007	8 500	11 600	0,082	–	51204	–
	40	14,7	21 100	37 500	1 660	0,007	8 500	11 600	0,081	0,02	53204	U204
25	42	11	18 100	35 500	1 570	0,006	9 700	9 500	0,055	–	51105	–
	47	15	26 500	50 000	2 220	0,013	7 500	9 800	0,114	–	51205	–
	47	16,7	26 500	50 000	2 220	0,013	7 500	9 800	0,121	0,031	53205	U205
	52	18	34 500	55 000	2 450	0,019	6 000	10 400	0,154	–	51305	–
	52	19,8	34 500	55 000	2 450	0,019	6 000	10 400	0,203	0,043	53305	U305
	60	24	43 000	66 000	2 950	0,032	4 700	10 900	0,295	–	51405	–
30	47	11	18 800	40 000	1 770	0,008	9 300	8 100	0,063	–	51106	–
	52	16	23 900	46 000	2 040	0,014	7 300	8 600	0,136	–	51206	–
	52	17,8	23 900	46 000	2 040	0,014	7 300	8 600	0,147	0,032	53206	U206
	60	21	35 500	65 000	2 850	0,028	5 700	9 300	0,244	–	51306	–
	60	22,6	35 500	65 000	2 850	0,028	5 700	9 300	0,303	0,055	53306	U306
	70	28	70 000	112 000	5 000	0,077	3 850	9 100	0,49	–	51406	–

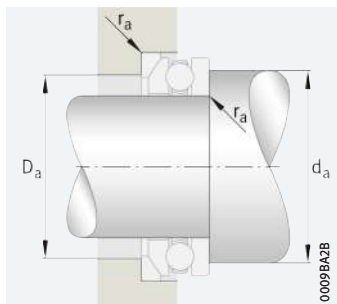
medias ► <https://www.schaeffler.de/std/1E13>



532, 533
Spherical housing locating washer
Support washer U2, U3



Mounting dimensions

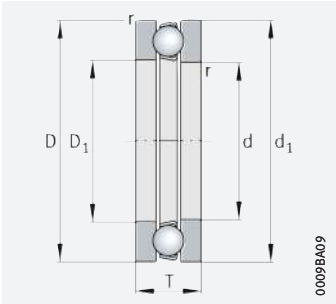


Mounting dimensions

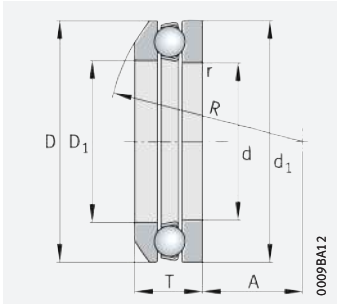
Dimensions										Mounting dimensions		
d	D ₁	d ₁	r	R	A	D ₂	D ₃	C	T ₁	d _a	D _a	r _a
			min.							min.	max.	max.
10	11	24	0,3	–	–	–	–	–	–	18	16	0,3
	12	26	0,6	–	–	–	–	–	–	20	16	0,6
	12	26	0,6	22	8,5	18	28	3,5	13	20	18	0,6
12	13	26	0,3	–	–	–	–	–	–	20	18	0,3
	14	28	0,6	–	–	–	–	–	–	22	18	0,6
	14	28	0,6	25	11,5	20	30	3,5	13	22	20	0,6
15	16	28	0,3	–	–	–	–	–	–	23	20	0,3
	17	32	0,6	–	–	–	–	–	–	25	22	0,6
	17	32	0,6	28	12	24	35	4	15	25	24	0,6
17	18	30	0,3	–	–	–	–	–	–	25	22	0,3
	19	35	0,6	–	–	–	–	–	–	28	24	0,6
	19	35	0,6	32	16	26	38	4	15	28	26	0,6
20	21	35	0,3	–	–	–	–	–	–	29	26	0,3
	22	40	0,6	–	–	–	–	–	–	32	28	0,6
	22	40	0,6	36	18	30	42	5	17	32	30	0,6
25	26	42	0,6	–	–	–	–	–	–	35	32	0,6
	27	47	0,6	–	–	–	–	–	–	38	34	0,6
	27	47	0,6	40	19	36	50	5,5	19	38	36	0,6
	27	52	1	–	–	–	–	–	–	41	36	1
	27	52	1	45	21	38	55	6	22	41	38	1
	27	60	1	–	–	–	–	–	–	46	39	1
30	32	47	0,6	–	–	–	–	–	–	40	37	0,6
	32	52	0,6	–	–	–	–	–	–	43	39	0,6
	32	52	0,6	45	22	42	55	5,5	20	43	42	0,6
	32	60	1	–	–	–	–	–	–	48	42	1
	32	60	1	50	22	45	62	7	25	48	45	1
	32	70	1	–	–	–	–	–	–	54	46	1



Axial deep groove ball bearings
Single direction



511, 512, 513, 514

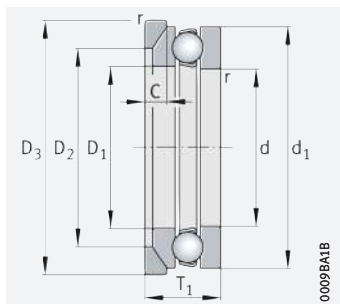


532, 533
Spherical housing locating washer

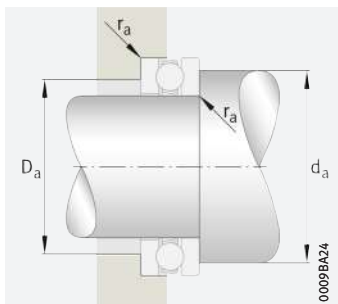
d = 35 – 55 mm

Main dimensions			Basic load ratings		Fatigue limit load	Minimum load factor	Limiting speed	Speed rating	Mass m		Designation	
d	D	T	dyn. C _a N	stat. C _{0a} N	C _{ua} N	A	n _G min ⁻¹	n _{0r} min ⁻¹	Bearing ≈ kg	Support washer ≈ kg	Bearing	Support washer
35	52	12	20 000	46 500	2 060	0,011	8 800	6 800	0,089	–	51107	–
	62	18	35 500	67 000	3 000	0,028	6 000	8 000	0,198	–	51207	–
	62	19,9	35 500	67 000	3 000	0,028	6 000	8 000	0,265	0,057	53207	U207
	68	24	50 000	89 000	3 900	0,05	4 850	8 200	0,351	–	51307	–
	68	25,6	50 000	89 000	3 900	0,05	4 850	8 200	0,437	0,082	53307	U307
	80	32	76 000	126 000	5 600	0,11	3 600	8 500	0,709	–	51407	–
40	60	13	25 500	62 000	2 750	0,02	7 400	6 400	0,114	–	51108	–
	68	19	44 000	97 000	4 300	0,05	5 500	6 900	0,257	–	51208	–
	68	20,3	44 000	97 000	4 300	0,05	5 500	6 900	0,259	0,07	53208	U208
	78	26	61 000	112 000	5 000	0,081	4 250	7 600	0,536	–	51308	–
	78	28,5	61 000	112 000	5 000	0,081	4 250	7 600	0,561	0,114	53308	U308
	90	36	96 000	170 000	7 500	0,18	3 250	7 600	1,03	–	51408	–
45	65	14	26 500	69 000	3 050	0,025	7 100	5 800	0,087	–	51109	–
	73	20	39 000	80 000	3 550	0,043	5 500	6 600	0,279	–	51209	–
	73	21,3	39 000	80 000	3 550	0,043	5 500	6 600	0,278	0,087	53209	U209
	85	28	75 000	140 000	6 300	0,12	3 800	6 800	0,612	–	51309	–
	85	30,1	75 000	140 000	6 300	0,12	3 800	6 800	0,783	0,171	53309	U309
	100	39	123 000	222 000	9 800	0,29	2 850	6 900	1,36	–	51409	–
50	70	14	27 000	75 000	3 300	0,029	6 800	5 200	0,151	–	51110	–
	78	22	50 000	106 000	4 700	0,069	4 950	5 700	0,346	–	51210	–
	78	23,5	50 000	106 000	4 700	0,069	4 950	5 700	0,341	0,098	53210	U210
	95	31	82 000	169 000	7 500	0,18	3 550	6 400	0,932	–	51310	–
	95	34,3	82 000	169 000	7 500	0,18	3 550	6 400	0,97	0,22	53310	U310
	110	43	138 000	255 000	11 400	0,4	2 650	6 500	1,81	–	51410	–
55	78	16	30 500	75 000	3 300	0,036	6 100	5 200	0,208	–	51111	–
	90	25	58 000	133 000	5 900	0,11	4 350	5 700	0,382	–	51211	–
	90	27,3	58 000	133 000	5 900	0,11	4 350	5 700	0,609	0,152	53211	U211
	105	35	102 000	207 000	9 200	0,26	3 200	6 000	1,3	–	51311	–
	105	39,3	102 000	207 000	9 200	0,26	3 200	6 000	1,38	0,27	53311	U311
	120	48	167 000	315 000	14 000	0,59	2 340	6 000	2,83	–	51411	–

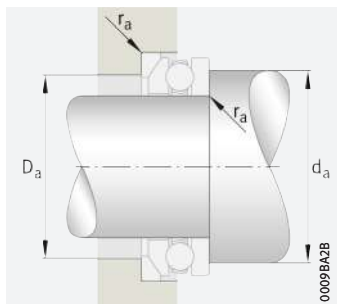
medias ► <https://www.schaeffler.de/std/1E14>



532, 533
Spherical housing locating washer
Support washer U2, U3



Mounting dimensions

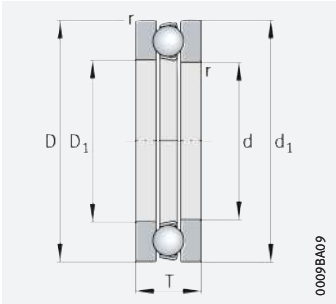


Mounting dimensions

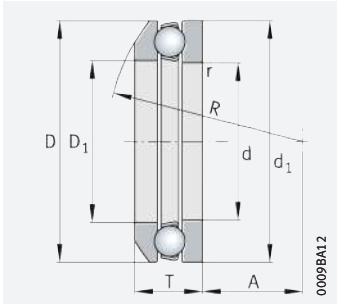
Dimensions										Mounting dimensions		
d	D ₁	d ₁	r	R	A	D ₂	D ₃	C	T ₁	d _a	D _a	r _a
			min.							min.	max.	max.
35	37	52	0,6	–	–	–	–	–	–	45	42	0,6
	37	62	1	–	–	–	–	–	–	51	46	1
	37	62	1	50	24	48	65	7	22	51	48	1
	37	68	1	–	–	–	–	–	–	55	48	1
	37	68	1	56	24	52	72	7,5	28	55	52	1
	37	80	1,1	–	–	–	–	–	–	62	53	1
40	42	60	0,6	–	–	–	–	–	–	52	48	0,6
	42	68	1	–	–	–	–	–	–	57	51	1
	42	68	1	56	28,5	55	72	7	23	57	55	1
	42	78	1	–	–	–	–	–	–	63	55	1
	42	78	1	64	28	60	82	8,5	31	63	60	1
	42	90	1,1	–	–	–	–	–	–	70	60	1
45	47	65	0,6	–	–	–	–	–	–	57	53	0,6
	47	73	1	–	–	–	–	–	–	62	56	1
	47	73	1	56	26	60	78	7,5	24	62	60	1
	47	85	1	–	–	–	–	–	–	69	61	1
	47	85	1	64	25	65	90	10	33	69	65	1
	47	100	1,1	–	–	–	–	–	–	78	67	1
50	52	70	0,6	–	–	–	–	–	–	62	58	0,6
	52	78	1	–	–	–	–	–	–	67	61	1
	52	78	1	64	32,5	62	82	7,5	26	67	62	1
	52	95	1,1	–	–	–	–	–	–	77	68	1
	52	95	1,1	72	28	72	100	11	37	77	72	1
	52	110	1,5	–	–	–	–	–	–	86	74	1,5
55	57	78	0,6	–	–	–	–	–	–	69	64	0,6
	57	90	1	–	–	–	–	–	–	76	69	1
	57	90	1	72	35	72	95	9	30	76	72	1
	57	105	1,1	–	–	–	–	–	–	85	75	1
	57	105	1,1	80	30	80	110	11,5	42	85	80	1
	57	120	1,5	–	–	–	–	–	–	94	81	1,5



Axial deep groove ball bearings
Single direction



511, 512, 513, 514

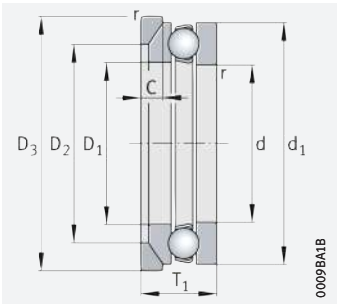


532, 533
Spherical housing locating washer

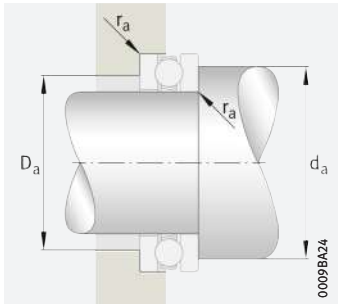
d = 60 – 80 mm

Main dimensions			Basic load ratings		Fatigue limit load	Minimum load factor	Limiting speed	Speed rating	Mass m		Designation	
d	D	T	dyn. C _a	stat. C _{0a}	C _{ua}	A	n _G	n _{dr}	Bearing	Support washer	Bearing	Support washer
			N	N	N		min ⁻¹	min ⁻¹	≈ kg	≈ kg		
60	85	17	41 500	113 000	5 000	0,065	5 500	4 650	0,278	–	51112	–
	95	26	62 000	139 000	6 200	0,12	4 200	5 300	0,649	–	51212	–
	95	28	62 000	139 000	6 200	0,12	4 200	5 300	0,655	0,163	53212	U212
	110	35	101 000	207 000	9 200	0,28	3 150	5 700	1,36	–	51312	–
	110	38,3	101 000	207 000	9 200	0,28	3 150	5 700	1,41	0,31	53312	U312
	130	51	201 000	395 000	17 700	0,87	2 190	5 500	3,57	–	51412-MP	–
65	90	18	38 500	100 000	4 400	0,063	5 300	4 450	0,3	–	51113	–
	100	27	64 000	149 000	6 600	0,14	4 100	4 900	0,684	–	51213	–
	100	28,7	64 000	149 000	6 600	0,14	4 100	4 900	0,855	0,183	53213	U213
	115	36	105 000	220 000	9 700	0,32	3 050	5 300	1,39	–	51313	–
	115	39,4	105 000	220 000	9 700	0,32	3 050	5 300	1,78	0,34	53313	U313
	140	56	217 000	450 000	19 900	1,1	2 050	5 200	4,47	–	51413-MP	–
70	95	18	40 000	110 000	4 850	0,074	5 100	4 100	0,352	–	51114	–
	105	27	66 000	159 000	7 000	0,16	4 000	4 550	0,727	–	51214	–
	105	28,8	66 000	159 000	7 000	0,16	4 000	4 550	0,903	0,185	53214	U214
	125	40	134 000	290 000	12 900	0,51	2 750	4 950	1,9	–	51314	–
	125	44,2	134 000	290 000	12 900	0,51	2 750	4 950	2,09	0,4	53314	U314
	150	60	222 000	500 000	21 100	1,4	1 920	5 000	5,49	–	51414-MP	–
75	100	19	44 500	123 000	5 500	0,093	4 800	3 800	0,365	–	51115	–
	110	27	67 000	169 000	7 500	0,18	3 950	4 300	0,825	–	51215	–
	110	28,3	67 000	169 000	7 500	0,18	3 950	4 300	1,01	0,21	53215	U215
	135	44	163 000	360 000	15 400	0,75	2 480	4 650	2,59	–	51315	–
	135	48,1	163 000	360 000	15 400	0,75	2 480	4 650	3,19	0,54	53315	U315
	160	65	238 000	560 000	22 700	1,8	1 810	4 750	6,82	–	51415-MP	–
80	105	19	45 000	129 000	5 700	0,1	4 650	3 600	0,384	–	51116	–
	115	28	75 000	191 000	8 500	0,23	3 700	3 950	0,908	–	51216	–
	115	29,5	75 000	191 000	8 500	0,23	3 700	3 950	0,903	0,22	53216	U216
	140	44	160 000	360 000	15 100	0,79	2 460	4 450	2,69	–	51316	–
	140	47,6	160 000	360 000	15 100	0,79	2 460	4 450	2,75	0,56	53316	U316
	170	68	270 000	620 000	24 600	2,2	1 710	4 550	7,97	–	51416-MP	–

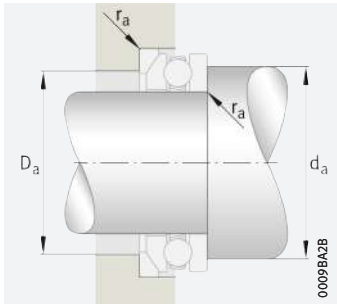
medias ► <https://www.schaeffler.de/std/1E15>



532, 533
Spherical housing locating washer
Support washer U2, U3



Mounting dimensions

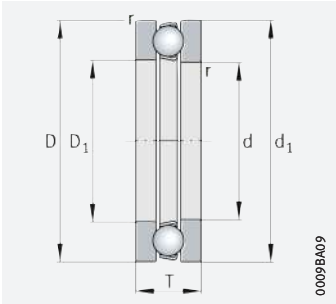


Mounting dimensions

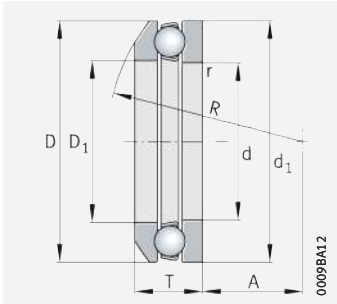
Dimensions										Mounting dimensions		
d	D ₁	d ₁	r	R	A	D ₂	D ₃	C	T ₁	d _a	D _a	r _a
			min.							min.	max.	max.
60	62	85	1	–	–	–	–	–	–	75	70	1
	62	95	1	–	–	–	–	–	–	81	74	1
	62	95	1	72	32,5	78	100	9	31	81	78	1
	62	110	1,1	–	–	–	–	–	–	90	80	1
	62	110	1,1	90	41	85	115	11,5	42	90	85	1
	62	130	1,5	–	–	–	–	–	–	102	88	1,5
65	67	90	1	–	–	–	–	–	–	80	75	1
	67	100	1	–	–	–	–	–	–	86	79	1
	67	100	1	80	40	82	105	9	32	86	82	1
	67	115	1,1	–	–	–	–	–	–	95	85	1
	67	115	1,1	90	38,5	90	120	12,5	43	95	90	1
	68	140	2	–	–	–	–	–	–	110	95	2
70	72	95	1	–	–	–	–	–	–	85	80	1
	72	105	1	–	–	–	–	–	–	91	84	1
	72	105	1	80	38	88	110	9	32	91	88	1
	72	125	1,1	–	–	–	–	–	–	103	92	1
	72	125	1,1	100	43	98	130	13	48	103	98	1
	73	150	2	–	–	–	–	–	–	118	102	2
75	77	100	1	–	–	–	–	–	–	90	85	1
	77	110	1	–	–	–	–	–	–	96	89	1
	77	110	1	90	49	92	115	9,5	32	96	92	1
	77	135	1,5	–	–	–	–	–	–	111	99	1,5
	77	135	1,5	100	37	105	140	15	52	111	105	1,5
	78	160	2	–	–	–	–	–	–	126	109	2
80	82	105	1	–	–	–	–	–	–	95	90	1
	82	115	1	–	–	–	–	–	–	101	94	1
	82	115	1	90	46	98	120	10	33	101	98	1
	82	140	1,5	–	–	–	–	–	–	116	104	1,5
	82	140	1,5	112	50	110	145	15	52	116	110	1,5
	83	170	2,1	–	–	–	–	–	–	134	116	2,1



Axial deep groove ball bearings
Single direction



511, 512, 513, 514

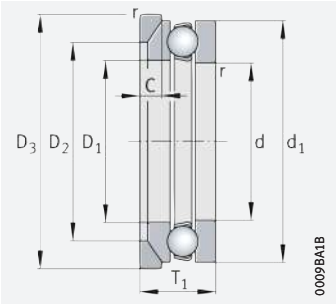


532, 533
Spherical housing locating washer

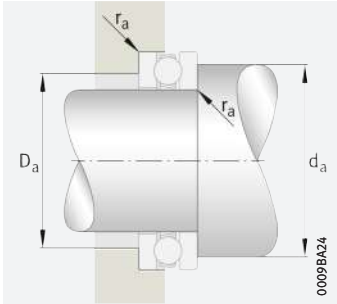
d = 85 – 120 mm

Main dimensions			Basic load ratings		Fatigue limit load	Minimum load factor	Limiting speed	Speed rating	Mass m		Designation	
d	D	T	dyn. C _a N	stat. C _{0a} N	C _{ua} N	A	n _G min ⁻¹	n _{0r} min ⁻¹	Bearing ≈ kg	Support washer ≈ kg	Bearing	Support washer
85	110	19	45 500	134 000	6 000	0,11	4 500	3 400	0,404	–	51117	–
	125	31	98 000	250 000	10 900	0,37	3 250	3 850	1,21	–	51217	–
	125	33,1	98 000	250 000	10 900	0,37	3 250	3 850	1,22	0,29	53217	U217
	150	49	186 000	420 000	17 200	1,1	2 260	4 250	3,48	–	51317	–
	150	53,1	186 000	420 000	17 200	1,1	2 260	4 250	3,51	0,8	53317	U317
	180	72	305 000	750 000	29 000	3	1 620	4 250	9,3	–	51417-MP	–
90	120	22	45 500	140 000	6 100	0,12	4 300	3 500	0,617	–	51118	–
	135	35	119 000	300 000	12 600	0,54	2 900	3 750	1,66	–	51218	–
	135	38,5	119 000	300 000	12 600	0,54	2 900	3 750	1,7	0,42	53218	U218
	155	50	193 000	455 000	18 300	1,2	2 240	4 050	3,75	–	51318	–
	155	54,6	193 000	455 000	18 300	1,2	2 240	4 050	3,81	0,82	53318	U318
	190	77	325 000	830 000	31 000	3,7	1 540	4 100	11,2	–	51418-MP	–
100	135	25	85 000	270 000	10 900	0,36	3 500	3 100	0,992	–	51120	–
	150	38	119 000	325 000	12 900	0,68	2 700	3 600	2,21	–	51220	–
	150	40,9	119 000	325 000	12 900	0,68	2 700	3 600	2,23	0,5	53220	U220
	170	55	238 000	580 000	22 600	1,9	1 970	3 650	4,94	–	51320	–
	170	59,2	238 000	580 000	22 600	1,9	1 970	3 650	4,99	0,93	53320	U320
	210	85	375 000	1 060 000	37 500	6	1 350	3 650	15	–	51420-MP	–
110	145	25	87 000	290 000	11 300	0,42	3 350	2 800	1,08	–	51122	–
	160	38	126 000	365 000	14 000	0,83	2 650	3 250	2,28	–	51222	–
	160	40,2	126 000	365 000	14 000	0,83	2 650	3 250	2,24	0,56	53222	U222
	190	63	280 000	740 000	27 000	3	1 790	3 400	7,85	–	51322-MP	–
	190	67,2	280 000	740 000	27 000	3	1 790	3 400	7,85	1,26	53322-MP	U322
	230	95	405 000	1 130 000	38 500	7,1	1 300	3 400	20,02	–	51422-MP	–
120	155	25	89 000	310 000	11 600	0,49	3 200	2 600	1,16	–	51124	–
	170	39	128 000	385 000	14 200	0,94	2 550	3 000	2,66	–	51224	–
	170	40,8	128 000	385 000	14 200	0,94	2 550	3 000	2,58	0,65	53224	U224
	210	70	325 000	910 000	31 500	4,4	1 610	3 200	10,7	–	51324-MP	–
	210	74,1	325 000	910 000	31 500	4,4	1 610	3 200	10,6	2,01	53324-MP	U324
	250	102	455 000	1 340 000	43 500	10	1 180	3 050	25,4	–	51424-MP	–

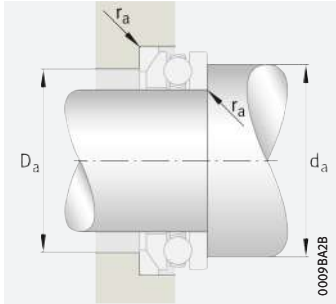
medias ► <https://www.schaeffler.de/std/1E16>



532, 533
Spherical housing locating washer
Support washer U2, U3



Mounting dimensions

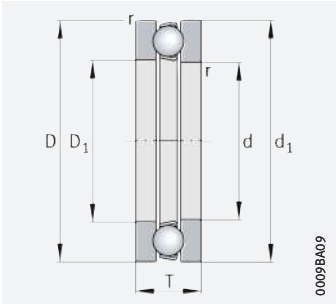


Mounting dimensions

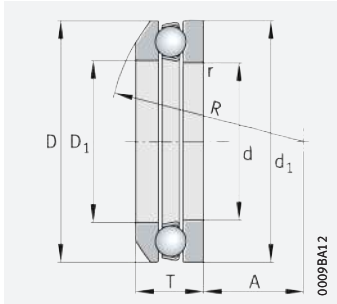
Dimensions										Mounting dimensions		
d	D ₁	d ₁	r	R	A	D ₂	D ₃	C	T ₁	d _a	D _a	r _a
			min.							min.	max.	max.
85	87	110	1	–	–	–	–	–	–	100	95	1
	88	125	1	–	–	–	–	–	–	109	101	1
	88	125	1	100	52	105	130	11	37	109	105	1
	88	150	1,5	–	–	–	–	–	–	124	111	1,5
	88	150	1,5	112	43	115	155	17,5	58	124	115	1,5
	88	177	2,1	–	–	–	–	–	–	142	123	2,1
90	92	120	1	–	–	–	–	–	–	108	102	1
	93	135	1,1	–	–	–	–	–	–	117	108	1
	93	135	1,1	100	45	110	140	13,5	42	117	110	1
	93	155	1,5	–	–	–	–	–	–	129	116	1,5
	93	155	1,5	112	40	120	160	18	59	129	120	1,5
	93	187	2,1	–	–	–	–	–	–	150	130	2,1
100	102	135	1	–	–	–	–	–	–	121	114	1
	103	150	1,1	–	–	–	–	–	–	130	120	1
	103	150	1,1	112	52	125	155	14	45	130	125	1
	103	170	1,5	–	–	–	–	–	–	142	128	1,5
	103	170	1,5	125	46	135	175	18	64	142	135	1,5
	103	205	3	–	–	–	–	–	–	166	144	2,5
110	112	145	1	–	–	–	–	–	–	131	124	1
	113	160	1,1	–	–	–	–	–	–	140	130	1
	113	160	1,1	125	65	135	165	14	45	140	135	1
	113	187	2	–	–	–	–	–	–	158	142	2
	113	187	2	140	51	150	195	20,5	72	158	150	2
	113	225	3	–	–	–	–	–	–	182	158	2,5
120	122	155	1	–	–	–	–	–	–	141	134	1
	123	170	1,1	–	–	–	–	–	–	150	140	1
	123	170	1,1	125	61	145	175	15	46	150	145	1
	123	205	2,1	–	–	–	–	–	–	174	156	2,1
	123	205	2,1	160	63	165	220	22	80	174	165	2,1
	123	245	4	–	–	–	–	–	–	198	172	3



Axial deep groove ball bearings
Single direction



511, 512, 513, 514

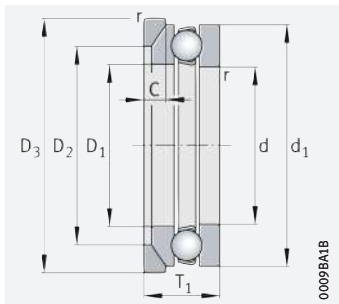


532, 533
Spherical housing locating washer

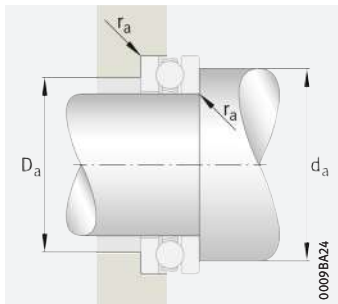
d = 130 – 180 mm

Main dimensions			Basic load ratings		Fatigue limit load	Minimum load factor	Limiting speed	Speed rating	Mass m		Designation	
d	D	T	dyn. C _a	stat. C _{0a}	C _{ua}	A	n _G	n _{dr}	Bearing	Support washer	Bearing	Support washer
			N	N	N		min ⁻¹	min ⁻¹				
130	170	30	111 000	390 000	14 200	0,76	2 850	2 490	1,75	–	51126	–
	190	45	184 000	540 000	18 900	1,7	2 210	2 850	3,96	–	51226	–
	190	47,9	184 000	540 000	18 900	1,7	2 210	2 850	3,9	0,9	53226	U226
	225	75	360 000	1 050 000	35 000	5,9	1 490	2 950	13	–	51326-MP	–
	270	110	560 000	1 750 000	55 000	16	1 030	2 650	32,02	–	51426-MP	–
140	180	31	111 000	400 000	14 200	0,83	2 750	2 330	1,9	–	51128	–
	200	46	191 000	570 000	19 200	1,9	2 110	2 700	4,3	–	51228	–
	200	48,6	191 000	570 000	19 200	1,9	2 110	2 700	4,25	1,22	53228	U228
	240	80	385 000	1 240 000	40 000	8,2	1 360	2 700	15,6	–	51328-MP	–
	240	84,9	385 000	1 240 000	40 000	8,2	1 360	2 700	15,548	2,92	53328-MP	U328
150	190	31	109 000	400 000	13 800	0,89	2 650	2 200	2,17	–	51130-MP	–
	215	50	236 000	730 000	24 200	2,9	1 950	2 500	6,08	–	51230-MP	–
	215	53,3	236 000	730 000	24 200	2,9	1 950	2 500	5,95	1,69	53230-MP	U230
	250	80	395 000	1 330 000	41 500	9,3	1 340	2 480	16,2	–	51330-MP	–
	250	83,7	395 000	1 330 000	41 500	9,3	1 340	2 480	12,8	3,11	53330-MP	U330
160	200	31	112 000	425 000	14 200	1	2 550	2 060	2,29	–	51132-MP	–
	225	51	240 000	770 000	24 700	3,2	1 900	2 350	6,53	–	51232-MP	–
	225	54,7	240 000	770 000	24 700	3,2	1 900	2 350	6,45	1,8	53232-MP	U232
	270	87	445 000	1 560 000	47 000	13	1 230	2 280	21,2	–	51332-MP	–
	270	91,7	445 000	1 560 000	47 000	13	1 230	2 280	20,814	4	53332-MP	U332
170	215	34	127 000	510 000	16 200	1,4	2 330	2 010	3,02	–	51134-MP	–
	240	55	285 000	930 000	28 500	4,5	1 740	2 230	8,12	–	51234-MP	–
	240	58,7	285 000	930 000	28 500	4,5	1 740	2 230	7,91	2,14	53234-MP	U234
	280	87	440 000	1 560 000	46 000	13	1 220	2 170	22,2	–	51334-MP	–
	280	91,3	440 000	1 560 000	46 000	13	1 220	2 170	21,584	4,42	53334-MP	U334
180	225	34	127 000	520 000	16 300	1,5	2 250	1 910	3,06	–	51136-MP	–
	250	56	305 000	1 030 000	31 500	5,4	1 670	2 080	8,56	–	51236-MP	–
	250	58,2	305 000	1 030 000	31 500	5,4	1 670	2 080	8,19	2,33	53236-MP	U236
	300	95	520 000	1 830 000	52 000	18	1 130	2 000	24,8	–	51336-MP	–
	300	99,3	520 000	1 830 000	52 000	18	1 130	2 000	24,065	5,32	53336-MP	U336

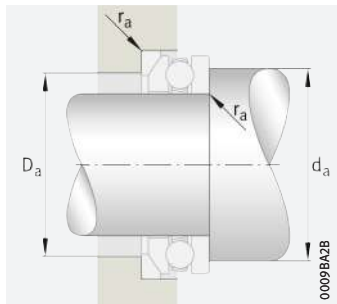
medias ► <https://www.schaeffler.de/std/1E17>



532, 533
Spherical housing locating washer
Support washer U2, U3



Mounting dimensions

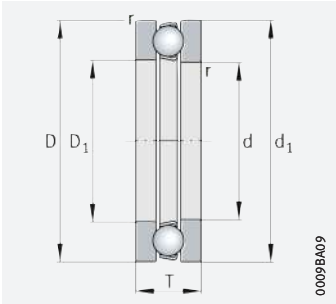


Mounting dimensions

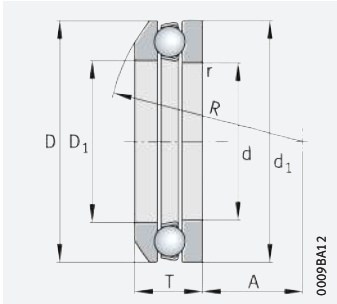
Dimensions										Mounting dimensions		
d	D ₁	d ₁	r	R	A	D ₂	D ₃	C	T ₁	d _a	D _a	r _a
			min.							min.	max.	max.
130	132	170	1	–	–	–	–	–	–	154	146	1
	133	187	1,5	–	–	–	–	–	–	166	154	1,5
	133	187	1,5	140	67	160	195	17	53	166	160	1,5
	134	220	2,1	–	–	–	–	–	–	187	168	2,1
	134	265	4	–	–	–	–	–	–	214	186	3
140	142	178	1	–	–	–	–	–	–	164	156	1
	143	197	1,5	–	–	–	–	–	–	176	164	1,5
	143	197	1,5	160	87	170	210	17	55	176	170	1,5
	144	235	2,1	–	–	–	–	–	–	200	180	2,1
	144	235	2,1	180	68	190	250	26	92	200	190	2,1
150	152	188	1	–	–	–	–	–	–	174	166	1
	153	212	1,5	–	–	–	–	–	–	189	176	1,5
	153	212	1,5	160	79	180	225	20,5	60	189	180	1,5
	154	245	2,1	–	–	–	–	–	–	210	190	2,1
	154	245	2,1	200	89,5	200	260	26	92	210	200	2,1
160	162	198	1	–	–	–	–	–	–	184	176	1
	163	222	1,5	–	–	–	–	–	–	199	186	1,5
	163	222	1,5	160	74	190	235	21	61	199	190	1,5
	164	265	3	–	–	–	–	–	–	226	204	2,5
	164	265	3	200	77	215	280	29	100	226	215	2,5
170	172	213	1,1	–	–	–	–	–	–	197	188	1
	173	237	1,5	–	–	–	–	–	–	212	198	1,5
	173	237	1,5	180	91	200	250	21,5	65	212	200	1,5
	174	275	3	–	–	–	–	–	–	236	214	2,5
	174	275	3	225	105	220	290	29	100	236	220	2,5
180	183	222	1,1	–	–	–	–	–	–	207	198	1
	183	245	1,5	–	–	–	–	–	–	222	208	1,5
	183	245	1,5	200	112	210	260	21,5	66	222	210	1,5
	184	295	3	–	–	–	–	–	–	252	228	2,5
	184	295	3	225	91	240	310	32	109	252	240	2,5



Axial deep groove ball bearings
Single direction



511, 512, 513

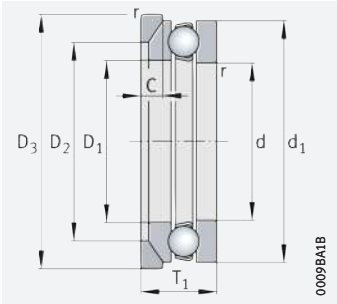


532, 533
Spherical housing locating washer

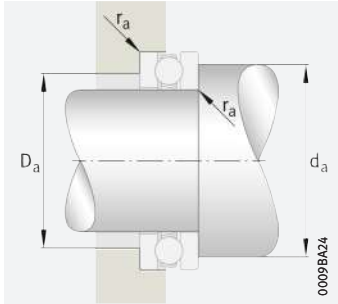
d = 190 – 260 mm

Main dimensions			Basic load ratings		Fatigue limit load	Minimum load factor	Limiting speed	Speed rating	Mass m		Designation	
d	D	T	dyn. C _a N	stat. C _{0a} N	C _{ua} N	A	n _G min ⁻¹	n _{dr} min ⁻¹	Bearing ≈ kg	Support washer ≈ kg	Bearing	Support washer
190	240	37	161 000	650 000	19 700	2,3	2 040	1 850	4,06	–	51138-MP	–
	270	62	335 000	1 170 000	34 500	7,2	1 540	2 010	11,6	–	51238-MP	–
	270	65,7	335 000	1 170 000	34 500	7,2	1 540	2 010	11,5	2,63	53238-MP	U238
	320	105	590 000	2 170 000	61 000	24	1 040	1 840	36,736	–	51338-MP	–
	320	111	590 000	2 170 000	61 000	24	1 040	1 840	36,479	6,16	53338-MP	U338
200	250	37	162 000	670 000	19 800	2,5	1 980	1 760	4,12	–	51140-MP	–
	280	62	340 000	1 220 000	35 000	7,8	1 510	1 890	12	–	51240-MP	–
	280	65,3	340 000	1 220 000	35 000	7,8	1 510	1 890	11,819	2,79	53240-MP	U240
220	270	37	168 000	730 000	20 700	3	1 870	1 600	4,54	–	51144-MP	–
	300	63	335 000	1 330 000	36 500	9,6	1 420	1 690	13,1	–	51244-MP	–
	300	65,6	335 000	1 330 000	36 500	9,6	1 420	1 690	13,114	3,31	53244-MP	U244
240	300	45	237 000	990 000	27 000	5,2	1 640	1 540	7,41	–	51148-MP	–
260	320	45	245 000	1 070 000	28 000	6,1	1 560	1 390	7,89	–	51152-MP	–

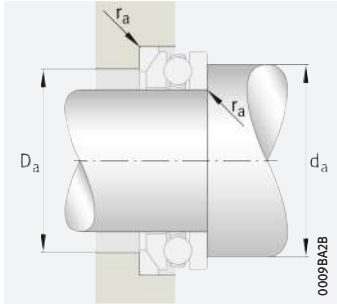
medias ► <https://www.schaeffler.de/std/1E18>



532, 533
Spherical housing locating washer
Support washer U2, U3



Mounting dimensions

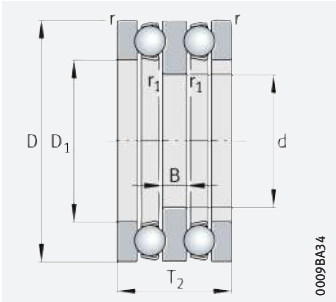


Mounting dimensions

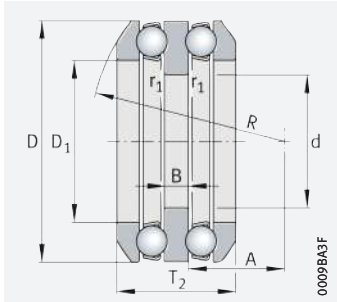
Dimensions										Mounting dimensions		
d	D ₁	d ₁	r	R	A	D ₂	D ₃	C	T ₁	d _a	D _a	r _a
			min.							min.	max.	max.
190	193	237	1,1	–	–	–	–	–	–	220	210	1
	194	265	2	–	–	–	–	–	–	238	222	2
	195	265	2	200	98	230	280	23	73	238	230	2
	195	315	4	–	–	–	–	–	–	268	242	3
	195	315	4	250	104	255	330	33	121	268	255	3
200	203	247	1,1	–	–	–	–	–	–	230	220	1
	204	275	2	–	–	–	–	–	–	248	232	2
	204	275	2	225	125	240	290	23	74	248	240	2
220	223	267	1,1	–	–	–	–	–	–	250	240	1
	224	295	2	–	–	–	–	–	–	268	252	2
	224	295	2	225	118	260	310	25	75	268	260	2
240	243	297	1,5	–	–	–	–	–	–	276	264	1,5
260	263	317	1,5	–	–	–	–	–	–	296	284	1,5



Axial deep groove ball bearings
Double direction



522, 523

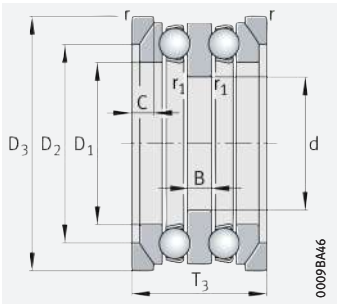


542, 543
Spherical housing locating washers

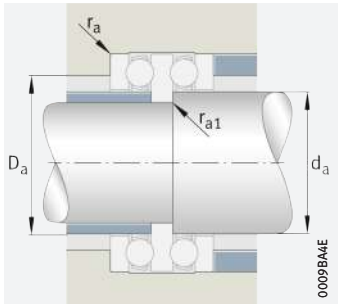
d = 10 – 40 mm

Main dimensions			Basic load ratings		Fatigue limit load	Minimum load factor	Limiting speed	Speed rating	Mass m		Designation	
d	D	T ₂	dyn. C _a N	stat. C _{0a} N	C _{ua} N	A	n _G min ⁻¹	n _{0r} min ⁻¹	Bearing ≈ kg	Support washer ≈ kg	Bearing	Support washer
10	32	22	16 600	24 800	1 100	0,003	9 800	13 700	0,085	–	52202	–
15	40	26	21 100	37 500	1 660	0,007	8 500	11 100	0,15	–	52204	–
20	47	28	26 500	50 000	2 220	0,013	7 500	9 400	0,23	–	52205	–
	47	31,4	26 500	50 000	2 220	0,013	7 500	9 400	0,221	0,031	54205	U205
	52	34	34 500	55 000	2 450	0,019	6 000	9 700	0,29	–	52305	–
	52	37,6	34 500	55 000	2 450	0,019	6 000	9 700	0,303	0,043	54305	U305
	70	52	70 000	112 000	5 000	0,077	3 850	8 700	0,912	–	52406	–
25	52	29	23 900	46 000	2 040	0,014	7 300	8 200	0,249	–	52206	–
	52	32,6	23 900	46 000	2 040	0,014	7 300	8 200	0,269	0,032	54206	U206
	60	38	35 500	65 000	2 850	0,028	5 700	8 600	0,435	–	52306	–
	60	41,2	35 500	65 000	2 850	0,028	5 700	8 600	0,553	0,055	54306	U306
	80	59	76 000	126 000	5 600	0,11	3 600	8 000	1,44	–	52407	–
30	62	34	35 500	67 000	3 000	0,028	6 000	7 500	0,405	–	52207	–
	62	37,8	35 500	67 000	3 000	0,028	6 000	7 500	0,423	0,082	54207	U207
	68	36	44 000	97 000	4 300	0,05	5 500	6 900	0,54	–	52208	–
	68	44	50 000	89 000	3 900	0,05	4 850	7 600	0,63	–	52307	–
	68	38,6	44 000	97 000	4 300	0,05	5 500	6 900	0,513	0,07	54208	U208
	68	47,2	50 000	89 000	3 900	0,05	4 850	7 600	0,683	0,082	54307	U307
	78	49	61 000	112 000	5 000	0,081	4 250	7 200	1,02	–	52308	–
	78	54	61 000	112 000	5 000	0,081	4 250	7 200	1,1	0,114	54308	U308
	90	65	96 000	170 000	7 500	0,18	3 250	7 100	2,03	–	52408	–
35	73	37	39 000	80 000	3 550	0,043	5 500	6 500	0,58	–	52209	–
	73	39,6	39 000	80 000	3 550	0,043	5 500	6 500	0,537	0,087	54209	U209
	85	52	75 000	140 000	6 300	0,12	3 800	6 500	1,236	–	52309	–
	85	56,2	75 000	140 000	6 300	0,12	3 800	6 500	1,28	0,171	54309	U309
	100	72	123 000	222 000	9 800	0,29	2 850	6 500	2,71	–	52409	–
40	78	39	50 000	106 000	4 700	0,069	4 950	5 800	0,684	–	52210	–
	78	42	50 000	106 000	4 700	0,069	4 950	5 800	0,625	0,098	54210	U210
	95	58	82 000	169 000	7 500	0,18	3 550	6 100	1,76	–	52310	–
	95	64,6	82 000	169 000	7 500	0,18	3 550	6 100	1,84	0,22	54310	U310
	110	78	138 000	255 000	11 400	0,4	2 650	6 000	3,56	–	52410	–

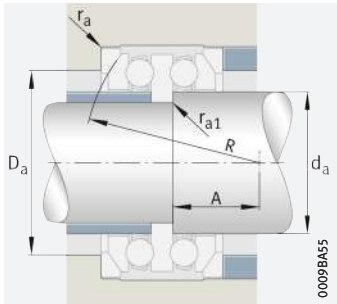
medias ► <https://www.schaeffler.de/std/1E19>



542, 543
Spherical housing locating washers
Support washers U2, U3



Mounting dimensions

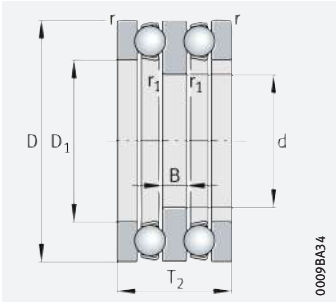


Mounting dimensions

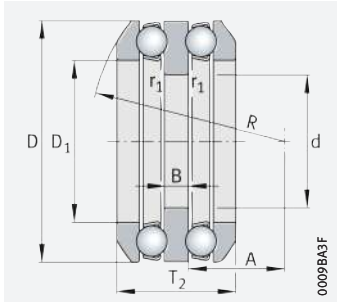
Dimensions											Mounting dimensions			
d	D ₁	B	r	r ₁	R	A	D ₂	D ₃	C	T ₃	d _a	D _a	r _a	r _{a1}
			min.	min.								max.	max.	max.
10	17	5	0,6	0,3	–	–	–	–	–	–	15	22	0,6	0,3
15	22	6	0,6	0,3	–	–	–	–	–	–	20	28	0,6	0,3
20	27	7	0,6	0,3	–	–	–	–	–	–	25	34	0,6	0,3
	27	7	0,6	0,3	40	16,5	36	50	5,5	36	25	36	0,6	0,3
	27	8	1	0,3	–	–	–	–	–	–	25	36	1	0,3
	27	8	1	0,3	45	18	42	55	6	38	25	38	1	0,3
	32	12	1	0,6	–	–	–	–	–	–	30	46	1	0,6
25	32	7	0,6	0,3	–	–	–	–	–	–	30	39	0,6	0,3
	32	7	0,6	0,3	45	20	37	55	5,5	42	30	42	0,6	0,3
	32	9	1	0,3	–	–	–	–	–	–	30	42	1	0,3
	32	9	1	0,3	50	19,5	46	62	7	45	30	45	1	0,3
	37	14	1,1	0,6	–	–	–	–	–	–	35	53	1	0,6
30	37	8	1	0,3	–	–	–	–	–	–	35	46	1	0,3
	37	8	1	0,3	50	21	42	72	7,5	52	35	48	1	0,3
	42	9	1	0,6	–	–	–	–	–	–	40	51	1	0,6
	37	10	1	0,3	–	–	–	–	–	–	35	48	1	0,3
	42	9	1	0,6	56	25	44	72	7	55	40	55	1	0,6
	37	10	1	0,3	56	21	52	72	7,5	52	35	52	1	0,3
	42	12	1	0,6	–	–	–	–	–	–	40	55	1	0,6
	42	12	1	0,6	64	23,5	59	82	8,5	60	40	60	1	0,6
	42	15	1,1	0,6	–	–	–	–	–	–	40	60	1	0,6
35	47	9	1	0,6	–	–	–	–	–	–	45	56	1	0,6
	47	9	1	0,6	56	23	45	78	7,5	60	45	60	1	0,6
	47	12	1	0,6	–	–	–	–	–	–	45	61	1	0,6
	47	12	1	0,6	64	21	62	90	10	65	45	65	1	0,6
	47	17	1,1	0,6	–	–	–	–	–	–	45	67	1	0,6
40	52	9	1	0,6	–	–	–	–	–	–	50	61	1	0,6
	52	9	1	0,6	64	30,5	47	82	7,5	62	50	62	1	0,6
	52	14	1,1	0,6	–	–	–	–	–	–	50	68	1	0,6
	52	14	1,1	0,6	72	23	70	100	11	72	50	72	1	0,6
	52	18	1,5	0,6	–	–	–	–	–	–	50	74	1,5	0,6



Axial deep groove ball bearings
Double direction



522, 523

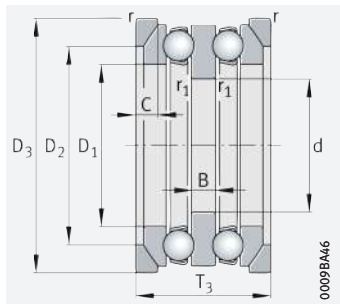


542, 543
Spherical housing locating washers

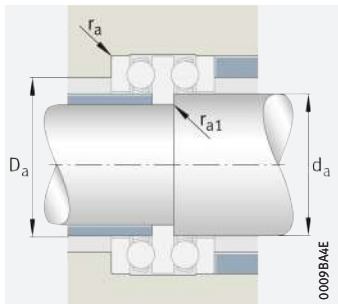
d = 45 – 70 mm

Main dimensions			Basic load ratings		Fatigue limit load	Minimum load factor	Limiting speed	Speed rating	Mass m		Designation	
d	D	T ₂	dyn. C _a N	stat. C _{0a} N	C _{ua} N	A	n _G min ⁻¹	n _{0r} min ⁻¹	Bearing ≈ kg	Support washer ≈ kg	Bearing	Support washer
45	90	45	58 000	133 000	5 900	0,11	4 350	5 600	1,054	–	52211	–
	90	49,6	58 000	133 000	5 900	0,11	4 350	5 600	1,02	0,152	54211	U211
	105	64	102 000	207 000	9 200	0,26	3 200	5 700	2,37	–	52311	–
	105	72,6	102 000	207 000	9 200	0,26	3 200	5 700	2,53	0,27	54311	U311
	120	87	167 000	315 000	14 000	0,59	2 340	5 600	4,7	–	52411	–
50	95	46	62 000	139 000	6 200	0,12	4 200	5 200	1,1	–	52212	–
	95	50	62 000	139 000	6 200	0,12	4 200	5 200	1,17	0,163	54212	U212
	110	64	101 000	207 000	9 200	0,28	3 150	5 400	2,49	–	52312	–
	110	70,6	101 000	207 000	9 200	0,28	3 150	5 400	2,59	0,31	54312	U312
	115	70,6	101 000	207 000	9 200	0,28	3 150	5 800	2,98	0,34	54313	U313
55	100	47	64 000	149 000	6 600	0,14	4 100	4 800	1,281	–	52213	–
	100	50,4	64 000	149 000	6 600	0,14	4 100	4 800	1,53	0,183	54213	U213
	105	47	66 000	159 000	7 000	0,16	4 000	4 750	1,401	–	52214	–
	105	50,6	66 000	159 000	7 000	0,16	4 000	4 750	1,46	0,185	54214	U214
	115	65	105 000	220 000	9 700	0,32	3 050	5 000	2,68	–	52313	–
	125	72	134 000	290 000	12 900	0,51	2 750	4 800	3,55	–	52314	–
	125	80,4	134 000	290 000	12 900	0,51	2 750	4 800	3,77	0,4	54314	U314
60	110	47	67 000	169 000	7 500	0,18	3 950	4 450	1,45	–	52215	–
	110	49,6	67 000	169 000	7 500	0,18	3 950	4 450	1,87	0,21	54215	U215
	135	79	163 000	360 000	15 400	0,75	2 480	4 500	4,72	–	52315	–
	135	87,2	163 000	360 000	15 400	0,75	2 480	4 500	4,98	0,54	54315	U315
65	115	48	75 000	191 000	8 500	0,23	3 700	4 150	1,55	–	52216	–
	115	51	75 000	191 000	8 500	0,23	3 700	4 150	1,6	0,22	54216	U216
	140	79	160 000	360 000	15 100	0,79	2 460	4 350	4,82	–	52316	–
	140	86,2	160 000	360 000	15 100	0,79	2 460	4 350	5,22	0,56	54316	U316
70	125	55	98 000	250 000	10 900	0,37	3 250	3 950	2,23	–	52217	–
	125	59,2	98 000	250 000	10 900	0,37	3 250	3 950	2,25	0,29	54217	U217
	150	87	186 000	420 000	17 200	1,1	2 260	4 150	6,2	–	52317	–
	150	95,2	186 000	420 000	17 200	1,1	2 260	4 150	6,41	0,8	54317	U317

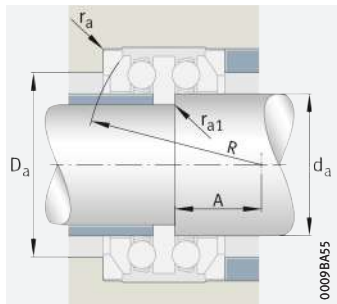
medias ► <https://www.schaeffler.de/std/1E1A>



542, 543
Spherical housing locating washers
Support washers U2, U3



Mounting dimensions



Mounting dimensions

Dimensions

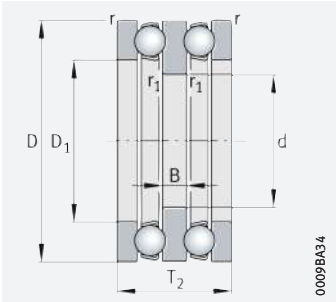
d	D ₁	B	r	r ₁	R	A	D ₂	D ₃	C	T ₃
			min.	min.						
45	57	10	1	0,6	–	–	–	–	–	–
	57	10	1	0,6	72	32,5	55	95	9	72
	57	15	1,1	0,6	–	–	–	–	–	–
	57	15	1,1	0,6	80	25,5	78	110	11,5	80
	57	20	1,5	0,6	–	–	–	–	–	–
50	62	10	1	0,6	–	–	–	–	–	–
	62	10	1	0,6	72	30,5	56	100	9	78
	62	15	1,1	0,6	–	–	–	–	–	–
	62	15	1,1	0,6	90	36,5	78	115	11,5	85
	67	15	1,1	0,6	90	34,5	79	120	12,5	90
55	67	10	1	0,6	–	–	–	–	–	–
	67	10	1	0,6	80	38,5	57	105	9	82
	72	10	1	1	–	–	–	–	–	–
	72	10	1	1	80	36,5	57	110	9	88
	67	15	1,1	0,6	–	–	–	–	–	–
	72	16	1,1	1	–	–	–	–	–	–
	72	16	1,1	1	100	39	88	130	13	98
60	77	10	1	1	–	–	–	–	–	–
	77	10	1	1	90	47,5	57	115	9,5	92
	77	18	1,5	1	–	–	–	–	–	–
	77	18	1,5	1	100	32,5	95	140	15	105
65	82	10	1	1	–	–	–	–	–	–
	82	10	1	1	90	45	58	120	10	98
	82	18	1,5	1	–	–	–	–	–	–
	82	18	1,5	1	112	45,5	95	145	15	110
70	88	12	1	1	–	–	–	–	–	–
	88	12	1	1	100	49,5	67	130	11	105
	88	19	1,5	1	–	–	–	–	–	–
	88	19	1,5	1	112	39	105	155	17,5	115

Mounting dimensions

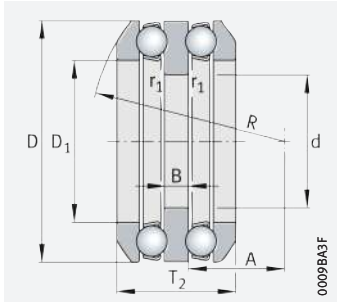
d _a	D _a	r _a	r _{a1}
	max.	max.	max.
55	69	1	0,6
55	72	1	0,6
55	75	1	0,6
55	80	1	0,6
55	81	1,5	0,6
60	74	1	0,6
60	78	1	0,6
60	80	1	0,6
60	85	1	0,6
60	85	1	0,6
65	79	1	0,6
65	82	1	0,6
70	84	1	1
70	88	1	1
65	85	1	0,6
70	92	1	1
70	98	1	1
75	89	1	1
75	92	1	1
75	99	1,5	1
75	105	1,5	1
80	94	1	1
80	98	1	1
80	104	1,5	1
80	110	1,5	1
85	101	1	1
85	105	1	1
85	111	1,5	1
85	115	1,5	1



Axial deep groove ball bearings
Double direction



522, 523

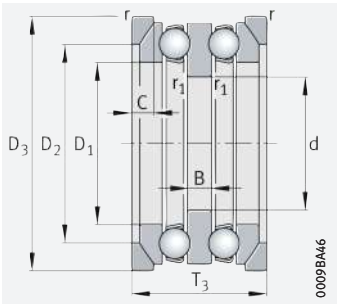


542, 543
Spherical housing locating washers

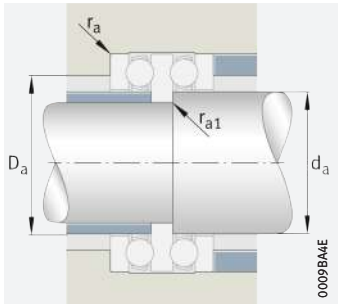
d = 75 – 130 mm

Main dimensions			Basic load ratings		Fatigue limit load	Minimum load factor	Limiting speed	Speed rating	Mass m		Designation	
d	D	T ₂	dyn. C _a N	stat. C _{0a} N	C _{ua} N	A	n _G min ⁻¹	n _{0r} min ⁻¹	Bearing ≈ kg	Support washer ≈ kg	Bearing	Support washer
75	135	62	119 000	300 000	12 600	0,54	2 900	3 800	3,05	–	52218	–
	135	69	119 000	300 000	12 600	0,54	2 900	3 800	3,11	0,42	54218	U218
	155	88	193 000	455 000	18 300	1,2	2 240	3 900	6,62	–	52318	–
	155	97,2	193 000	455 000	18 300	1,2	2 240	3 900	6,76	0,82	54318	U318
85	150	67	119 000	325 000	12 900	0,68	2 700	3 550	3,945	–	52220	–
	150	72,8	119 000	325 000	12 900	0,68	2 700	3 550	3,87	0,5	54220	U220
	170	97	238 000	580 000	22 600	1,9	1 970	3 550	8,71	–	52320	–
	170	105,4	238 000	580 000	22 600	1,9	1 970	3 550	8,93	0,93	54320	U320
95	160	67	126 000	365 000	14 000	0,83	2 650	3 250	4,06	–	52222	–
	160	71,4	126 000	365 000	14 000	0,83	2 650	3 250	4,55	0,56	54222	U222
	190	110	280 000	740 000	27 000	3	1 790	3 300	14	–	52322-MP	–
	190	118,4	280 000	740 000	27 000	3	1 790	3 300	13,7	1,26	54322-MP	U322
100	170	68	128 000	385 000	14 200	0,94	2 550	3 100	4,82	–	52224	–
	170	71,6	128 000	385 000	14 200	0,94	2 550	3 100	4,658	0,65	54224	U224
	210	123	325 000	910 000	31 500	4,4	1 610	3 100	19,3	–	52324-MP	–
	210	131,2	325 000	910 000	31 500	4,4	1 610	3 100	18,8	2,01	54324-MP	U324
110	190	80	184 000	540 000	18 900	1,7	2 210	2 950	7,26	–	52226	–
	190	85,8	184 000	540 000	18 900	1,7	2 210	2 950	7,51	0,9	54226	U226
120	200	81	191 000	570 000	19 200	1,9	2 110	2 750	7,9	–	52228	–
	200	86,2	191 000	570 000	19 200	1,9	2 110	2 750	16,91	1,22	54228	U228
	240	140	385 000	1 240 000	40 000	8,2	1 360	2 550	28,3	–	52328-MP	–
130	215	89	236 000	730 000	24 200	2,9	1 950	2 550	11,46	–	52230-MP	–
	215	95,6	236 000	730 000	24 200	2,9	1 950	2 550	10,41	1,69	54230-MP	U230
	250	140	395 000	1 330 000	41 500	9,3	1 340	2 360	29,4	–	52330-MP	–

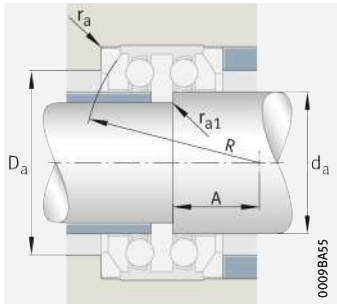
medias ► <https://www.schaeffler.de/std/1E1B>



542, 543
Spherical housing locating washers
Support washers U2, U3



Mounting dimensions

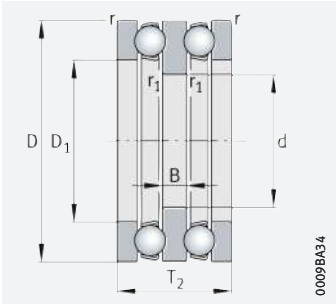


Mounting dimensions

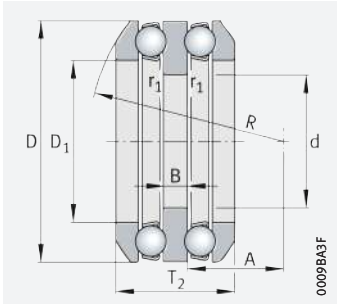
Dimensions											Mounting dimensions			
d	D ₁	B	r	r ₁	R	A	D ₂	D ₃	C	T ₃	d _a	D _a	r _a	r _{a1}
			min.	min.								max.	max.	max.
75	93	14	1,1	1	–	–	–	–	–	–	90	108	1	1
	93	14	1,1	1	100	42	76	140	13,5	110	90	110	1	1
	93	19	1,5	1	–	–	–	–	–	–	90	116	1,5	1
	93	19	1,5	1	112	36,5	106	160	18	120	90	120	1,5	1
85	103	15	1,1	1	–	–	–	–	–	–	100	120	1	1
	103	15	1,1	1	112	49	81	155	14	125	100	125	1	1
	103	21	1,5	1	–	–	–	–	–	–	100	128	1,5	1
	103	21	1,5	1	125	42	115	175	18	135	100	135	1,5	1
95	113	15	1,1	1	–	–	–	–	–	–	110	130	1	1
	113	15	1,1	1	125	62	81	165	14	135	110	135	1	1
	113	24	2	1	–	–	–	–	–	–	110	142	2	1
	113	24	2	1	140	47	128	195	20,5	150	110	150	2	1
100	123	15	1,1	1,1	–	–	–	–	–	–	120	140	1	1
	123	15	1,1	1,1	125	58,5	82	175	15	145	120	145	1	1
	123	27	2,1	1,1	–	–	–	–	–	–	120	156	2,1	1
	123	27	2,1	1,1	160	58	143	220	22	165	120	165	2,1	1
110	133	18	1,5	1,1	–	–	–	–	–	–	130	154	1,5	1
	133	18	1,5	1,1	140	63	96	195	17	160	130	160	1,5	1
120	143	18	1,5	1,1	–	–	–	–	–	–	140	164	1,5	1
	143	18	1,5	1,1	160	83,5	99	210	17	170	140	170	1,5	1
	144	31	2,1	1,1	–	–	–	–	–	–	140	180	2,1	1
130	153	20	1,5	1,1	–	–	–	–	–	–	150	176	1,5	1
	153	20	1,5	1,1	160	74,5	109	225	20,5	180	150	180	1,5	1
	154	31	2,1	1,1	–	–	–	–	–	–	150	190	2,1	1



Axial deep groove ball bearings
Double direction



522, 523

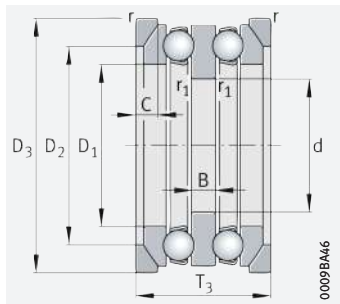


542
Spherical housing locating washers

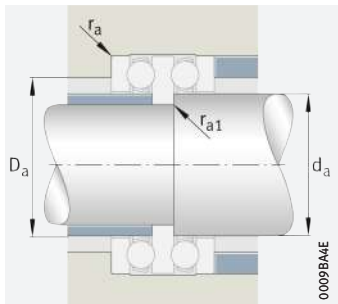
d = 140 – 190 mm

Main dimensions			Basic load ratings		Fatigue limit load	Minimum load factor	Limiting speed	Speed rating	Mass m		Designation	
d	D	T ₂	dyn. C _a N	stat. C _{0a} N	C _{ua} N	A	n _G min ⁻¹	n _{0r} min ⁻¹	Bearing ≈ kg	Support washer ≈ kg	Bearing	Support washer
140	225	90	240 000	770 000	24 700	3,2	1 900	2 400	12,2	–	52232-MP	–
	225	97,4	240 000	770 000	24 700	3,2	1 900	2 400	11,19	1,8	54232-MP	U232
	270	153	445 000	1 560 000	47 000	13	1 230	2 160	38,2	–	52332-MP	–
150	240	97	285 000	930 000	28 500	4,5	1 740	2 210	14	–	52234-MP	–
	240	104,4	285 000	930 000	28 500	4,5	1 740	2 210	13,59	2,14	54234-MP	U234
	250	98	305 000	1 030 000	31 500	5,4	1 670	2 120	16,2	–	52236-MP	–
	250	102,4	305 000	1 030 000	31 500	5,4	1 670	2 120	15,53	2,33	54236-MP	U236
	280	153	440 000	1 560 000	46 000	13	1 220	2 060	39,9	–	52334-MP	–
160	270	109	335 000	1 170 000	34 500	7,2	1 540	1 990	21,9	–	52238-MP	–
	270	116,4	335 000	1 170 000	34 500	7,2	1 540	1 990	20	2,63	54238-MP	U238
	320	183	590 000	2 170 000	61 000	24	1 040	1 770	66,4	–	52338-MP	–
170	280	109	340 000	1 220 000	35 000	7,8	1 510	1 880	23,2	–	52240-MP	–
	280	115,6	340 000	1 220 000	35 000	7,8	1 510	1 880	20,97	2,79	54240-MP	U240
190	300	110	335 000	1 330 000	36 500	9,6	1 420	1 680	25,2	–	52244-MP	–
	300	115,2	335 000	1 330 000	36 500	9,6	1 420	1 680	23	3,31	54244-MP	U244

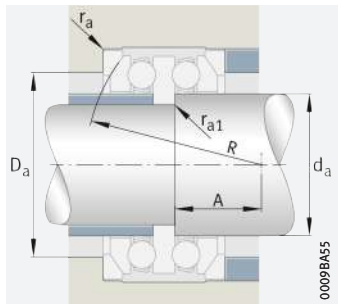
medias ► <https://www.schaeffler.de/std/1E1C>



542
Spherical housing locating washers
Support washers U2



Mounting dimensions



Mounting dimensions

Dimensions

d	D ₁	B	r	r ₁	R	A	D ₂	D ₃	C	T ₃
			min.	min.						
140	163	20	1,5	1,1	–	–	–	–	–	–
	163	20	1,5	1,1	160	70	110	235	21	190
	164	33	3	1,1	–	–	–	–	–	–
150	173	21	1,5	1,1	–	–	–	–	–	–
	173	21	1,5	1,1	180	87	117	250	21,5	200
	183	21	1,5	2	–	–	–	–	–	–
	183	21	1,5	2	200	108,5	118	260	21,5	210
	174	33	3	1,1	–	–	–	–	–	–
160	194	24	2	2	–	–	–	–	–	–
	194,7	24	2	2	200	93,5	131	280	23	230
	195	40	4	2	–	–	–	–	–	–
170	204	24	2	2	–	–	–	–	–	–
	204	24	2	2	225	120,5	133	290	23	240
190	224	24	2	2	–	–	–	–	–	–
	224	24	2	2	225	114	134	310	25	260

Mounting dimensions

d _a	D _a	r _a	r _{a1}
	max.	max.	max.
160	186	1,5	1
160	190	1,5	1
160	204	2,5	1
170	198	1,5	1
170	200	1,5	1
180	208	1,5	1
180	210	1,5	1
170	214	2,5	1
190	222	2	2
190	230	2	2
190	242	3	2
200	232	2	2
200	240	2	2
220	252	2	2
220	260	2	2