

ISO dimensions

Standard ball bushings, closed

The closed ball bushings of the BBE series according to ISO 10285 are widely utilized in various applications because of their precise cylindrical shape and good operational qualities.



The standard ball bushings can be supplied from stock, with two wiper seals. The required seals are to be included when ordering.

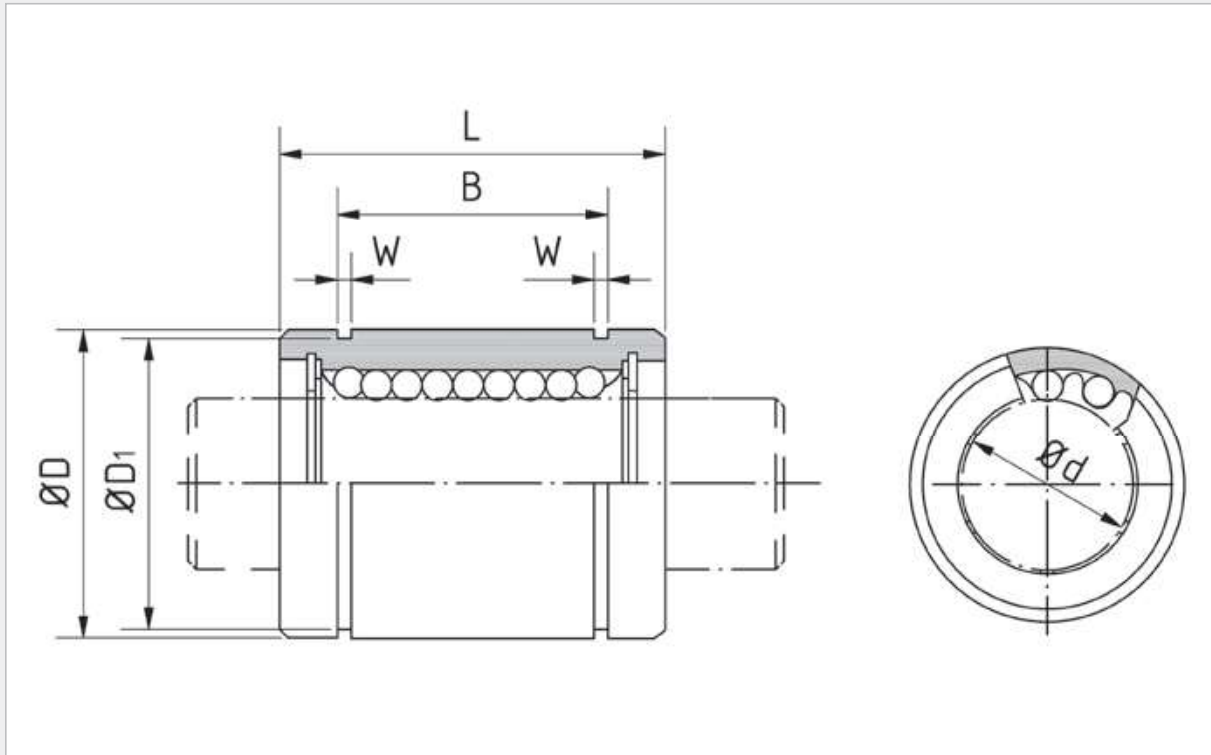
Optional relubricable

Examples of order reference for a ball bushings with single-sided seal: BBE12U, BBE12AU

Examples of order reference for a ball bushings with double-sided seal: BBE12UU, BBE12AUU

Examples of order reference for a ball bushings with double-sided seal, relubricable: BBE12UU-RL

Order reference				Dimensions [mm]								
Standard		Corrosion-resistant		Ød	Tolerance	ØD	Tolerance	L	Tolerance	B	Tolerance	
Plastic cage	Steel cage	Plastic cage	Stainless steel cage									
BBE3	BBE3A	BBES3	BBES3A	3	+0,008 0	7	0 -0,008	10	0 -0,012	-	-	
BBE4	BBE4A	BBES4	BBES4A	4		8		12		-	-	
BBE5	BBE5A	BBES5	BBES5A	5		12		22	14,5	0 -0,2	0 -0,2	
BBE8	BBE8A	BBES8	BBES8A	8		16	25	16,5				
BBE10	BBE10A	BBES10	BBES10A	10		19	0 -0,009	29	22	0 -0,3	0 -0,3	
BBE12	BBE12A	BBES12	BBES12A	12		22		32	22,9			
BBE16	BBE16A	BBES16	BBES16A	16		+0,009 -0,001	26	0 -0,011	36	24,9	0 -0,3	0 -0,3
BBE20	BBE20A	BBES20	BBES20A	20			32		45	31,5		
BBE25	BBE25A	BBES25	BBES25A	25		+0,011 -0,001	40	0 -0,013	58	44,1	0 -0,4	0 -0,4
BBE30	BBE30A	BBES30	BBES30A	30			47		68	52,1		
BBE40	BBE40A	BBES40	BBES40A	40	+0,013 -0,002	62	0 -0,015	80	60,6	0 -0,4	0 -0,4	
BBE50	BBE50A	BBES50	BBES50A	50		75		100	77,6			
BBE60	BBE60A	BBES60	BBES60A	60	+0,016 -0,004	90	0 -0,015	125	101,7	0 -0,4	0 -0,4	
-	BBE80A	-	-	80		120		165	133,7			



W	Ø D1	Rows of balls	max. eccentricity, [µm]	max. radial clearance [µm]	dynamic load rating [N]	static load rating [N]	Weight [g]	Order reference			
								Standard		Corrosion-resistant	
								Plastic cage	Steel cage	Plastic cage	Stainless steel cage
-	-	4	10	-3	44	105	1,4	BBE3	BBE3-A	BBES3	BBES3-A
-	-	4			55	127	2	BBE4	BBE4-A	BBES4	BBES4-A
1,1	11,5	4	12		159	265	11	BBE5	BBE5-A	BBES5	BBES5-A
1,1	15,2	4			195	402	22	BBE8	BBE8-A	BBES8	BBES8-A
1,3	18	4		-4	286	549	36	BBE10	BBE10-A	BBES10	BBES10-A
1,3	21	4	419		784	45	BBE12	BBE12-A	BBES12	BBES12-A	
1,3	24,9	4	432		892	60	BBE16	BBE16-A	BBES16	BBES16-A	
1,6	30,3	5	15	-6	877	1 370	102	BBE20	BBE20-A	BBES20	BBES20-A
1,85	37,5	6			908	1 570	235	BBE25	BBE25-A	BBES25	BBES25-A
1,85	44,5	6	17	-8	1 584	2 740	360	BBE30	BBE30-A	BBES30	BBES30-A
2,15	59	6			2 357	4 020	770	BBE40	BBE40-A	BBES40	BBES40-A
2,65	72	6	20	-13	4 702	7 940	1 250	BBE50	BBE50-A	BBES50	BBES50-A
3,15	86,5	6			6 085	9 800	2 220	BBE60	BBE60-A	BBES60	BBES60-A
4,15	116	6			-20	9 456	16 000	5 140	BBE80	-	-

The indicated load ratings are applicable in case the load only applies to one row of balls. If, however, the force is shared between two rows of balls, the load capacity is increased (refer to table on page 75).

Standard ball bushings, open

Where bending (deflection) of the shaft has to be avoided, open standard ball bushings are utilized in combination with shaft supports. This is often the case for applications with extended travel. By way of the combination described above, the stiffness is in fact additionally increased.



The standard ball bushings can be supplied from stock, with two wiper seals. The required seals are to be included when ordering.

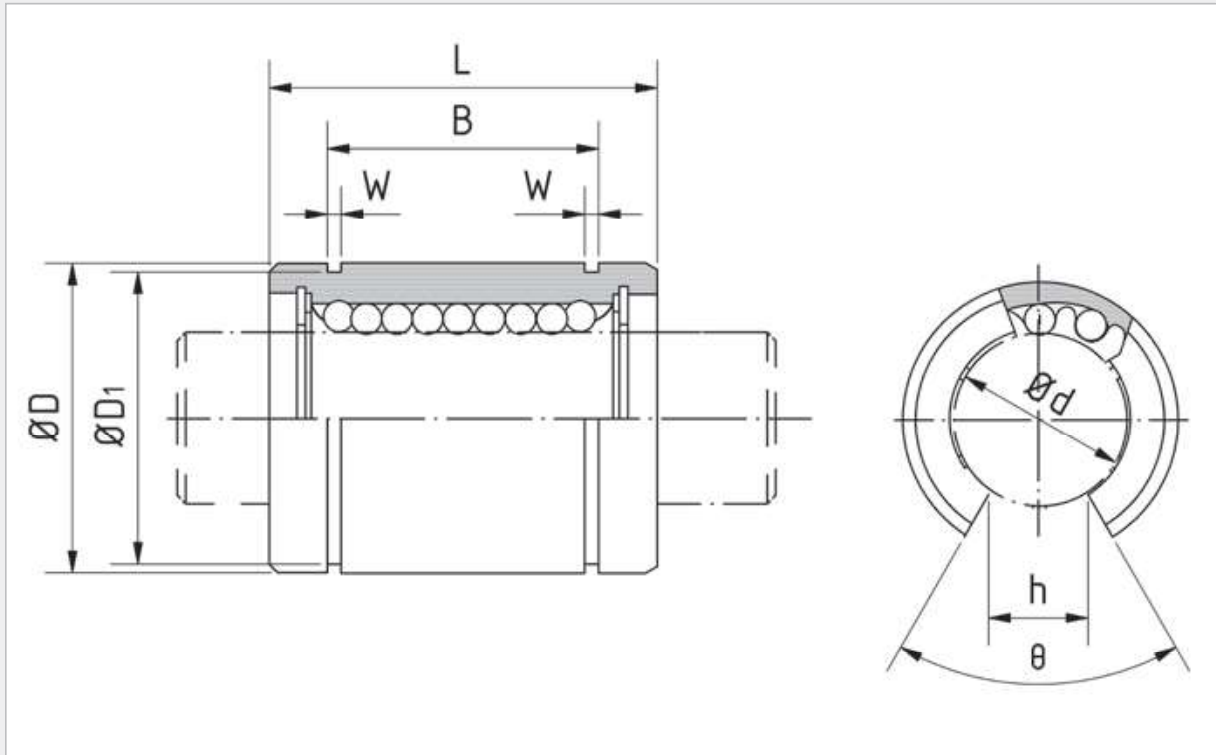
Optional relubricable

Examples of order reference for a ball bushings with single-sided seal: BBE12U-OP, BBE12AU-OP

Examples of order reference for a ball bushings with double-sided seal: BBE12UU-OP, BBE12AUU-OP

Examples of order reference for a ball bushings with double-sided seal, relubricable: BBE12UU-OP-RL

Order reference				Dimensions [mm]							
Standard		Corrosion-resistant		Ød	Tolerance	ØD	Tolerance	L	Tolerance	B	Tolerance
Plastic cage	Steel cage	Plastic cage	Stainless steel cage								
BBE10-OP	-	BBES10-OP	-	10	+0,008 0	19	0 -0,009	29	0 -0,2	22	0 -0,2
BBE12-OP	BBE12A-OP	BBES12-OP	BBES12A-OP	12		22		32		22,9	
BBE16-OP	BBE16A-OP	BBES16-OP	BBES16A-OP	16	+0,009 -0,001	26	0 -0,011	36	0 -0,3	24,9	0 -0,3
BBE20-OP	BBE20A-OP	BBES20-OP	BBES20A-OP	20		32		45		31,5	
BBE25-OP	BBE25A-OP	BBES25-OP	BBES25A-OP	25	+0,011 -0,001	40	0 -0,013	58	0 -0,4	44,1	0 -0,4
BBE30-OP	BBE30A-OP	BBES30-OP	BBES30A-OP	30		47		68		52,1	
BBE40-OP	BBE40A-OP	BBES40-OP	BBES40A-OP	40	+0,013 -0,002	62	0 -0,015	80	0 -0,4	60,6	0 -0,4
BBE50-OP	BBE50A-OP	BBES50-OP	BBES50A-OP	50				75		100	
BBE60-OP	BBE60A-OP	BBES60-OP	BBES60A-OP	60		90	0 -0,015	125	0 -0,4	101,7	0 -0,4
-	BBE80A-OP	-	-	80	+0,016 -0,004	120		165		133,7	



Dimensions [mm]			θ [°]	Rows of balls	max. eccentricity [µm]	dynamic load rating [N]	static load rating [N]	Weight [g]	Order reference			
W	ØD1	h							Standard		Corrosion-resistant	
									Plastic cage	Steel cage	Plastic cage	Stainless steel cage
1,3	18	6,8	80	3	12	286	549	23	BBE10-OP	-	BBES10-OP	-
1,3	21	7,5	78	3		416	784	35	BBE12-OP	BBE12A-OP	BBES12-OP	BBES12A-OP
1,3	24,9	10	78	3		432	892	48	BBE16-OP	BBE16A-OP	BBES16-OP	BBES16A-OP
1,6	30,3	10	60	4	15	877	1 370	84	BBE20-OP	BBE20A-OP	BBES20-OP	BBES20A-OP
1,85	37,5	12,5	60	5		908	1 570	195	BBE25-OP	BBE25A-OP	BBES25-OP	BBES25A-OP
1,85	44,5	12,5	50	5		1 584	2 740	309	BBE30-OP	BBE30A-OP	BBES30-OP	BBES30A-OP
2,15	59	16,8	50	5	17	2 357	4 020	665	BBE40-OP	BBE40A-OP	BBES40-OP	BBES40A-OP
2,65	72	21	50	5		4 702	7 940	1 080	BBE50-OP	BBE50A-OP	BBES50-OP	BBES50A-OP
3,15	86,5	27,2	54	5	20	6 085	9 800	1 900	BBE60-OP	BBE60A-OP	BBES60-OP	BBES60A-OP
4,15	116	36,3	54	5		9 465	16 000	4 380	-	BBE80A-OP	-	-

The indicated load ratings for open ball bushings are only applicable where the load is applied from above; if the load is applied from the "open direction", the load capacity is reduced by the following factor (refer to table on page 75).

Standard ball bushings, adjustable

The slotted standard ball bushings can be built into a casing with an adjustable internal diameter, allowing the clearance between the shaft and the ball bearing to be set.



The standard ball bushings can be supplied from stock, with two wiper seals. The required seals are to be included when ordering.

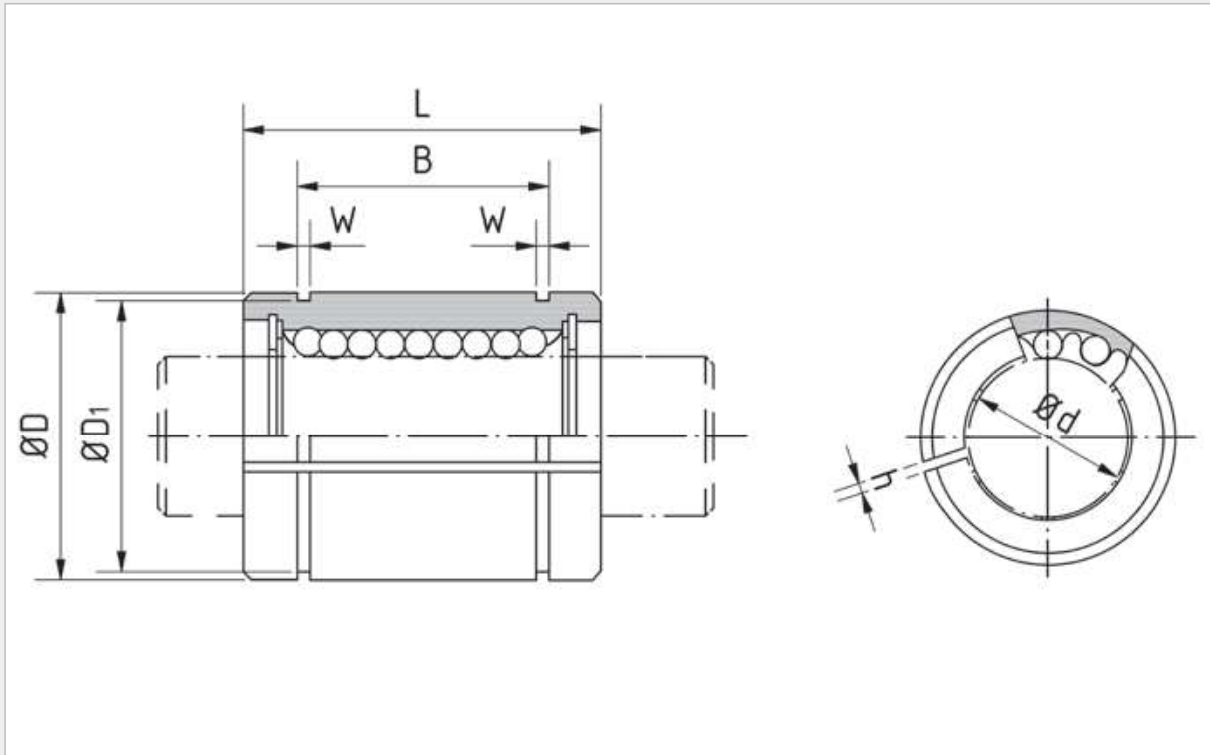
Optional relubricable

Examples of order reference for a ball bushings with single-sided seal: BBE12U-AJ, BBE12AU-AJ

Examples of order reference for a ball bushings with double-sided seal: BBE12UU-AJ, BBE12AUU-AJ

Examples of order reference for a ball bushings with double-sided seal, relubricable: BBE12UU-AJ-RL

Order reference				Dimensions [mm]							
Standard		Corrosion-resistant		Ød	Tolerance	ØD	Tolerance	L	Tolerance	B	Tolerance
Plastic cage	Steel cage	Plastic cage	Stainless steel cage								
BBE5-AJ	–	BBES5-AJ	–	5	+0,008 0	12	0 -0,008	22	0 -0,2	14,5	0 -0,2
BBE8-AJ	–	BBES8-AJ	–	8		16	25	16,5			
BBE10-AJ	–	BBES10-AJ	–	10		19	29	22			
BBE12-AJ	BBE12A-AJ	BBES12-AJ	BBES12A-AJ	12	+0,009 -0,001	22	0 -0,009	32	0 -0,3	22,9	0 -0,3
BBE16-AJ	BBE16A-AJ	BBES16-AJ	BBES16A-AJ	16		26	36	24,9			
BBE20-AJ	BBE20A-AJ	BBES20-AJ	BBES20A-AJ	20		32	45	31,5			
BBE25-AJ	BBE25A-AJ	BBES25-AJ	BBES25A-AJ	25	+0,011 -0,001	40	0 -0,011	58	0 -0,3	44,1	0 -0,3
BBE30-AJ	BBE30A-AJ	BBES30-AJ	BBES30A-AJ	30		47	68	52,1			
BBE40-AJ	BBE40A-AJ	BBES40-AJ	BBES40A-AJ	40		62	80	60,6			
BBE50-AJ	BBE50A-AJ	BBES50-AJ	BBES50A-AJ	50	+0,013 -0,002	75	0 -0,013	100	0 -0,4	77,6	0 -0,4
BBE60-AJ	BBE60A-AJ	BBES60-AJ	BBES60A-AJ	60		90	125	101,7			
–	BBE80A-AJ	–	–	80	+0,016 -0,004	120	0 -0,015	165	0 -0,4	133,7	0 -0,4



Dimensions [mm]			Rows of balls	max. eccentricity [µm]	dynamic load rating [N]	static load rating [N]	Weight [g]	Order reference			
W	ØD1	h						Standard		Corrosion-resistant	
								Plastic cage	Steel cage	Plastic cage	Stainless steel cage
1,1	11,5	1	4	12	159	265	10	BBE5-AJ	–	BBES5-AJ	–
1,1	15,2	1	4		195	402	19,5	BBE8-AJ	–	BBES8-AJ	–
1,3	18	1	4		286	549	29	BBE10-AJ	–	BBES10-AJ	–
1,3	21	1,5	4		416	784	44	BBE12-AJ	BBE12A-AJ	BBES12-AJ	BBES12A-AJ
1,3	24,9	1,5	4		432	892	59	BBE16-AJ	BBE16A-AJ	BBES16-AJ	BBES16A-AJ
1,6	30,3	2	5	15	877	1 370	100	BBE20-AJ	BBE20A-AJ	BBES20-AJ	BBES20A-AJ
1,85	37,5	2	6		908	1 570	230	BBE25-AJ	BBE25A-AJ	BBES25-AJ	BBES25A-AJ
1,85	44,5	2	6		1 584	2 740	355	BBE30-AJ	BBE30A-AJ	BBES30-AJ	BBES30A-AJ
2,15	59	3	6	17	2 357	4 020	758	BBE40-AJ	BBE40A-AJ	BBES40-AJ	BBES40A-AJ
2,65	72	3	6		4 702	7 940	1 230	BBE50-AJ	BBE50A-AJ	BBES50-AJ	BBES50A-AJ
3,15	86,5	3	6	20	6 085	9 800	2 170	BBE60-AJ	BBE60A-AJ	BBES60-AJ	BBES60A-AJ
4,15	116	3	6		9 465	16 000	5 000	–	BBE80A-AJ	–	–

The indicated load ratings are applicable in case the load only applies to one row of balls. If, however, the force is shared between two rows of balls, the load capacity is increased by the following factor (refer to table on page 75).

Standard flanged ball bushings (round)

Flanged ball bushings of the BBER series represent a useful addition to the standard ball bushings.



They offer the following advantages:

- The integrated flange design enables a more efficient arrangement of the housing or mounting holes.
- The flanged ball bushings are economical, because fewer components are required and altogether the installation is easier.
- The replacement of the ball bushings is easier.

The standard ball bushings can be supplied from stock, with two wiper seals. The required seals are to be included when ordering.

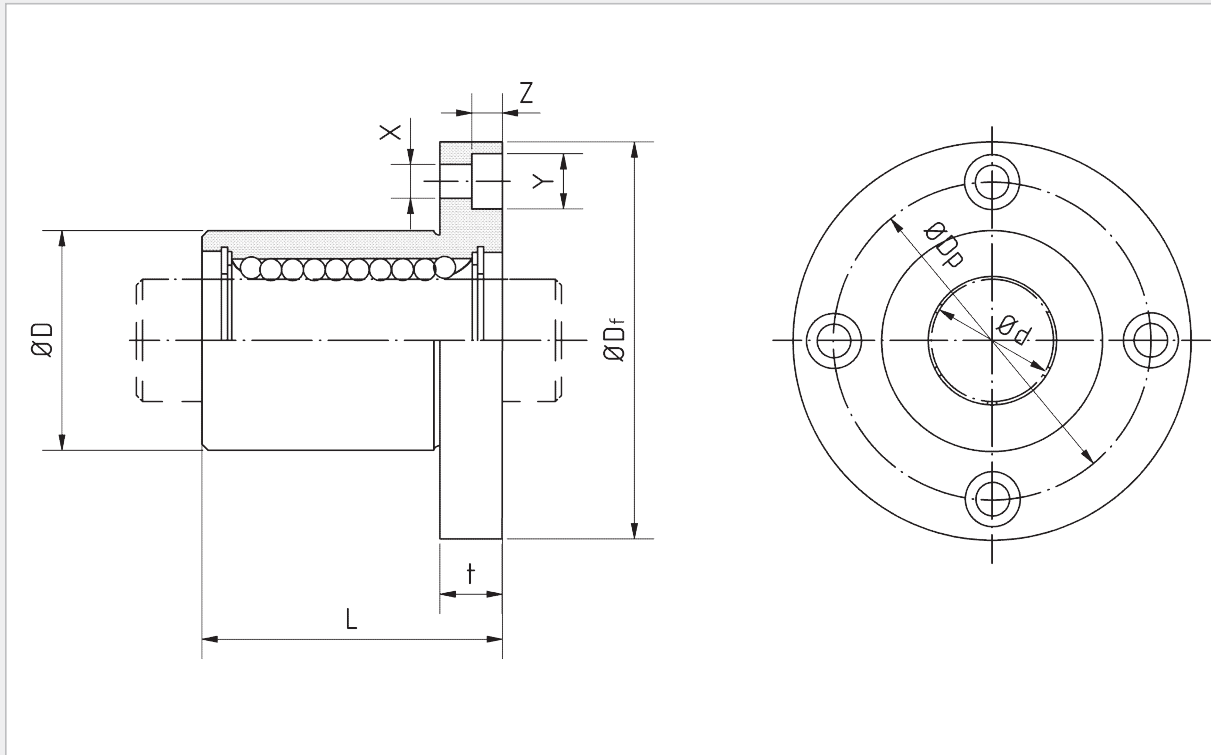
Optional relubricable

Examples of order reference for a ball bushings with single-sided seal: BBER12U, BBER12AU

Examples of order reference for a ball bushings with double-sided seal: BBER12UU, BBER12AUU

Examples of order reference for a ball bushings with double-sided seal, relubricable: BBER12UU-RL

Order reference				Dimensions [mm]									
Standard		Corrosion-resistant		Ød	Tolerance	ØD	Tolerance	L	Tolerance	ØDf	t	ØDp	
Plastic cage	Steel cage	Plastic cage	Stainless steel cage										
BBER5	–	BBERS5	–	5	+0,008 0	12	0 -0,013	22	±0,3	28	5	20	
BBER8	BBER8A	BBERS8	BBERS8A	8		16	25	32		32	42	5	24
BBER12	BBER12A	BBERS12	BBERS12A	12		22	32	42		6	32		
BBER16	BBER16A	BBERS16	BBERS16A	16	+0,009 -0,001	26	1 -0,016	36		46	6	36	
BBER20	BBER20A	BBERS20	BBERS20A	20		32	45	54		8	43		
BBER25	BBER25A	BBERS25	BBERS25A	25	+0,011 -0,001	40	0 -0,019	58		62	8	51	
BBER30	BBER30A	BBERS30	BBERS30A	30		47	68	76		10	62		
BBER40	BBER40A	BBERS40	BBERS40A	40	+0,013 -0,002	62	0 -0,022	80		98	13	80	
BBER50	BBER50A	BBERS50	BBERS50A	50		75	100	112		13	94		
BBER60	BBER60A	BBERS60	BBERS60A	60		90	125	134		18	112		
–	BBER80A	–	–	80	+0,016 -0,004	120	0 -0,025	165		164	18	142	



Dimensions [mm]			Rows of balls	max. eccentricity [µm]	Angular deviation [µm]	dynamic load rating [N]	static load rating [N]	Weight [g]	Order reference			
X	Y	Z							Standard		Corrosion-resistant	
								Plastic cage	Steel cage	Plastic cage	Stainless steel cage	
3,5	6	3,1	4	12	12	159	265	26	BBER5	–	BBERS5	–
3,5	6	3,1	4			195	402	41	BBER8	BBER8A	BBERS8	BBERS8A
4,5	7,5	4,1	4			416	784	80	BBER12	BBER12A	BBERS12	BBERS12A
4,5	7,5	4,1	4			432	892	103	BBER16	BBER16A	BBERS16	BBERS16A
5,5	9	5,1	5	15	15	877	1 370	182	BBER20	BBER20A	BBERS20	BBERS20A
5,5	9	5,1	6			908	1 570	335	BBER25	BBER25A	BBERS25	BBERS25A
6,6	11	6,1	6			1 584	2 740	560	BBER30	BBER30A	BBERS30	BBERS30A
9	14	8,1	6	17	17	2 357	4 020	1 175	BBER40	BBER40A	BBERS40	BBERS40A
9	14	8,1	6			4 702	7 940	1 745	BBER50	BBER50A	BBERS50	BBERS50A
11	17	11,1	6	20	20	6 085	9 800	3 220	BBER60	BBER60A	BBERS60	BBERS60A
11	17	11,1	6			9 465	16 000	6 420	–	BBER80A	–	–

The indicated load ratings are applicable in cases where the load only applies to one row of balls. If, however, the force is shared between two rows of balls, the load capacity is increased by the following factor (refer to table on page 73).

Tandem standard ball bushings

The tandem standard ball bushings of the BBE...L series have the same dimensions and tolerances of the ISO standard ball bushings, however they are twice as long and they are applied where high moment load exists.



The big advantage of this type of ball bushings is that two standard ball bushings may be replaced. Since the concentricity is built in, increased accuracy is achieved and manufacturing costs reduced.

The standard ball bushings can be supplied from stock, with two wiper seals. The required seals are to be included when ordering.

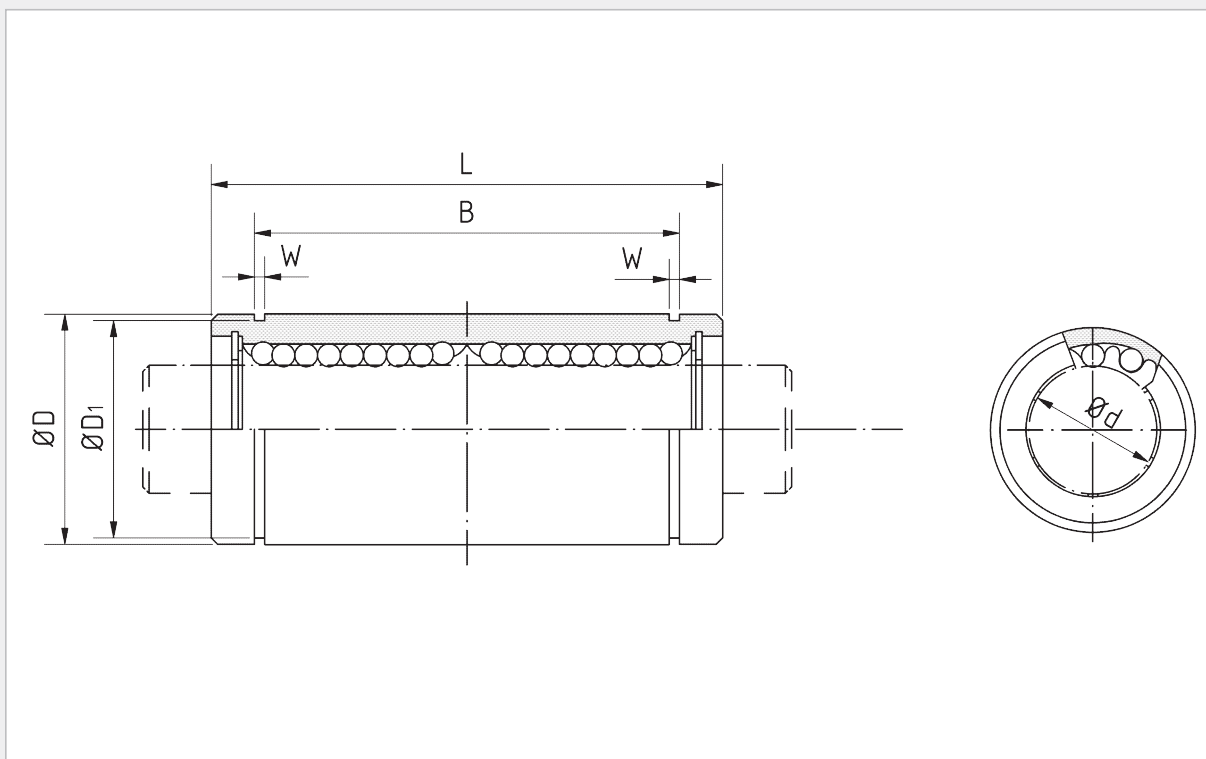
Optional relubricable

Examples of order reference for a ball bushings with single-sided seal: BBE12LU, BBE12LAU

Examples of order reference for a ball bushings with double-sided seal: BBE12LUU, BBE12LAUU

Examples of order reference for a ball bushings with double-sided seal, relubricable: BBE12LUU-RL

Order reference				Dimensions [mm]							
Standard		Corrosion-resistant		Ød	Tolerance	ØD	Tolerance	L	Tolerance	B	Tolerance
Plastic cage	Steel cage	Plastic cage	Stainless steel cage								
BBE8L	BBE8LA	BBES8L	BBES8LA	8	+0,009 0	16	0 -0,009	46	0 -0,3	33	0 -0,3
BBE12L	BBE12LA	BBES12L	BBES12LA	12	+0,011 -0,001	22	0 -0,011	61		45,8	
BBE16L	BBE16LA	BBES16L	BBES16LA	16		26	68	49,8			
BBE20L	BBE20LA	BBES20L	BBES20LA	20	+0,013 -0,002	32	0 -0,013	80	0 -0,4	61	0 -0,4
BBE25L	BBE25LA	BBES25L	BBES25LA	25		40		112		82	
BBE30L	BBE30LA	BBES30L	BBES30LA	30	+0,016 -0,004	47	0 -0,015	123	0 -0,4	104,2	0 -0,4
BBE40L	BBE40LA	BBES40L	BBES40LA	40		62		151		121,2	
BBE50L	BBE50LA	BBES50L	BBES50LA	50	0 -0,020	75	0 -0,020	192	0 -0,4	155,2	0 -0,4
BBE60L	BBE60LA	BBES60L	BBES60LA	60		90		209		170	



Dimensions [mm]		Rows of balls	max. eccentricity [μm]	dynamic load rating [N]	static load rating [N]	Weight [g]	Order reference			
W	ØD1						Standard		Corrosion-resistant	
							Plastic cage	Steel cage	Plastic cage	Stainless steel cage
1,1	15,2	4	15	320	804	40	BBE8L	BBE8LA	BBES8L	BBES8LA
1,3	21	4		683	1 570	80	BBE12L	BBE12LA	BBES12L	BBES12LA
1,3	24,9	4		710	1 780	115	BBE16L	BBE16LA	BBES16L	BBES16LA
1,6	30,3	5	17	1 440	2 740	180	BBE20L	BBE20LA	BBES20L	BBES20LA
1,85	37,5	6		1 490	3 140	430	BBE25L	BBE25LA	BBES25L	BBES25LA
1,85	44,5	6		2 600	5 490	615	BBE30L	BBE30LA	BBES30L	BBES30LA
2,15	59	6	20	3 872	8 040	1 400	BBE40L	BBE40LA	BBES40L	BBES40LA
2,65	72	6		7 701	15 900	2 320	BBE50L	BBE50LA	BBES50L	BBES50LA
3,15	86,5	6		25	9 940	20 000	3 920	BBE60L	BBE60LA	BBES60L

The indicated load ratings are only applicable in cases where the load is being applied to a single row of balls bearing. If, however, the force is shared between two rows of balls, the load capacity is increased by the following factor (refer to table on page 75).

Tandem flanged standard ball bushings (round)

The ball bushings of the BBER...L series combine the advantages of flanged standard ball bushings with those of tandem ball bushings, since they provide a rigid, aligned linear guidance through their length, allowing the application of a second ball bearing.



The standard ball bushings can be supplied from stock, with two wiper seals.

The required seals are to be included when ordering.

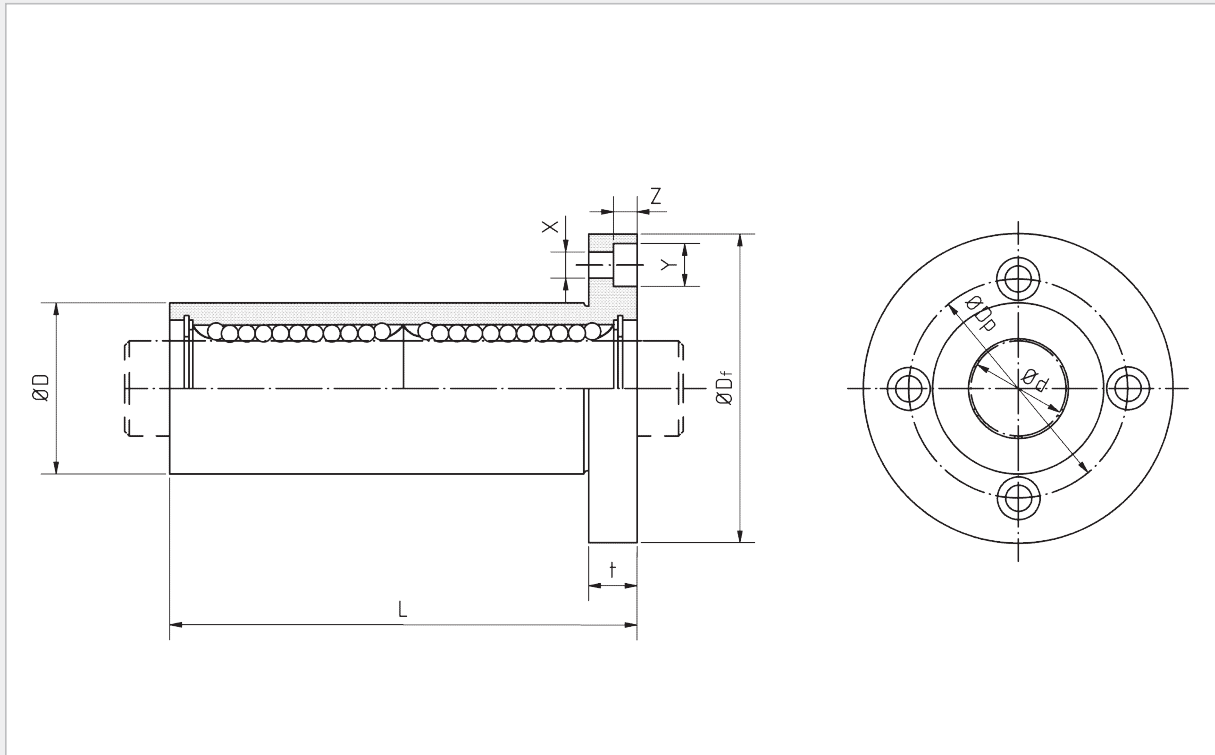
Optional relubricable

Examples of order reference for a ball bushings with single-sided seal: BBER12LU, BBER12LAU

Examples of order reference for a ball bushings with double-sided seal: BBER12LUU, BBER12LAUU

Examples of order reference for a ball bushings with double-sided seal, relubricable: BBER12LUU-RL

Order reference				Dimensions [mm]								
Standard		Corrosion-resistant		Ød	Tolerance	ØD	Tolerance	L	Tolerance	ØDf	t	ØDp
Plastic cage	Steel cage	Plastic cage	Stainless steel cage									
BBER8L	BBER8LA	BBERS8L	BBERS8LA	8	+0,009 -0,001	16	0 -0,013	46	±0,3	32	5	24
BBER12L	BBER12LA	BBERS12L	BBERS12LA	12		22	0 -0,016	61		42	6	32
BBER16L	BBER16LA	BBERS16L	BBERS16LA	16	+0,011 -0,001	26	0 -0,019	68		46	6	36
BBER20L	BBER20LA	BBERS20L	BBERS20LA	20		32		80		54	8	43
BBER25L	BBER25LA	BBERS25L	BBERS25LA	25	+0,013 -0,002	40	0 -0,022	112		62	8	51
BBER30L	BBER30LA	BBERS30L	BBERS30LA	30		47		123		76	10	62
BBER40L	BBER40LA	BBERS40L	BBERS40LA	40	+0,016 -0,004	62	0 -0,025	151		98	13	80
BBER50L	BBER50LA	BBERS50L	BBERS50LA	50		75	192	112		13	94	
BBER60L	BBER60LA	BBERS60L	BBERS60LA	60		90	209	134		18	112	



Dimensions [mm]			Rows of balls	max. eccentricity [µm]	Angular deviation [µm]	dynamic load rating [N]	static load rating [N]	permissible statical moment My [Nm]	Weight [g]	Order reference			
X	Y	Z								Standard		Corrosion-resistant	
										Plastic cage	Steel cage	Plastic cage	Stainless steel cage
3,5	6	3,1	4	15	15	320	804	4,3	59	BBER8L	BBER8LA	BBERS8L	BBERS8LA
4,5	7,5	4,1	4			683	1 570	12	110	BBER12L	BBER12LA	BBERS12L	BBERS12LA
4,5	7,5	4,1	4			710	1 780	14	160	BBER16L	BBER16LA	BBERS16L	BBERS16LA
5,5	9	5,1	5	17	17	1 440	2 740	25	260	BBER20L	BBER20LA	BBERS20L	BBERS20LA
5,5	9	5,1	6			1 490	3 140	44	540	BBER25L	BBER25LA	BBERS25L	BBERS25LA
6,6	11	6,1	6			2 600	5 490	78	815	BBER30L	BBER30LA	BBERS30L	BBERS30LA
9	14	8,1	6	20	20	3 872	8 040	147	1 805	BBER40L	BBER40LA	BBERS40L	BBERS40LA
9	14	8,1	6			7 701	15 900	396	2 820	BBER50L	BBER50LA	BBERS50L	BBERS50LA
11	17	11,1	6			9 940	20 000	487	4 920	BBER60L	BBER60LA	BBERS60L	BBERS60LA

The indicated load ratings are only applicable in cases where the load is being applied to a single row of balls. If, however, the force is shared between two rows of balls, the load capacity is increased by the following factor (refer to table on page 75).

Middle flanged standard ball bushings (round)

Tandem ball bushings of the BBERM... series with a middle flange are designed specially for applications in which the shafts are perpendicular to the mounting surface. They remove the need for a housing and simplify the installation.



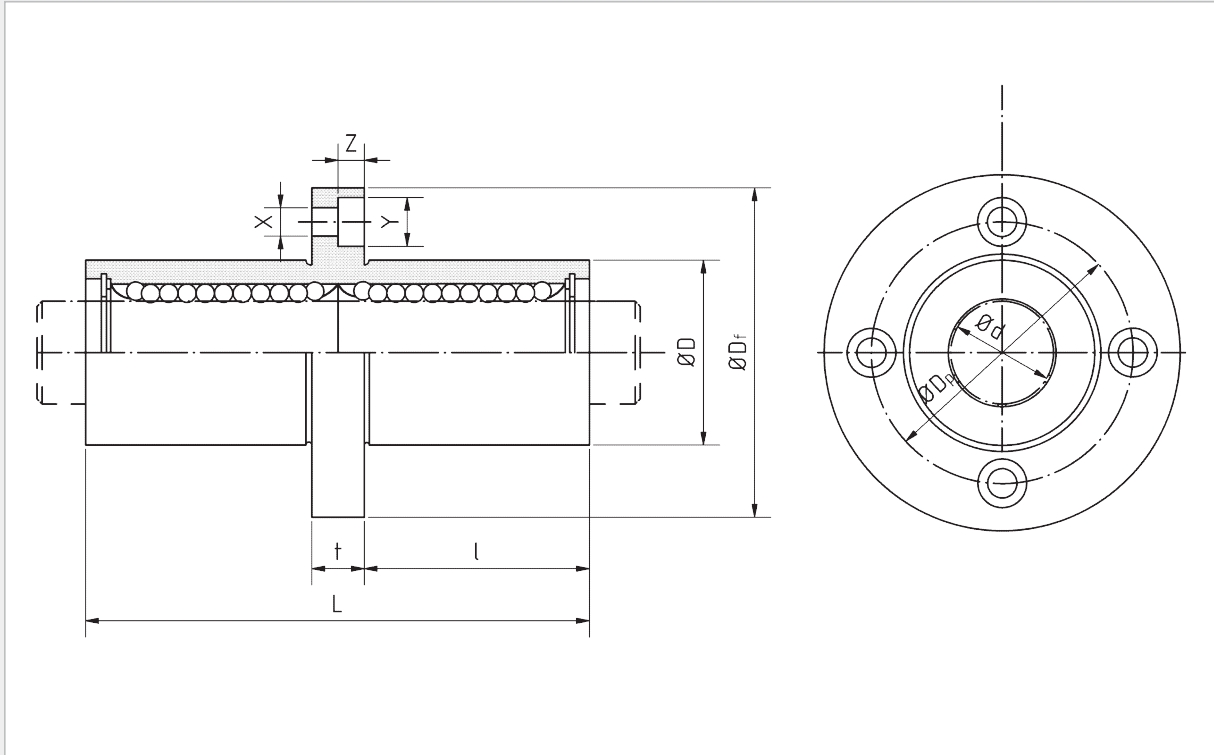
Optional relubricable

The standard ball bushings can be supplied from stock, with two wiper seals. The required seals are to be included when ordering.

Examples of order reference for a ball bushings with single-sided seal: BBERM12U, BBERM12AU

Examples of order reference for a ball bushings with double-sided seal: BBERM12UU, BBERM12AUU

Order reference				Dimensions [mm]									
Standard		Corrosion-resistant		Ød	Tolerance	ØD	Tolerance	L	Tolerance	l	ØDf	t	ØDp
Plastic cage	Steel cage	Plastic cage	Stainless steel cage										
BBERM8	BBERM8A	BBERMS8	BBERMS8A	8	+0,009 -0,001	16	0 -0,013	46	±0,3	20,5	32	5	24
BBERM12	BBERM12A	BBERMS12	BBERMS12A	12		22	0	61		27,5	42	6	32
BBERM16	BBERM16A	BBERMS16	BBERMS16A	16	+0,011 -0,001	26	-0,016	68		31	46	6	36
BBERM20	BBERM20A	BBERMS20	BBERMS20A	20		32		80		36	54	8	43
BBERM25	BBERM25A	BBERMS25	BBERMS25A	25	+0,013 -0,002	40	0 -0,019	112		52	62	8	51
BBERM30	BBERM30A	BBERMS30	BBERMS30A	30		47	123	56,5		76	10	62	
BBERM40	BBERM40A	BBERMS40	BBERMS40A	40	+0,016 -0,004	62	0	151		69	98	13	80
BBERM50	BBERM50A	BBERMS50	BBERMS50A	50		75	-0,022	192		89,5	112	13	94
BBERM60	BBERM60A	BBERMS60	BBERMS60A	60		90	0 -0,025	209		95,5	134	18	112



Dimensions [mm]			Rows of balls	max. eccentricity [µm]	Angular deviation [µm]	dynamic load rating [N]	static load rating [N]	permissible static moment My [Nm]	Weight [g]	Order reference			
X	Y	Z								Standard		Corrosion-resistant	
					Plastic cage	Steel cage	Plastic cage	Stainless steel cage					
3,5	6	3,1	4	15	15	320	804	4,3	59	BBERM8	BBERM8A	BBERMS8	BBERMS8A
4,5	7,5	4,1	4			683	1 570	11,7	110	BBERM12	BBERM12A	BBERMS12	BBERMS12A
4,5	7,5	4,1	4			710	1 780	14,2	160	BBERM16	BBERM16A	BBERMS16	BBERMS16A
5,5	9	5,1	5	17	17	1 440	2 740	25	260	BBERM20	BBERM20A	BBERMS20	BBERMS20A
5,5	9	5,1	6			1 490	3 140	44	540	BBERM25	BBERM25A	BBERMS25	BBERMS25A
6,6	11	6,1	6			2 600	5 490	78,9	815	BBERM30	BBERM30A	BBERMS30	BBERMS30A
9	14	8,1	6	20	20	3 872	8 040	147	1 805	BBERM40	BBERM40A	BBERMS40	BBERMS40A
9	14	8,1	6			7 701	15 900	396	2 820	BBERM50	BBERM50A	BBERMS50	BBERMS50A
11	17	11,1	6			9 940	20 000	487	4 920	BBERM60	BBERM60A	BBERMS60	BBERMS60A

The indicated load ratings are only applicable in cases where the load is being applied to a single row of balls. If, however, the force is shared between two rows of balls, the load capacity is increased by the following factor (refer to table on page 75).

JIS dimensions ball bushings, closed

Closed ball bushings of the BB series, according to JIS (Metric series, Asian dimensions).



The ball bushings with the order reference printed in **bold** are available ex stock.
The required seals are to be included when ordering.

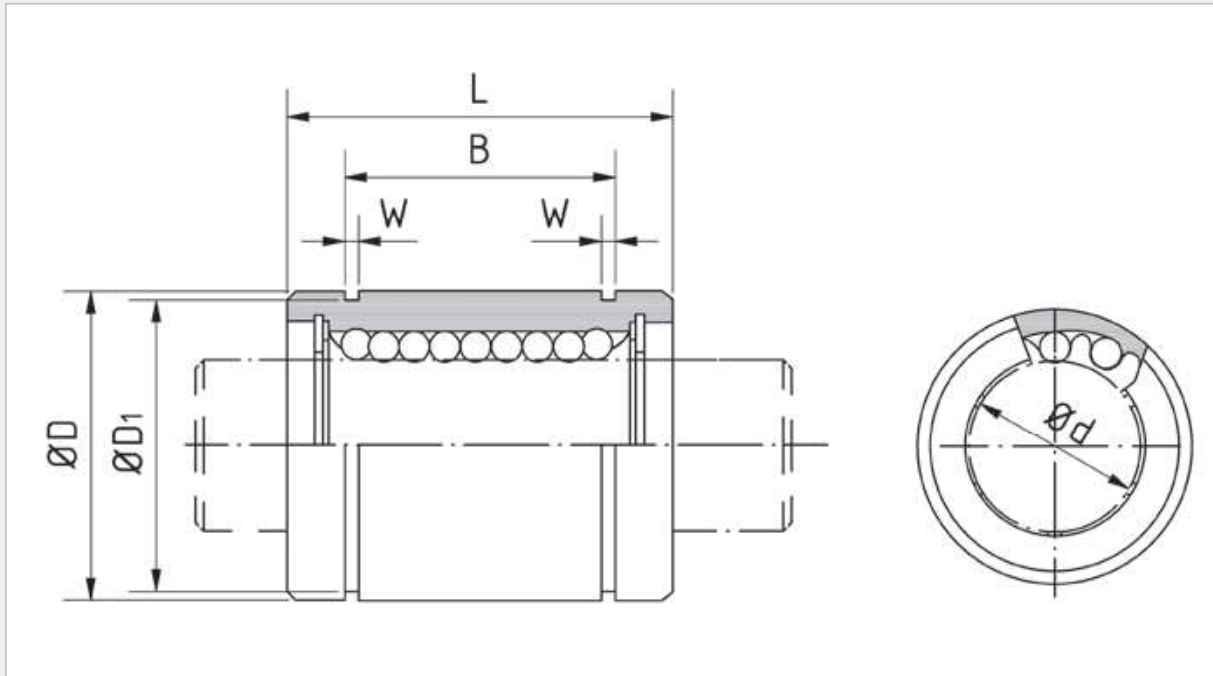
Optional relubricable

Examples of order reference for a ball bushings with single-sided seal: BB12U, BB12AU

Examples of order reference for a ball bushings with double-sided seal: BB12UU, BB12AUU

Examples of order reference for a ball bushings with double-sided seal, relubricable:BB12UU-RL

Order reference				Dimensions [mm]									
Standard		Corrosion-resistant		Ød	Tolerance	ØD	Tolerance	L	Tolerance	B	Tolerance	W	ØD1
Plastic cage	Steel cage	Plastic cage	Edelsteel cage										
BB3	BB3A	BBS3	BBS3A	3		7		10		-	-	-	-
BB4	BB4A	BBS4	BBS4A	4	0 -0,008	8	0 -0,009	12	0 -0,12	-	-	-	-
BB5	BB5A	BBS5	BBS5A	5		10		15		10,2	1,1	9,6	
BB6	BB6A	BBS6	BBS6A	6	0 -0,009	12	0 -0,011	19	0 -0,2	13,5	0 -0,2	1,1	11,5
BB8s	BB8sA	BBS8s	BBS8sA	8		15		17		11,5		1,1	14,3
BB8	BB8A	BBS8	BBS8A	8		15		24		17,5		1,1	14,3
BB10	BB10A	BBS10	BBS10A	10		19	29	22		1,3		18	
BB12	BB12A	BBS12	BBS12A	12		21	30	23		1,3		20	
BB13	BB13A	BBS13	BBS13A	13		23	32	23		1,3		22	
BB16	BB16A	BBS16	BBS16A	16	28	37	26,5	1,6	27				
BB20	BB20A	BBS20	BBS20A	20	0 -0,010	32	0 -0,016	42	0 -0,3	30,5	0 -0,3	1,6	30,5
BB25	BB25A	BBS25	BBS25A	25		40		59		41		1,85	38
BB30	BB30A	BBS30	BBS30A	30		45		64		44,5		1,85	43
BB35	BB35A	BBS35	BBS35A	35	0 -0,012	52	0 -0,019	70	0 -0,3	49,5	0 -0,3	2,1	49
BB40	BB40A	BBS40	BBS40A	40		60		80		60,5		2,1	57
BB50	BB50A	BBS50	BBS50A	50		80		100		74		2,6	76,5
BB60	BB60A	BBS60	BBS60A	60	0	90	0	110		85		3,15	86,5
BB80	BB80A	BBS80	BBS80A	80	-0,015	120	-0,022	140		105,5		4,15	116
-	BB100A	-	-	100	0	150	0	175	0 -0,4	125,5	0 -0,4	4,15	145
-	BB120A	-	-	120	-0,020	180	-0,025	200		158,6		4,15	175
--	BB150A	-	-	150	0 -0,025	210	0 -0,029	240		170,6		5,15	204



Rows of balls	max. eccentricity [μm]	max. radial clearance [μm]	dynamic load rating [N]	static load rating [N]	Weight [g]	Order reference			
						Standard		Corrosion-resistant	
						Plastic cage	Steel cage	Plastic cage	Stainless steel cage
4	8	-3	44	105	1,4	BB3	BB3A	BBS3	BBS3A
4			47	127	2	BB4	BB4A	BBS4	BBS4A
4			82	206	4	BB5	BB5A	BBS5	BBS5A
4			131	265	8,5	BB6	BB6A	BBS6	BBS6A
4			153	216	11	BB8s	BB8sA	BBS8s	BBS8sA
4			194	392	17	BB8	BB8A	BBS8	BBS8A
4	12	-4	286	594	36	BB10	BB10A	BBS10	BBS10A
4			415	784	42	BB12	BB12A	BBS12	BBS12A
4			421	784	49	BB13	BB13A	BBS13	BBS13A
4			676	1 180	76	BB16	BB16A	BBS16	BBS16A
5	15	-6	792	1 370	100	BB20	BB20A	BBS20	BBS20A
6			1 073	1 570	240	BB25	BB25A	BBS25	BBS25A
6	20	-8	1 584	2 740	270	BB30	BB30A	BBS30	BBS30A
6			1 875	3 140	425	BB35	BB35A	BBS35	BBS35A
6			2 357	4 020	654	BB40	BB40A	BBS40	BBS40A
6	25	-10	4 702	7 940	1 700	BB50	BB50A	BBS50	BBS50A
6			5 606	10 000	2 000	BB60	BB60A	BBS60	BBS60A
6	30	-13	10 347	16 000	4 520	BB80	BB80A	BBS80	BBS80A
6			17 323	34 800	8 600	–	BB100A	–	–
8	40	-20	24 571	40 000	15 000	–	BB120A	–	–
8			33 701	54 300	20 250	–	BB150A	–	–

The indicated load ratings are only applicable in cases where the load is being applied to a single row of balls. If, however, the force is shared between two rows of balls, the load capacity is increased by the following factor (refer to table on page 75).

Super ball bushings (closed, open)

The super ball bushings of the BBET series according to ISO 10285 are available as an open and a closed model. The super ball bushings have similar dimensions and tolerances as standard ball bushings.

Super ball bushings have crowned track segments which allow misalignments of up to 0.5° to be accommodated. Hence, overloading because of bending (deflection) of the shaft or skew due to inaccuracies of the tooling hole is avoided.

Through the specific construction, higher capacities, smoother operation, as well as a higher permissible operating speed of up to 3 m/s, are obtained.

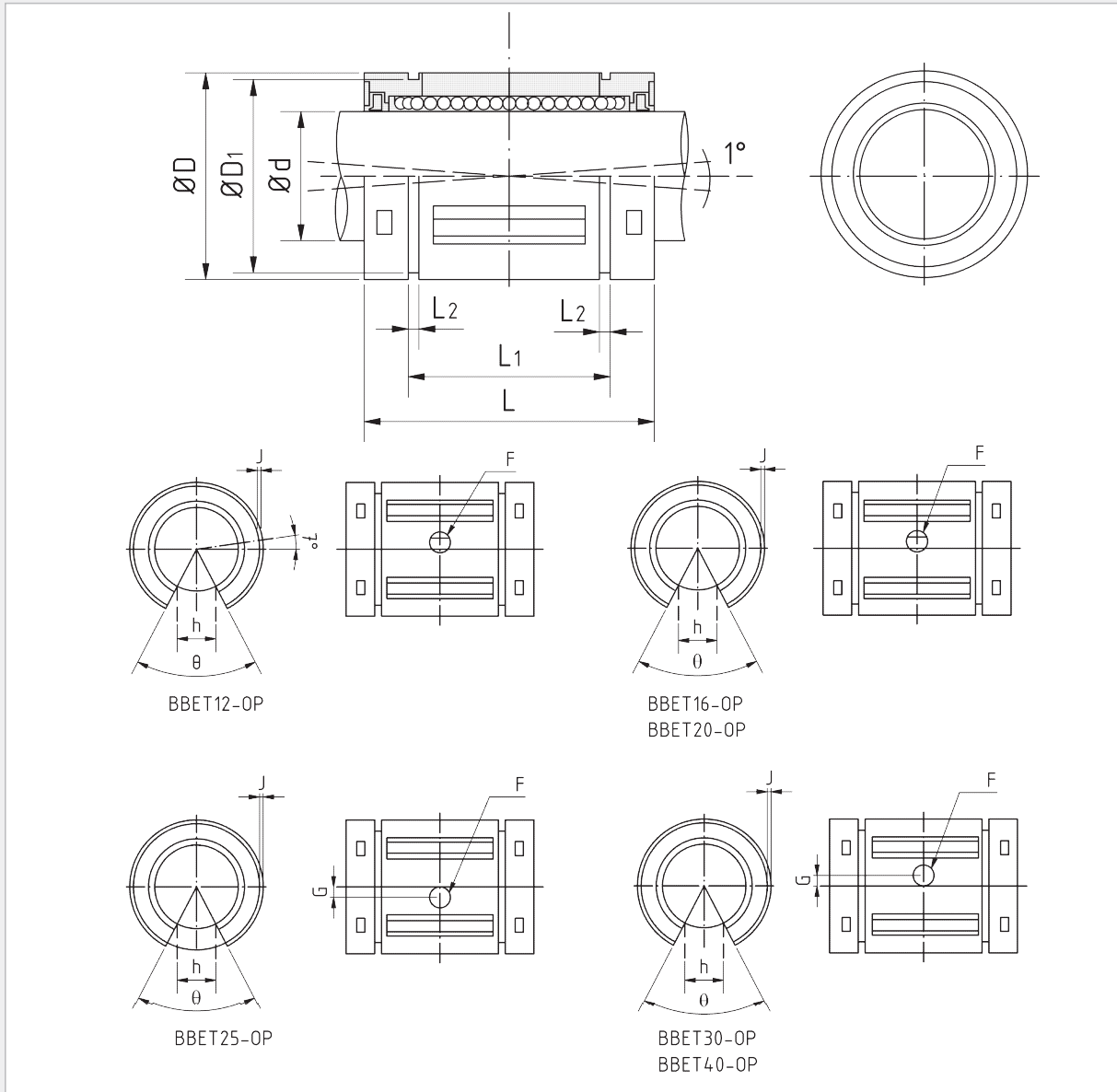
Because of the self-adjustment, per shaft, at least two super ball bushings should be utilized to avoid tilting.



The super ball bushings can be supplied from stock, with two wiper seals.

Examples of order reference for a ball bushings with double-sided seal: BBET12UU, BBET12UU-OP

Order reference		Dimensions [mm]									
closed	open	Ødr	Tolerance	ØD	L	Tolerance	L1	Tolerance	L2	ØD1	h
BBET8	–	8	+0,008 0	16	25	±0,2	16,5	0 -0,2	1,1	15,2	–
BBET10	–	10		19	29		22		1,3	18	–
BBET12	BBET12-OP	12		22	32		22,9		1,3	21	6,5
BBET16	BBET16-OP	16	+0,009 0,001	26	36		24,9		1,3	24,9	9
BBET20	BBET20-OP	20		32	45		31,5		1,6	30,3	9
BBET25	BBET25-OP	25	+0,011 0,001	40	58		44,1	0 -0,3	1,85	37,5	11,5
BBET30	BBET30-OP	30		47	68		52,1		1,85	44,5	14
BBET40	BBET40-OP	40	+0,013 0,002	62	80		60,6		2,15	59	19,5
BBET50	BBET50-OP	50		75	100		77,6		2,65	72	22,5



Dimensions [mm]				Rows of balls		dynamic load rating [N]	static load rating [N]	Weight [g]		Order reference	
θ [°]	F H11	G	J	closed	open			closed	open	closed	open
-	-	-	-	4	-	423	534	7,3	-	BBET8	
-	-	-	-	5	-	750	935	14	-	BBET10	
66	3	-	0,7	5	4	1 020	1 290	21	17	BBET12	BBET12-OP
68		-	1	5	4	1 250	1 550	43	35	BBET16	BBET16-OP
55		-	1	6	5	2 090	2 630	58	48	BBET20	BBET20-OP
57		1,5	1,5	6	5	3 780	4 720	123	103	BBET25	BBET25-OP
57		2	1,7	6	5	5 470	6 810	216	177	BBET30	BBET30-OP
56		1,5	2,4	6	5	6 590	8 230	333	275	BBET40	BBET40-OP
54		5	2,5	2,7	6	5	10 800	13 500	618	520	BBET50

The indicated load ratings are only applicable in cases where the load is being applied to a single row of balls. If, however, the force is shared between two rows of balls, the load capacity is increased by the following factor (refer to table on page 75).

Ball sleeves

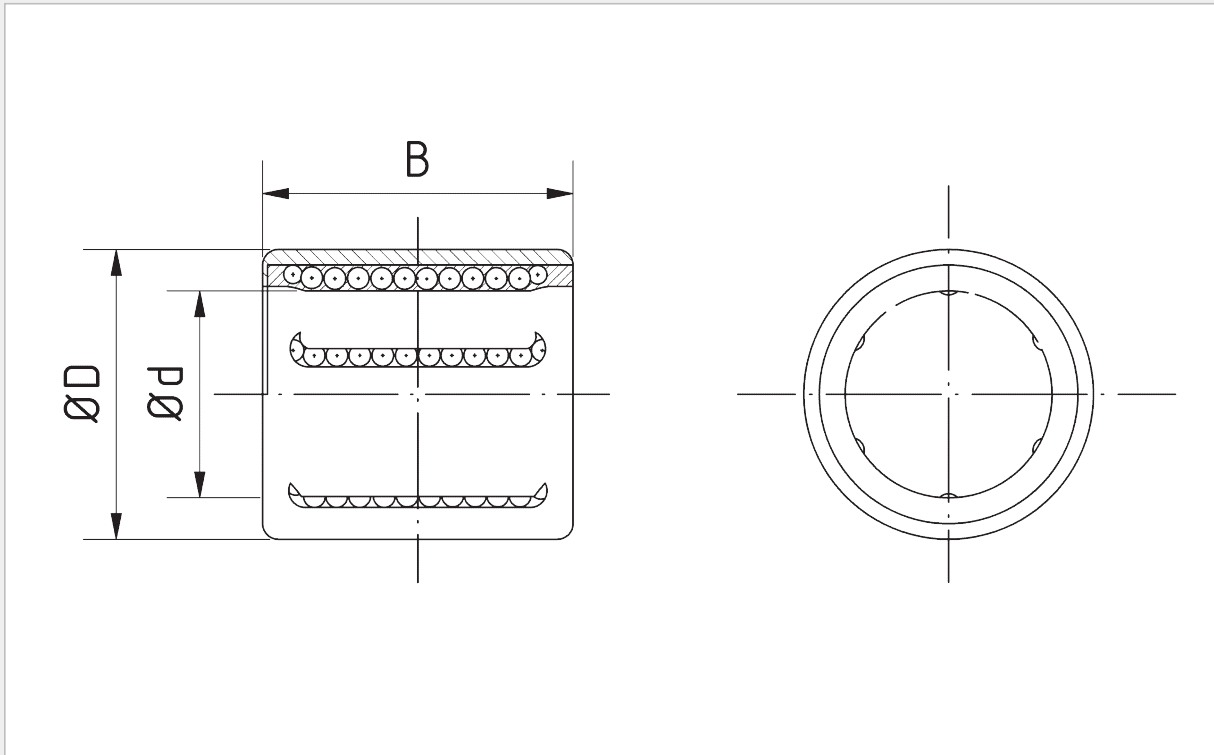


The ball sleeves of the KH series are compact linear ball bearings with small dimensions similar to sleeve bearings.

The balls, circulating in the retainer pass via openings in the outer sleeve, allowing relubrication.

The ball sleeves with the order reference printed in **bold** are also available with two wiper seals. The required seals are to be included when ordering.

Example of order reference for a ball bearing with double-sided seal: **KH1228LL/3AS**



Order reference	Dimensions [mm]			Rows of ball bushings	dynamic load rating [N]	static load rating [N]	Weight [g]
	Ød	ØD	B				
KH1228	12	19	28	5	605	495	18
KH1428	14	21	28	5	600	505	21
KH1630	16	24	30	5	775	600	27
KH2030	20	28	30	6	1 050	880	33
KH2540	25	35	40	6	1 930	1 560	66
KH3050	30	40	50	7	2 700	2 450	95
KH4060	40	52	60	8	4 250	4 000	180
KH5070	50	62	70	9	5 300	5 700	240