

# KB TYPE (Euro Standard)

– Standard Type –



## part number structure

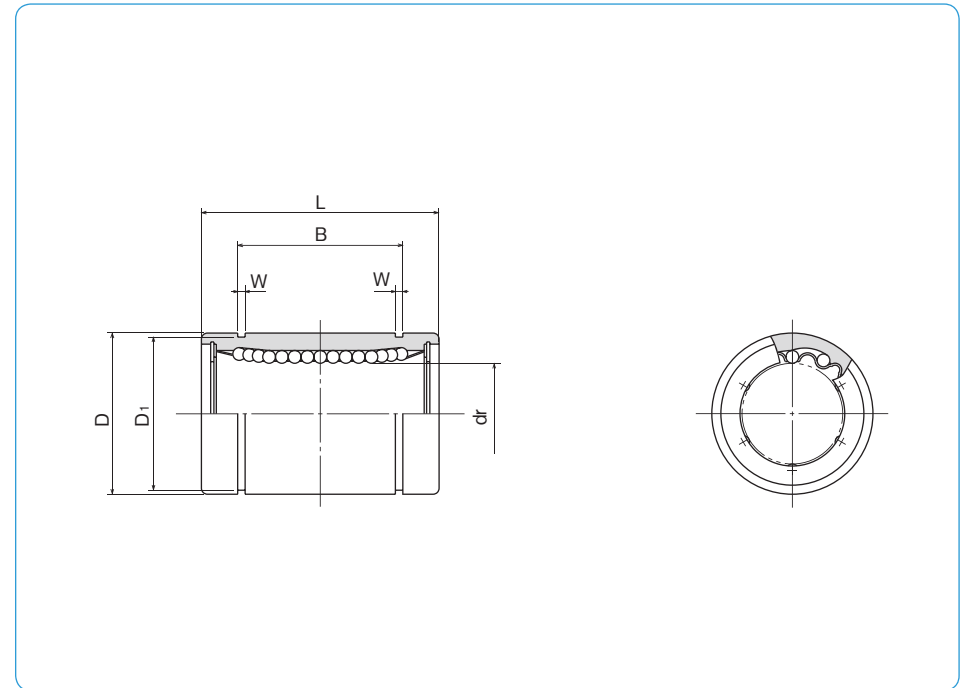
example **KBS 25 G UU**

specification  
**KB:** standard  
**KBS:** anti-corrosion

inner contact diameter (dr)

retainer material  
**blank:** standard/steel  
 anti-corrosion/stainless steel  
**G:** resin

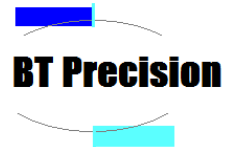
seal  
**blank:** without seal  
**U:** seal on one side  
**UU:** seals on both sides



part number				number of ball circuits	dr		major dimensions	
standard steel retainer	resin retainer	anti-corrosion stainless retainer	resin retainer		mm	tolerance $\mu\text{m}$	mm	tolerance $\mu\text{m}$
<b>KB 3</b>	<b>KB 3G</b>	<b>KBS 3</b>	<b>KBS 3G</b>	4	3	+ 8 0	7	0 - 8
<b>KB 4</b>	<b>KB 4G</b>	<b>KBS 4</b>	<b>KBS 4G</b>	4	4		8	
<b>KB 5</b>	<b>KB 5G</b>	<b>KBS 5</b>	<b>KBS 5G</b>	4	5		12	
<b>KB 8</b>	<b>KB 8G</b>	<b>KBS 8</b>	<b>KBS 8G</b>	4	8		16	
<b>KB10</b>	<b>KB10G</b>	<b>KBS10</b>	<b>KBS10G</b>	4	10	+ 9 - 1	19	0 - 9
<b>KB12</b>	<b>KB12G</b>	<b>KBS12</b>	<b>KBS12G</b>	4	12		22	
<b>KB16</b>	<b>KB16G</b>	<b>KBS16</b>	<b>KBS16G</b>	4	16		26	
<b>KB20</b>	<b>KB20G</b>	<b>KBS20</b>	<b>KBS20G</b>	5	20		32	
<b>KB25</b>	<b>KB25G</b>	<b>KBS25</b>	<b>KBS25G</b>	6	25	+11	40	-11
<b>KB30</b>	<b>KB30G</b>	<b>KBS30</b>	<b>KBS30G</b>	6	30	- 1	47	
<b>KB40</b>	<b>KB40G</b>	<b>KBS40</b>	<b>KBS40G</b>	6	40	+13 - 2	62	0 -13
<b>KB50</b>	<b>KB50G</b>	<b>KBS50</b>	<b>KBS50G</b>	6	50		75	
<b>KB60</b>	<b>KB60G</b>	<b>KBS60</b>	<b>KBS60G</b>	6	60	+16/-4	90	0 -15
<b>KB80</b>	—	—	—	6	80		120	

mm	L	mm	B	mm	W	mm	D <sub>1</sub>	mm	eccentricity $\mu\text{m}$	radial clearance (maximum)	basic load rating		mass g	shaft diameter mm
	tolerance mm		tolerance mm		mm		$\mu\text{m}$			dynamic C N	static Co N			
10	0	—	—	—	—	—	—	10	- 3	69	105	1.4	3	
12	-0.12	—	—	—	—	—	—	12		88	127	2	4	
22	0	14.5	-0.2	1.1	11.5	12	15.2			206	265	11	5	
25		16.5		1.1	15.2				265	402	22	8		
29		22		1.3	18			372	549	36	10			
32		-0.2		22.9	1.3			21	510	784	45	12		
36	-0.2	24.9	-0.2	1.3	24.9	15	30.3	578	892	60	16			
45		31.5		1.6	30.3			862	1,370	102	20			
58		44.1		1.85	37.5			980	1,570	235	25			
68	0	52.1	0	1.85	44.5	17	72	1,570	2,740	360	30			
80	-0.3	60.6	-0.3	2.15	59			2,160	4,020	770	40			
100	0	77.6	0	2.65	72	20	86.5	3,820	7,940	1,250	50			
125		101.7		3.15	86.5			4,700	9,800	2,220	60			
165		-0.4		133.7	-0.4			4.15	116	7,350	16,000	5,140	80	

1N=0.102kgf



# SM TYPE

– Standard Type –



## part number structure

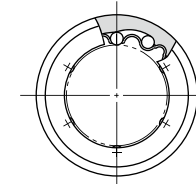
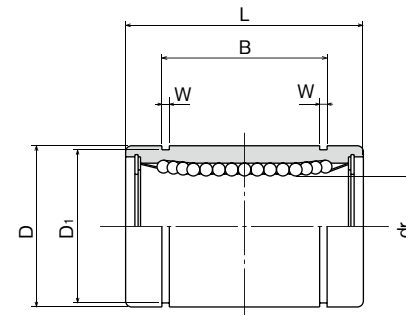
example **SMS 25 G UU -P**

<p>specification  <b>SM</b>: standard  <b>SMS</b>: anti-corrosion</p>	<p>inner contact diameter (dr)</p>	<p>accuracy grade  <b>blank</b>: high  <b>P</b>: precision</p>
<p>retainer material  <b>blank</b>: standard/steel  <b>G</b>: anti-corrosion/stainless steel  <b>G</b>: resin</p>	<p>seal  <b>blank</b>: without seal  <b>U</b>: seal on one side  <b>UU</b>: seals on both sides  <b>Z</b>: doublelip-seal on one side  <b>ZZ</b>: doublelip-seals on both sides</p>	

Doublelip-seal is available for size 6 to 30.

part number				number of ball circuits	major dimensions				
standard		anti-corrosion			mm	dr tolerance $\mu\text{m}$		D tolerance $\mu\text{m}$	
steel retainer	resin retainer	stainless retainer	resin retainer			precision	high	mm	$\mu\text{m}$
SM 3	SM 3G	SMS 3	SMS 3G	4	3			7	0
SM 4	SM 4G	SMS 4	SMS 4G	4	4	0	0	8	0
SM 5	SM 5G	SMS 5	SMS 5G	4	5	-5	-8	10	-9
SM 6	SM 6G	SMS 6	SMS 6G	4	6			12	0
SM 8s	SM 8sG	SMS 8s	SMS 8sG	4	8			15	-11
SM 8	SM 8G	SMS 8	SMS 8G	4	8			15	
SM 10	SM10G	SMS10	SMS10G	4	10	0	0	19	0
SM 12	SM12G	SMS12	SMS12G	4	12	-6	-9	21	0
SM 13	SM13G	SMS13	SMS13G	4	13			23	-13
SM 16	SM16G	SMS16	SMS16G	4	16			28	
SM 20	SM20G	SMS20	SMS20G	5	20			32	0
SM 25	SM25G	SMS25	SMS25G	6	25	-7	-10	40	-16
SM 30	SM30G	SMS30	SMS30G	6	30			45	
SM 35	SM35G	SMS35	SMS35G	6	35			52	0
SM 40	SM40G	SMS40	SMS40G	6	40	0	0	60	0
SM 50	SM50G	SMS50	SMS50G	6	50	-8	-12	80	-19
SM 60	SM60G	SMS60	SMS60G	6	60	0	0	90	0
SM 80	SM80G	SMS80	SMS80G	6	80	-9	-15	120	-22
SM100	-	-	-	6	100	0	0	150	0
SM120	-	-	-	8	120	-10	-20	180	-25
SM150	-	-	-	8	150	0/-13	0/-25	210	0/-29

## BT Precision

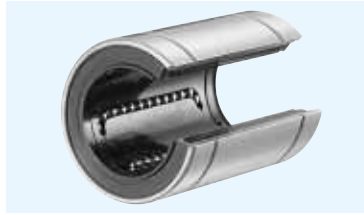


mm	L tolerance mm	B tolerance mm		W mm	D1 mm	eccentricity		radial clearance (maximum) $\mu\text{m}$	basic load rating		mass g	shaft diameter mm
		mm	mm			precision $\mu\text{m}$	high $\mu\text{m}$		C N	Co N		
10		-	-	-	-				69	105	1.4	3
12	0	-	-	-	-	4	8		88	127	2.0	4
15	-0.12	10.2		1.1	9.6			-3	167	206	4.0	5
19		13.5		1.1	11.5				206	265	8.5	6
17		11.5		1.1	14.3				176	216	11	8
24		17.5		1.1	14.3				274	392	17	8
29	0	22	0	1.3	18	8	12		372	549	36	10
30	-0.2	23	-0.2	1.3	20			-4	510	784	42	12
32		23		1.3	22				510	784	49	13
37		26.5		1.6	27				774	1,180	76	16
42		30.5		1.6	30.5			-6	882	1,370	100	20
59		41		1.85	38	10	15		980	1,570	240	25
64		44.5		1.85	43				1,570	2,740	270	30
70	0	49.5	0	2.1	49			-8	1,670	3,140	425	35
80	-0.3	60.5	-0.3	2.1	57	12	20	-10	2,160	4,020	654	40
100		74		2.6	76.5			-13	3,820	7,940	1,700	50
110		85		3.15	86.5				4,700	10,000	2,000	60
140		105.5		4.15	116	17	25		7,350	16,000	4,520	80
175	0	125.5	0	4.15	145			-20	14,100	34,800	8,600	100
200	-0.4	158.6	-0.4	4.15	175	20	30		16,400	40,000	15,000	120
240		170.6		5.15	204	25	40	-25	21,100	54,300	20,250	150

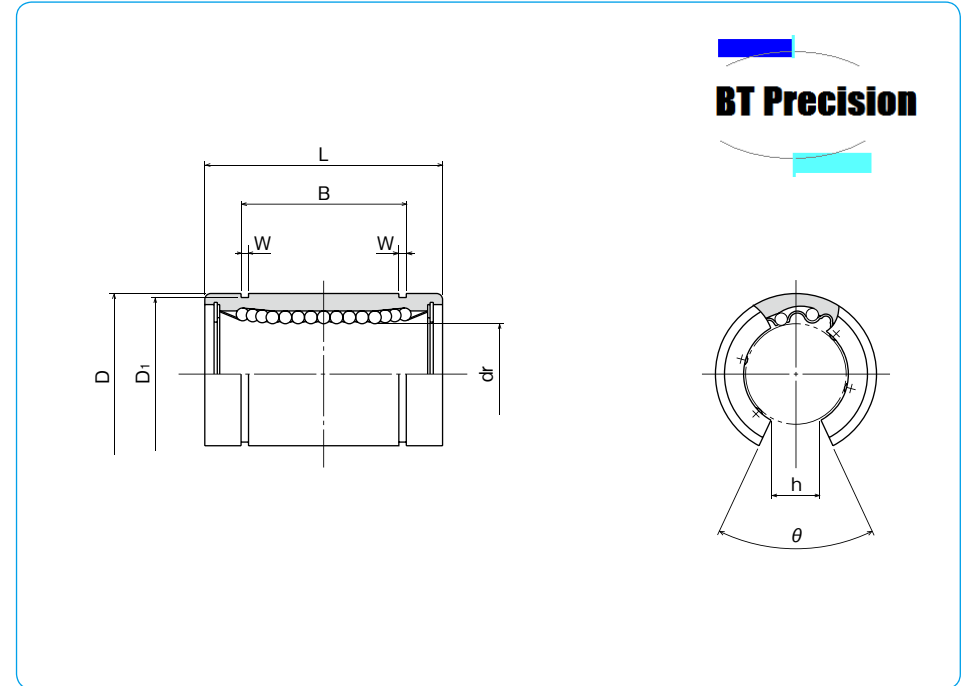
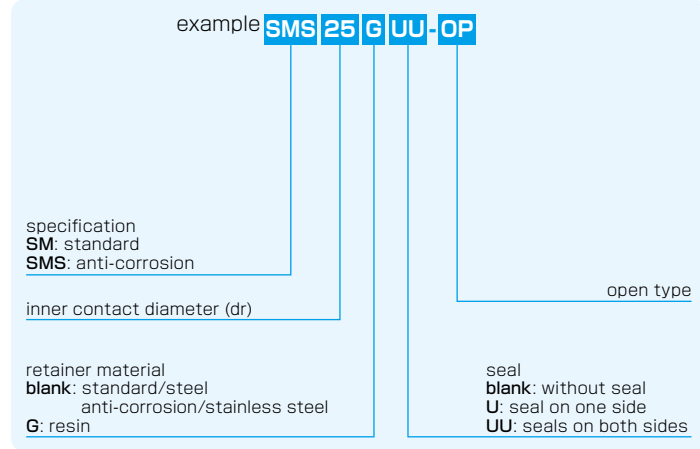
1N=0.102kgf

# SM-OP TYPE

– Open Type –



## part number structure



part number		number of ball circuits	dr mm	major dimensions			
standard	anti-corrosion			D mm	D tolerance*		
steel retainer	resin retainer	stainless retainer	resin retainer	mm	μm		
–	SM10G-OP	–	SMS10G-OP	3	10	19	0
SM 12-OP	SM12G-OP	SMS12-OP	SMS12G-OP	3	12	21	0
SM 13-OP	SM13G-OP	SMS13-OP	SMS13G-OP	3	13	23	-13
SM 16-OP	SM16G-OP	SMS16-OP	SMS16G-OP	3	16	28	0
SM 20-OP	SM20G-OP	SMS20-OP	SMS20G-OP	4	20	32	0
SM 25-OP	SM25G-OP	SMS25-OP	SMS25G-OP	5	25	40	0
SM 30-OP	SM30G-OP	SMS30-OP	SMS30G-OP	5	30	45	-16
SM 35-OP	SM35G-OP	SMS35-OP	SMS35G-OP	5	35	52	0
SM 40-OP	SM40G-OP	SMS40-OP	SMS40G-OP	5	40	60	0
SM 50-OP	SM50G-OP	SMS50-OP	SMS50G-OP	5	50	80	-19
SM 60-OP	SM60G-OP	SMS60-OP	SMS60G-OP	5	60	90	0
SM 80-OP	SM80G-OP	–	–	5	80	120	-22
SM100-OP	–	–	–	5	100	150	0
SM120-OP	–	–	–	6	120	180	-25
SM150-OP	–	–	–	6	150	210	0/-29

\* Accuracy is measured prior to machining open slit.

mm	L tolerance mm	B		W mm	D <sub>1</sub> mm	h mm	θ	eccentricity* μm	basic load rating		mass g	shaft diameter mm
		mm	tolerance mm						C N	Co N		
29	0 -0.2	22	0 -0.2	1.3	18	6.8	80°	12	372	549	23	10
30		23		1.3	20	8	80°		510	784	32	12
32		23		1.3	22	9	80°		510	784	37	13
37		26.5		1.6	27	11	80°		774	1,180	58	16
42		30.5		1.6	30.5	11	60°		882	1,370	79	20
59	0 -0.3	41	0 -0.3	1.85	38	12	50°	15	980	1,570	203	25
64		44.5		1.85	43	15	50°		1,570	2,740	228	30
70		49.5		2.1	49	17	50°		1,670	3,140	355	35
80		60.5		2.1	57	20	50°		2,160	4,020	546	40
100		74		2.6	76.5	25	50°		3,820	7,940	1,420	50
110	0 -0.4	85	0 -0.4	3.15	86.5	30	50°	25	4,700	10,000	1,650	60
140		105.5		4.15	116	40	50°		7,350	16,000	3,750	80
175		125.5		4.15	145	50	50°		14,100	34,800	7,200	100
200		158.6		4.15	175	85	80°		16,400	40,000	11,600	120
240		170.6		5.15	204	105	80°		21,100	54,300	15,700	150

1N≐0.102kgf

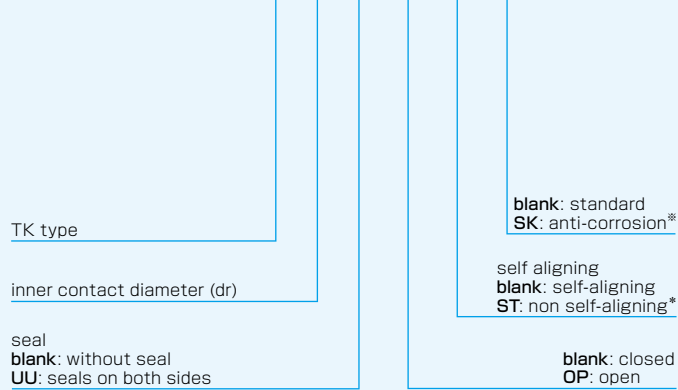
# TK TYPE

– TOPBALL Metric Type –

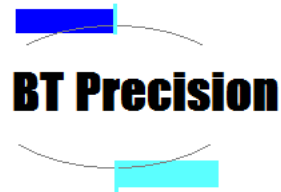


## part number structure

example **TK 20 UU-OP-ST-SK**



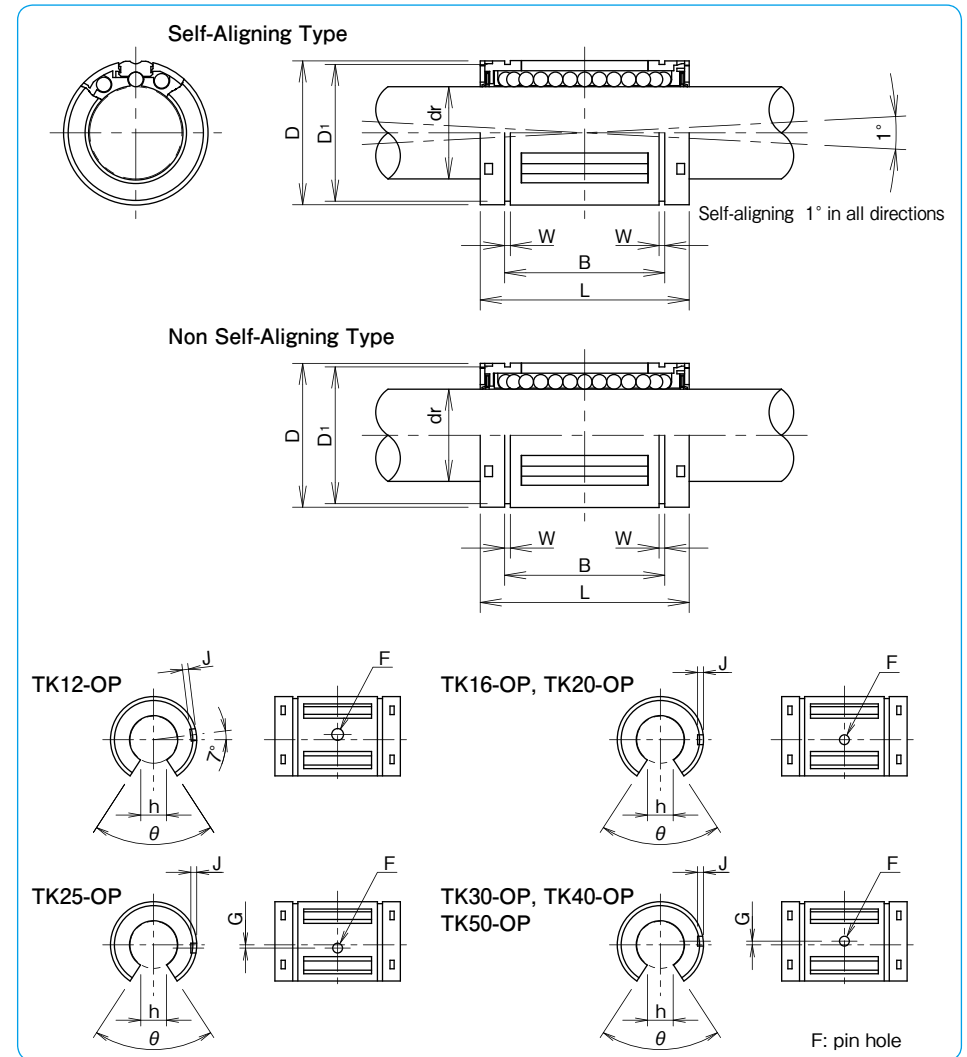
※For anti-corrosion the load plates are electroless nickel plated with stainless steel balls.  
\*ST option is available for size 12 to 40



closed type		part number		open type		major dimensions				
number of ball circuits	mass g		number of ball circuits	mass g	mm	dr* tolerance $\mu\text{m}$	D mm	L mm	tolerance mm	
TK 8	4	7.3	—	—	8	+ 8	16	25	$\pm 0.2$	
TK10	5	14	—	—	10		19	29		
TK12	5	21	TK12-OP	4	17	0	22	32		
TK16	5	43	TK16-OP	4	35	+ 9	26	36		
TK20	6	58	TK20-OP	5	48	- 1	32	45		
TK25	6	123	TK25-OP	5	103	+11	40	58		
TK30	6	216	TK30-OP	5	177	- 1	47	68		
TK40	6	333	TK40-OP	5	275	+13	62	80		
TK50	6	618	TK50-OP	5	520	-2	75	100		

One-sided seal is also available. Please contact NB for details.

\* Based on nominal housing bore



mm	B tolerance mm	W mm	D <sub>1</sub> mm	h mm	$\theta$	open type			dynamic C N	static Co N	shaft diameter mm
						F <sup>H11</sup> mm	G mm	J mm			
16.5	-0.2	1.1	15.2	—	—	3	—	—	423	534	8
22.0		1.3	18	—	—		—	—	750	935	10
22.9		1.3	21	6.5	66°		—	0.7	1,020	1,290	12
24.9		1.3	24.9	9	68°		—	1.0	1,250	1,550	16
31.5		1.6	30.3	9	55°		—	1.0	2,090	2,630	20
44.1	0	1.85	37.5	11.5	57°	5	1.5	1.5	3,780	4,720	25
52.1		1.85	44.5	14	57°		2	1.7	5,470	6,810	30
60.6		2.15	59	19.5	56°		1.5	2.4	6,590	8,230	40
77.6		2.65	72	22.5	54°		2.5	2.7	10,800	13,500	50