

VSB-10 Wrapped Composite Sliding Bearing



Wrapped Sliding Bearing, Wrapped Bushing,

Steel/ PTFE or POM sliding layer, DIN 1494/ISO 3547, Low-maintenance

Material Support Material:

Steel copper-plated or tin-plated Intermediate layer

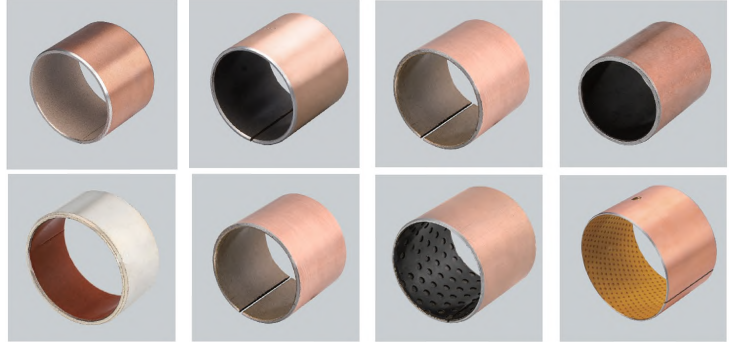
Sintered bronze Sliding layer PTFE or POM (MoS₂)/lubrication pockets

Range Of Application:

Truck cranes, agriculture machines, hydraulic cylinders, construction machinery, cranes and construction machinery, all sorts of production machinery, pumps and medial devices

VSB-10

Cylindrical Bushes



Product Selection Guide

PTFE /POM composite plain bearings

Long, maintenance-free service life due to low friction

Advantages of PTFE/POM Composite Plain Bearings Include:

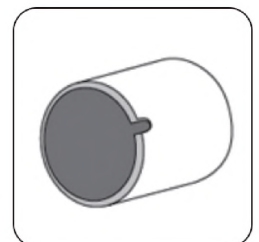
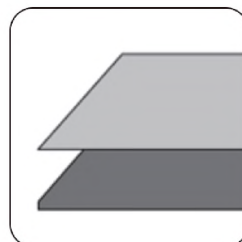
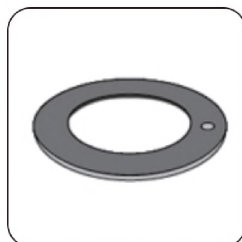
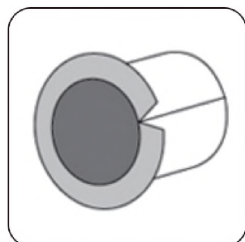
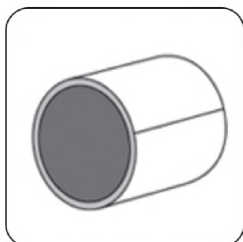
Maintenance-free operation, very good frictional properties, high load carrying capacity high sliding velocity small operating clearance composite plain bearings are available, both as straight and flange bushings, washers and strips

Availability

Bearing forms available in standard dimensions

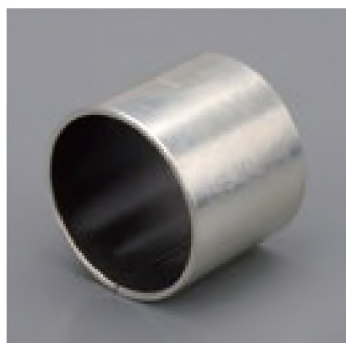
Cylindrical bushes

Flange bushes



VSB-10, VSB-11, VSB-40, VSB-33, VSB-12

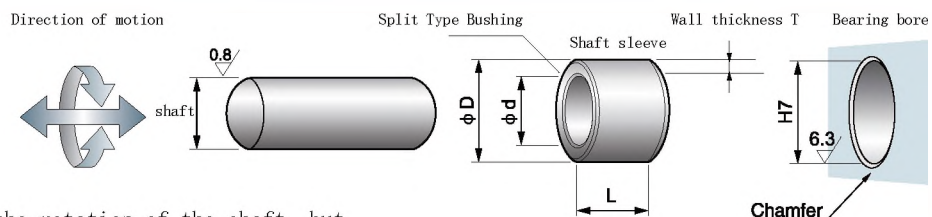
Cylindrical Bushes (I.D $\varnothing 5 \sim \varnothing 40$)



Please select part number from applicable inside diameter, outside diameter and length
e.g. inner diameter: 15mm and length 10mm

VSB-10 - 1510

Please specify the above part number

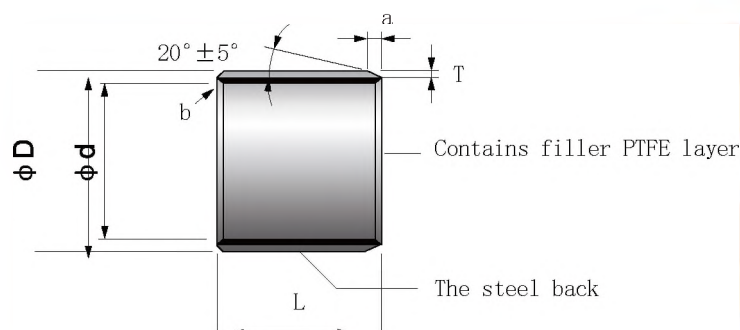


※ the joint has no effect on the rotation of the shaft, but try to avoid the installation in the heavy load position.

Shaft	Housing H7	ID $\varnothing d$	OD $\varnothing D$	Wall thickness		$L_{-0.40}^0$								
				T		4	5	6	8	10				
5	-0.010 -0.022	7	+0.015 0	5	7	+0.055 +0.025	1.0	+0.005 -0.020		0505				
6	-0.013 -0.028	8	"	6	8	"	"	"	0604	0606	0608	0610		
7	"	9	"	7	9	"	"	"						
8	"	10	"	8	10	"	"	"		0806	0808	0810		
10	"	12	+0.018 0	10	12	+0.065 +0.030	"	"				1008	1010	
12	-0.016 -0.034	14	"	12	14	"	"	"				1208	1210	
13	"	15	"	13	15	"	"	"						1310
14	"	16	"	14	16	+0.065 +0.035	"	"		1405				1410
15	"	17	"	15	17	"	"	"						1510
16	"	18	"	16	18	"	"	"						1610
17	"	19	+0.021 0	17	19	+0.075 +0.035	"	"						1710
18	"	20	"	18	20	"	"	"						1810
20	-0.020 -0.041	23	"	20	23	"	1.5	+0.005 -0.025						2010
22	"	25	"	22	25	"	"	"						2210
24	"	27	"	24	27	"	"	"						
25	"	28	"	25	28	"	"	"						2510
28	"	32	+0.025 0	28	32	+0.085 +0.045	2.0	+0.005 -0.030						
30	"	34	"	30	34	"	"	"						
32	-0.025 -0.050	36	"	32	36	"	"	"						
35	"	39	"	35	39	"	"	"						
37	"	41	"	37	41	"	"	"						
38	"	42	"	38	42	"	"	"						
40	"	44	"	40	44	"	"	"						

VSB-10, VSB-11, VSB-40, VSB-33, VSB-12

Cylindrical Bushes (I.D $\varnothing 5 \sim \varnothing 40$)



A: outer diameter chamfering inner diameter more than 10 (mm)

T	1.0	1.5	2.0
a	0.5	0.8	1.0

B: the inner diameter chamfering inner diameter is more than 10 (mm).

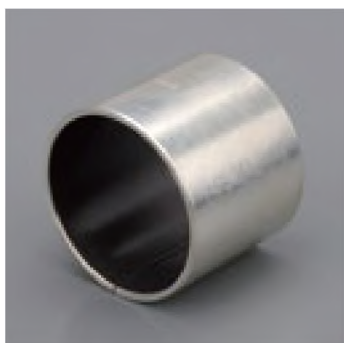
T	1.0	1.5	2.0
b	C0.5	C0.8	C1.0

* inner diameter less than 10 (mm)
Removal of burrs

L $\begin{smallmatrix} 0 \\ -0.40 \end{smallmatrix}$								ID
12	15	20	25	30	35	40	50	$\varnothing d$
								5
								6
								7
0812	0815							8
1012	1015	1020						10
1212	1215	1220	1225					12
		1320						13
1412	1415	1420	1425					14
1512	1515	1520	1525					15
1612	1615	1620	1625					16
		1720						17
	1815	1820	1825					18
	2015	2020	2025	2030				20
	2215	2220	2225	2230				22
	2415	2420	2425	2430				24
	2515	2520	2525	2530			2550	25
	2815	2820	2825	2830				28
	3015	3020	3025	3030		3040	3050	30
		3220		3230				32
		3520		3530	3535	3540		35
		3720						37
		3820		3830		3840		38
		4020		4030		4040	4050	40

VSB-10, VSB-11, VSB-40, VSB-33, VSB-12

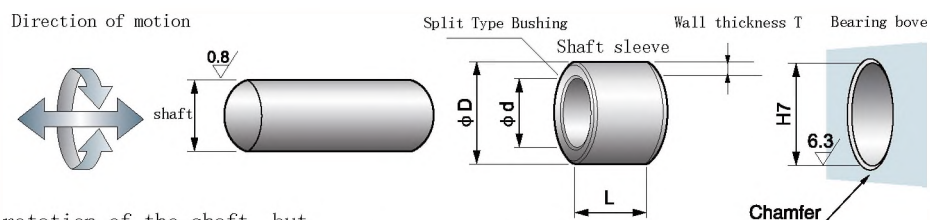
Cylindrical Bushes (I.D $\varnothing 45 \sim \varnothing 260$)



Please select part number from applicable inside diameter, outside diameter and length
e.g. inner diameter: 60mm and length 50mm

VSB-10 - 6050

Please specify the above part number

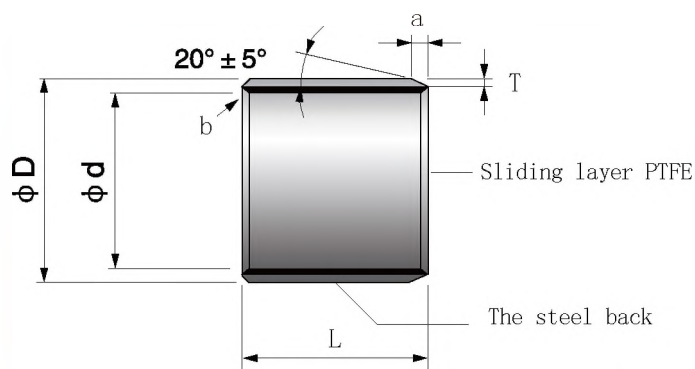


※The joint has no effect on the rotation of the shaft, but try to avoid installation in the heavy load of the location of the compression.

Shaft	Housing		ID $\varnothing d$	OD D	Wall thickness		L _{-0.40}						
	\varnothing	H7			T	20	25	30	40	50			
45	$\begin{smallmatrix} -0.025 \\ -0.050 \end{smallmatrix}$	50	$\begin{smallmatrix} +0.025 \\ 0 \end{smallmatrix}$	45	50	$\begin{smallmatrix} +0.085 \\ +0.045 \end{smallmatrix}$	2.5	$\begin{smallmatrix} +0.005 \\ -0.040 \end{smallmatrix}$	4520	4525	4530	4540	4550
50	"	55	$\begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	50	55	$\begin{smallmatrix} +0.100 \\ +0.055 \end{smallmatrix}$	"	"	5020		5030	5040	5050
55	$\begin{smallmatrix} -0.030 \\ -0.060 \end{smallmatrix}$	60	"	55	60	"	"	"			5530	5540	5550
60	"	65	"	60	65	"	"	"			6030	6040	6050
65	"	70	"	65	70	"	"	"			6530	6540	6550
70	"	75	"	70	75	"	"	"				7040	7050
75	"	80	"	75	80	"	"	"			7530	7540	7550
80	$\begin{smallmatrix} 0 \\ -0.030 \end{smallmatrix}$	85	$\begin{smallmatrix} +0.035 \\ 0 \end{smallmatrix}$	80	85	$\begin{smallmatrix} +0.120 \\ +0.070 \end{smallmatrix}$	"	$\begin{smallmatrix} -0.010 \\ -0.060 \end{smallmatrix}$				8040	8050
85	$\begin{smallmatrix} 0 \\ -0.035 \end{smallmatrix}$	90	"	85	90	"	"	"				8540	
90	"	95	"	90	95	"	"	"				9040	9050
95	"	100	"	95	100	"	"	"					9550
100	"	105	"	100	105	"	"	"					10050
105	"	110	"	105	110	"	"	"					
110	"	115	"	110	115	"	"	"					
115	"	120	"	115	120	"	"	"					
120	"	125	$\begin{smallmatrix} +0.040 \\ 0 \end{smallmatrix}$	120	125	$\begin{smallmatrix} +0.170 \\ +0.100 \end{smallmatrix}$	"	$\begin{smallmatrix} -0.035 \\ -0.085 \end{smallmatrix}$					
125	$\begin{smallmatrix} 0 \\ -0.040 \end{smallmatrix}$	130	"	125	130	"	"	"					
130	"	135	"	130	135	"	"	"					
135	"	140	"	135	140	"	"	"					
140	"	145	"	140	145	"	"	"					
150	"	155	"	150	155	"	"	"					
160	"	165	"	160	165	"	"	"					
180	"	185	$\begin{smallmatrix} +0.046 \\ 0 \end{smallmatrix}$	180	185	$\begin{smallmatrix} +0.210 \\ +0.130 \end{smallmatrix}$	"	"					
190	$\begin{smallmatrix} 0 \\ -0.046 \end{smallmatrix}$	195	"	190	195	"	"	"					
200	"	205	"	200	205	"	"	"					
220	"	225	"	220	225	"	"	"					
250	"	255	$\begin{smallmatrix} +0.052 \\ 0 \end{smallmatrix}$	250	255	$\begin{smallmatrix} +0.260 \\ +0.170 \end{smallmatrix}$	"	"					
260	"	265	"	260	265	"	"	"					

VSB-10, VSB-11, VSB-40, VSB-33, VSB-12

Cylindrical Bushes (I.D $\varnothing 45 \sim \varnothing 260$)



a: Outer diameter chamfer (mm)

T	2.0	2.5
a	$0.015 \sqrt{a}$	$0.015 \sqrt{a}$

b: Inner diameter chamfer (mm)

T	2.0	2.5
b	C0.5	C0.5

L $\begin{smallmatrix} 0 \\ -0.40 \end{smallmatrix}$					ID
60	70	80	100	115	$\varnothing d$
					45
5060					50
5560					55
6060	6070				60
6560	6570				65
7060	7070	7080			70
7560	7570	7580			75
8060	8070	8080	80100		80
8560		8580	85100		85
9060		9080	90100		90
9560		9580	95100		95
10060		10080		100115	100
10560		10580		105115	105
11060		11080		110115	110
11560		11580			115
12060		12080	120100		120
			125100		125
13060		13080	130100		130
		13580	135100		135
14060		14080	140100		140
15060		15080	150100		150
16060		16080	160100	160115	160
		18080	180100		180
		19080	190100		190
20060		20080	200100		200
		22080	220100		220
		25080	250100		250
		26080	260100		260

VSB-10F, VSB-11F, VSB-40F, VSB-12F

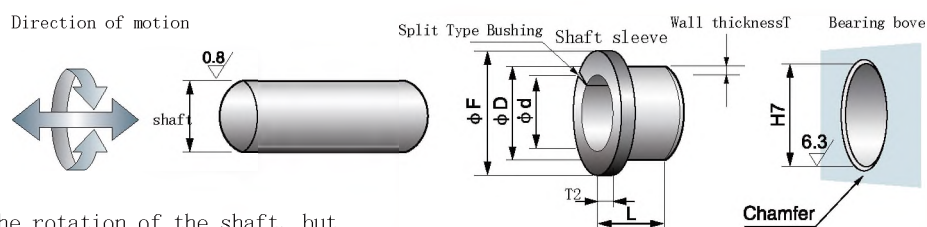
Flanged Bushes



Please select part number from applicable inside diameter, outside diameter and length
e.g. inner diameter: 20mm and length: 10mm

VSB-11F - 2010

Please specify the above part number

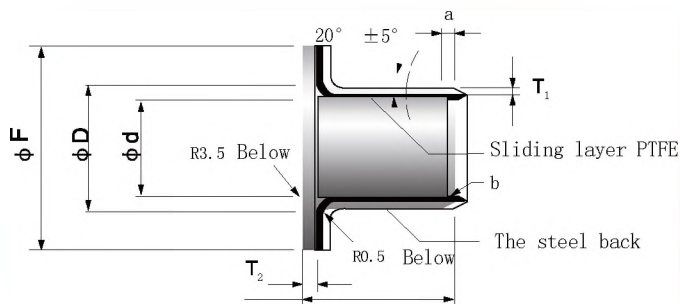


※ the joint has no effect on the rotation of the shaft, but try to avoid the installation in the heavy load position.

Shaft	Housing H7	ID ø d	OD ø D	Flange			Wall Thickness						
				ø F _{±0.5}	T _{2-0.2} ⁰	T1	3	4	5	6			
5	-0.010 -0.022	7	+0.015 0	5	7	10	1.0	1.0	+0.005 -0.020			0505	0506
6	-0.013 -0.028	8	"	6	8	12	"	"	"			0605	0606
7	"	9	"	7	9	13	"	"	"			0705	
8	"	10	"	8	10	15	"	"	"				0806
9	"	11	+0.018 0	9	11	17	"	"	"				
10	"	12	"	10	12	18	"	"	"				1006
12	-0.016 -0.034	14	"	12	14	20	"	"	"				1206
13	"	15	"	13	15	21	"	"	"				
14	"	16	"	14	16	22	"	"	"				
15	"	17	"	15	17	23	"	"	"				
16	"	18	"	16	18	24	"	"	"				
18	"	20	+0.021 0	18	20	26	"	"	"				
20	-0.020 -0.041	23	"	20	23	30	1.5	1.5	+0.005 -0.025				
22	"	25	"	22	25	32	"	"	"				
24	"	27	"	24	27	34	"	"	"				
25	"	28	"	25	28	35	"	"	"				
26	"	30	"	26	30	38	2.0	2.0	+0.005 -0.030				
28	"	32	+0.025 0	28	32	40	"	"	"				
30	"	34	"	30	34	42	"	"	"				
31	-0.025 -0.050	35	"	31	35	43	"	"	"				
32	"	36	"	32	36	44	"	"	"				
35	"	39	"	35	39	47	"	"	"				
38	"	42	"	38	42	52	"	"	"				
40	"	44	"	40	44	53	"	"	"				
45	"	50	"	45	50	60	2.5	2.5	+0.005 -0.040				
50	"	55	+0.030 0	50	55	65	"	"	"				
55	-0.030 -0.060	60	"	55	60	70	"	"	"				
60	"	65	"	60	65	75	"	"	"				

VSB-10F, VSB-11F, VSB-40F, VSB-12F

Flanged Bushes



A: outer diameter chamfering inner diameter more than 10 (mm)

T	1.0	1.5	2.0
a	0.5	0.8	1.0

B: the inner diameter chamfering inner diameter is more than 10 (mm).

T	1.0	1.5	2.0
b	C0.5	C0.8	C1.0

* inner and outer diameter less than 10
Removal of burrs

L ± 0.25									ID
7	8	10	12	15	20	25	30	40	∅d
									5
0607	0608								6
0707									7
	0808	0810	0812						8
		0910							9
1007	1008	1010	1012	1015					10
1207	1208	1210	1212	1215					12
		1310		1315					13
		1410	1412	1415					14
		1510	1512	1515	1520				15
		1610		1615	1620				16
		1810	1812	1815	1820				18
		2010	2012	2015	2020	2025			20
		2210	2212	2215	2220				22
				2415	2420	2425			24
		2510	2512	2515	2520	2525			25
				2615	2620				26
			2812	2815	2820				28
			3012	3015	3020	3025	3030		30
						3125			31
					3220	3225	3230		32
			3512		3520	3525	3530	3540	35
					3820				38
			4012		4020	4025	4030	4040	40
					4520	4525	4530	4540	45
					5020		5030	5040	50
							5530	5540	55
							6030	6040	60

VSB-10W, VSB-11W, VSB-40W, VSB-33W, VSB-12W

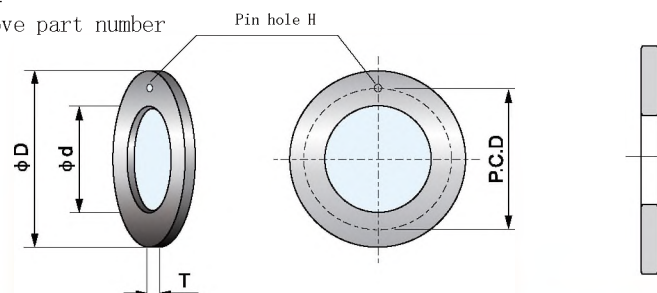
Thrust Washers



Please select part number from applicable inside diameter
outside diameter and thickness
e.g. inner diameter: 20mm and thickness: 1.5mm

VSB-10 WC-2015

Please specify the above part number



● the friction surface is the PTFE layer

Parts No.	ID		OD		Thickness T	Pin hole H	Dowel pin position		
	∅d	$\begin{matrix} +0.25 \\ 0 \end{matrix}$	∅D	$\begin{matrix} 0 \\ -0.25 \end{matrix}$			P.C.D	± 0.12	
WC -1015	10	$\begin{matrix} +0.25 \\ 0 \end{matrix}$	20	$\begin{matrix} 0 \\ -0.25 \end{matrix}$	1.5	$\begin{matrix} 0 \\ -0.05 \end{matrix}$	1.10 ~ 1.50	15	± 0.12
WC -1215	12	"	24	"	"	"	1.625 ~ 1.875	18	"
WC -1415	14	"	26	"	"	"	2.125 ~ 2.375	20	"
WC -1615	16	"	30	"	"	"	"	22	"
WC -1815	18	"	32	"	"	"	"	25	"
WC -2015	20	"	36	"	"	"	3.125 ~ 3.375	28	"
WC -2215	22	"	38	"	"	"	"	30	"
WC -2415	24	"	42	"	"	"	"	33	"
WC -2615	26	"	44	"	"	"	"	35	"
WC -2815	28	"	48	"	"	"	4.125 ~ 4.375	38	"
WC -3215	32	"	54	"	"	"	"	43	"
WC -3815	38	"	62	"	"	"	"	50	"
WC -4215	42	"	66	"	"	"	"	54	"
WC -4820	48	"	74	"	2.0	"	"	61	"
WC -5220	52	"	78	"	"	"	"	65	"
WC -6220	62	"	90	"	"	"	"	76	"

VSB-20W, VSB-30W

Thrust Washers

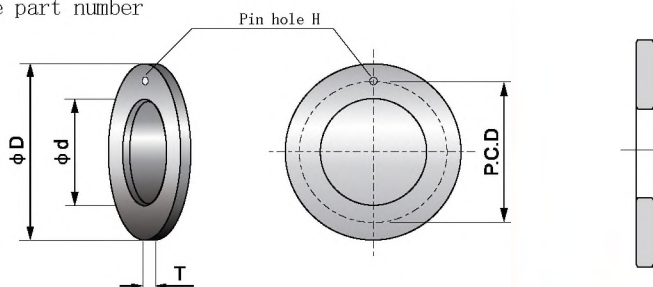


Please select part number from applicable inside diameter
outside diameter and thickness

e.g. inner diameter: 20mm and thickness: 1.5mm

VSB-20 WC-2015

Please specify the above part number



● the friction surface is the POM layer

Parts No.	ID		OD		Thickness	Pin hole	Dowel pin position		
	∅d		∅D		T	H	P.C.D		
WC -1015	10	$\begin{smallmatrix} +0.25 \\ 0 \end{smallmatrix}$	20	$\begin{smallmatrix} 0 \\ -0.25 \end{smallmatrix}$	1.5	$\begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix}$	1.10 ~ 1.50	15	± 0.12
WC -1215	12	"	24	"	"	"	1.625 ~ 1.875	18	"
WC -1415	14	"	26	"	"	"	2.125 ~ 2.375	20	"
WC -1615	16	"	30	"	"	"	"	22	"
WC -1815	18	"	32	"	"	"	"	25	"
WC -2015	20	"	36	"	"	"	3.125 ~ 3.375	28	"
WC -2215	22	"	38	"	"	"	"	30	"
WC -2415	24	"	42	"	"	"	"	33	"
WC -2615	26	"	44	"	"	"	"	35	"
WC -2815	28	"	48	"	"	"	4.125 ~ 4.375	38	"
WC -3215	32	"	54	"	"	"	"	43	"
WC -3815	38	"	62	"	"	"	"	50	"
WC -4215	42	"	66	"	"	"	"	54	"
WC -4820	48	"	74	"	2.0	"	"	61	"
WC -5220	52	"	78	"	"	"	"	65	"
WC -6220	62	"	90	"	"	"	"	76	"

VSB-20, VSB-30

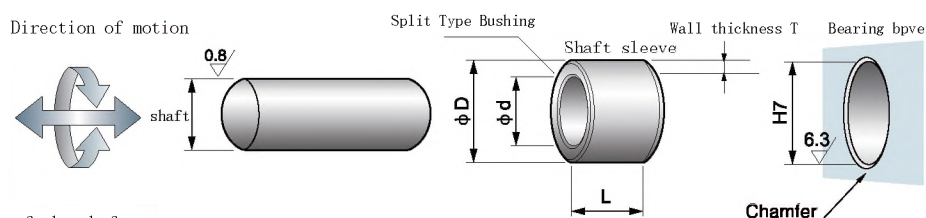
Cylindrical Bushes (I. D $\varnothing 10 \sim \varnothing 60$)



Please select part number from applicable inside diameter, outside diameter and length
e.g. inner diameter: 15mm and length: 10mm

VSB010 - 1510

Please specify the above part number

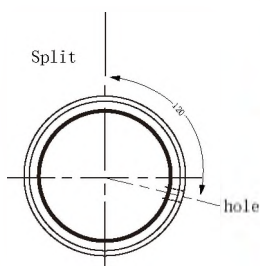
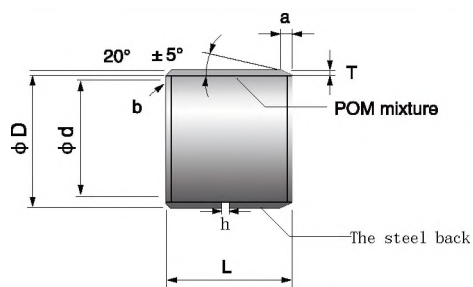


※ the joint has no effect on the rotation of the shaft
but try to avoid the installation in the heavy load position.

Shaft	Housing	ID	OD	Wall thickness	Oil hole	L-0.40						
h8	H7	$\varnothing d$	$\varnothing D$	T	h \varnothing	10	12	15	20	25	30	
10 $\begin{smallmatrix} 0 \\ -0.022 \end{smallmatrix}$	12	$\begin{smallmatrix} +0.018 \\ 0 \end{smallmatrix}$	10	12	$\begin{smallmatrix} 0.980 \\ 0.955 \end{smallmatrix}$	4	1010	1012	1015	1020		
12 $\begin{smallmatrix} 0 \\ -0.027 \end{smallmatrix}$	14	"	12	14	"	"	1210	1212	1215	1220	1225	
14 "	16	"	14	16	"	"			1415	1420	1425	
15 "	17	"	15	17	"	"	1510	1512	1515		1525	
16 "	18	"	16	18	"	"			1615	1620	1625	
18 "	20	$\begin{smallmatrix} +0.021 \\ 0 \end{smallmatrix}$	18	20	"	"			1815	1820	1825	
20 $\begin{smallmatrix} 0 \\ -0.033 \end{smallmatrix}$	23	"	20	23	$\begin{smallmatrix} 1.475 \\ 1.445 \end{smallmatrix}$	"			2015	2020	2025	2030
22 "	25	"	22	25	"	6			2215	2220	2225	2230
24 "	27	"	24	27	"	"			2415	2420	2425	2430
25 "	28	"	25	28	"	"			2515	2520	2525	2530
28 "	32	$\begin{smallmatrix} +0.025 \\ 0 \end{smallmatrix}$	28	32	$\begin{smallmatrix} 1.970 \\ 1.935 \end{smallmatrix}$	"			2820	2825	2830	
30 "	34	"	30	34	"	"			3020		3030	
32 $\begin{smallmatrix} 0 \\ -0.039 \end{smallmatrix}$	36	"	32	36	"	"			3220		3230	
35 "	39	"	35	39	"	"			3520		3530	
36 "	40	"	36	40	"	"						
37 "	41	"	37	41	"	"			3720			
40 "	44	"	40	44	"	8			4020		4030	
45 "	50	"	45	50	$\begin{smallmatrix} 2.460 \\ 2.415 \end{smallmatrix}$	"			4520		4530	
50 "	55	$\begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	50	55	"	"						
55 $\begin{smallmatrix} 0 \\ -0.046 \end{smallmatrix}$	60	"	55	60	"	"			5520			
60 "	65	"	60	65	"	"						

VSB-20, VSB-30

Cylindrical bushes (I.D. $\varnothing 10 \sim \varnothing 60$)



A: outer diameter chamfering Angle inner diameter more than 10 (mm)

T	1.0	1.5	2.0
a	0.5	0.8	1.0

B: the inner diameter chamfering Angle inner diameter is more than 10 (mm).

T	1.0	1.5	2.0
b	C0.3	C0.5	C0.5

* chamfering of inner and outer diameter less than 10
Removal of burrs

L _{-0.40} ⁰										ID
35	40	50	60	70	80	100	110	120		$\varnothing d$
										10
										12
										14
										15
										16
										18
										20
										22
										24
										25
										28
	3040									30
3235	3240									32
3535		3550								35
										36
										37
	4040	4050								40
	4540	4550								45
	5040	5050	5060							50
	5540	5550	5560							55
	6040		6060	6070						60

VSB-20, VSB-30

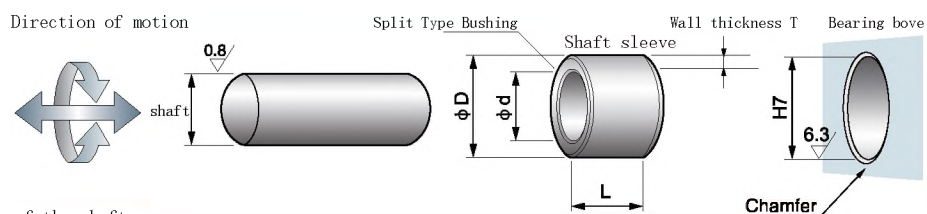
Cylindrical Bushes (I.D. $\phi 65 \sim \phi 300$)



Please select part number from applicable inside diameter, outside diameter and length
e.g. inner diameter: 60mm and the length: 50mm

VSB010 - 6550

Please specify the above part number

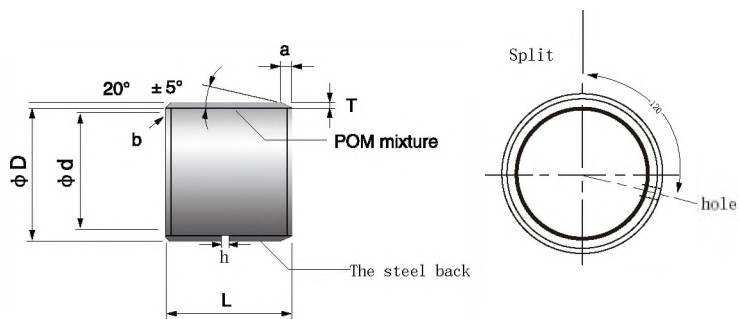


※ the joint has no effect on the rotation of the shaft
but try to avoid the installation in the heavy load position.

Shaft	Housing ID	OD	Wall thickness	Oil hole	L $\begin{smallmatrix} 0 \\ -0.40 \end{smallmatrix}$						
h8	H7	ϕd	ϕD	T	h- ϕ	30	40	50	60	65	70
65 $\begin{smallmatrix} 0 \\ -0.046 \end{smallmatrix}$	70	$\begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	65	70	$\begin{smallmatrix} 2.460 \\ 2.415 \end{smallmatrix}$	8	6530	6540	6550	6060	6570
70	75	"	70	75	"	"	7040	7050		7065	7070
75	80	"	75	80	"	"	7540		7560		
80	85	$\begin{smallmatrix} +0.035 \\ 0 \end{smallmatrix}$	80	85	$\begin{smallmatrix} 2.450 \\ 2.385 \end{smallmatrix}$	9.5			8060		
85 $\begin{smallmatrix} 0 \\ -0.054 \end{smallmatrix}$	90	"	85	90	"	"	8530	8540	8560		
90	95	"	90	95	"	"	9040		9060		
95	100	"	95	100	"	"			9560		
100	105	"	100	105	"	"		10050	10060		
105	110	"	105	110	"	"			10560		
110	115	"	110	115	"	"			11060		
115	120	"	115	120	"	"					11570
120	125	$\begin{smallmatrix} +0.040 \\ 0 \end{smallmatrix}$	120	125	"	"			12060		
125 $\begin{smallmatrix} 0 \\ -0.063 \end{smallmatrix}$	130	"	125	130	"	"			12560		
130	135	"	130	135	"	"		13050	13060		
135	140	"	135	140	"	"		13550	13560		
140	145	"	140	145	"	"			14060		
150	155	"	150	155	"	"		15050	15060		
160	165	"	160	165	"	"		16050	16060		
170	175	"	170	175	"	"		17050	17060		
180	185	$\begin{smallmatrix} +0.046 \\ 0 \end{smallmatrix}$	180	185	"	"		18050	18060		
190 $\begin{smallmatrix} 0 \\ -0.072 \end{smallmatrix}$	195	"	190	195	"	"		19050	19060		
200	205	"	200	205	"	"		20050	20060		
220	225	"	220	225	"	"		22050	22060		
240	245	"	240	245	"	"		24050	24060		
250	255	$\begin{smallmatrix} +0.052 \\ 0 \end{smallmatrix}$	250	255	"	"		25050	25060		
260 $\begin{smallmatrix} 0 \\ -0.081 \end{smallmatrix}$	265	"	260	265	"	"		26050	26060		
280	285	"	280	285	"	"		28050	28060		
300	305	"	300	305	"	"		30050	30060		

VSB-20, VSB-30

Cylindrical bushes (I.D. $\varnothing 65 \sim \varnothing 300$)



A: outer diameter chamfer (mm)

T	2.0	2.5
a	1.0	1.0

B: inner diameter chamfer (mm)

T	2.0	2.5
b	C0.5	C0.5

							ID
80	90	95	100	110	115	120	$\varnothing d$
							65
7080							70
7580							75
8080				80110			80
8580			85100	85110			85
9080	9090		90100	90110			90
				95110			95
10080		10095			100115		100
					105115		105
				110110	110115		110
							115
			120100	120110			120
			125100	125110			125
13080			130100				130
13580							135
14080			140100				140
15080			150100				150
16080			160100				160
17080			170100				170
18080			180100				180
19080			190100			190120	190
20080			200100			200120	200
22080			220100			220120	220
24080			240100			240120	240
25080			250100			250120	250
26080			260100			260120	260
28080			280100			280120	280
30080			300100			300120	300