

Self-Lubricating Bushings

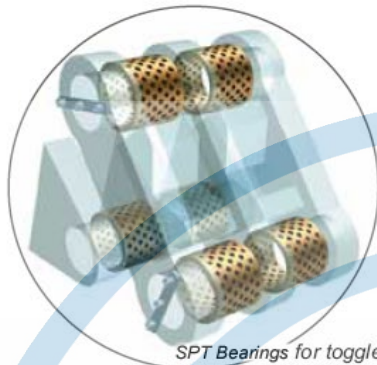
Copper Bushings with Solid Lubricant Inserts



ST500	ST500F	STW500	STB500	SNA
STBB	STF250	STS	TF500, TF250	PTF
PTFF	SETF, SETF-K	WP	WPF	MWPF
TWP	UWP	SRP	SOPW, SOPF, SOPS	SCUW, SCUW
SCSR	SSDP	SCUP	SSPW, SSPS	SPWS, SPSS
SCBS, SCBSP	SPRP	SSL	SOLP, SOML	SGL, SGLX
SGBX, SP	SSB, SOVL	SPG	SOCU-S	SSGP

Self-Lubricating Bushings

Copper Bushings with Solid Lubricant Inserts



SPT Bearings for toggle link

■ Design Idea

ST500 Self-lubricating Bearings use high grade metal alloys as their base material and have finely finished surface with holes in which a specially formulated solid lubricant is embedded. The lubricant cover up to 25-30% of the working surface. During operation the lubricant film is deposited automatically over the complete moving surface.



*SPT oilless plate also
for movable plate and injection table*

SPT Bearings for tie bar



SERVICE / PRECISION / TECHNOLOGY

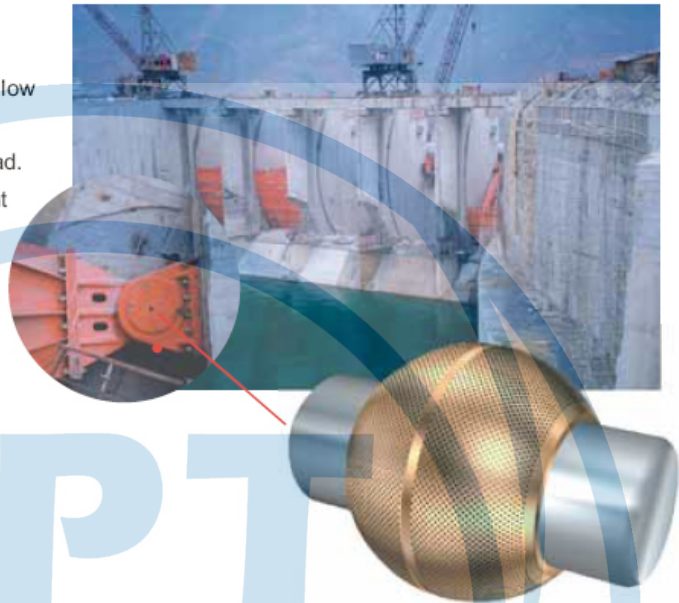
Self-Lubricating Bushings

Copper Bushings with Solid Lubricant Inserts



■ Features

1. May work without any oil for long period.
2. Extremely high load capacity, good anti-wear and low friction.
3. Particularly appropriate for low speed and high load.
4. Suitable for reciprocating, oscillation or intermittent motion where oil film is hard to be formed.
5. Good chemical resistant and anti-corrosion characteristics.
6. Can be used in wide range of temp.



■ Application

1. Use for high load low speed and self-lub. like dam gate and water gate bushes, hydraulic turbine bushes etc.
2. Use for high temp. such as iron and steel factory machines and so on.
3. Automobile production, like assembly lines, press lines, conveyor lines and so on.
4. Heavy duty machineries like steel rolling mills, injection machines, press dies etc.
5. And any others like chemical machines, food processing machines, paper mills, textile machines etc.

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Self-Lubricating Bushings

Copper Bushings with Solid Lubricant Inserts



Self-Lubricating bushings application for moulding

1. Guide Bushes:

PTF, PTFE

2. Ejector Guide Bushes

SETF, SETF-K, ST500

3. Guide Rail: SGL, SGLX

4. Guide Block: SGBX

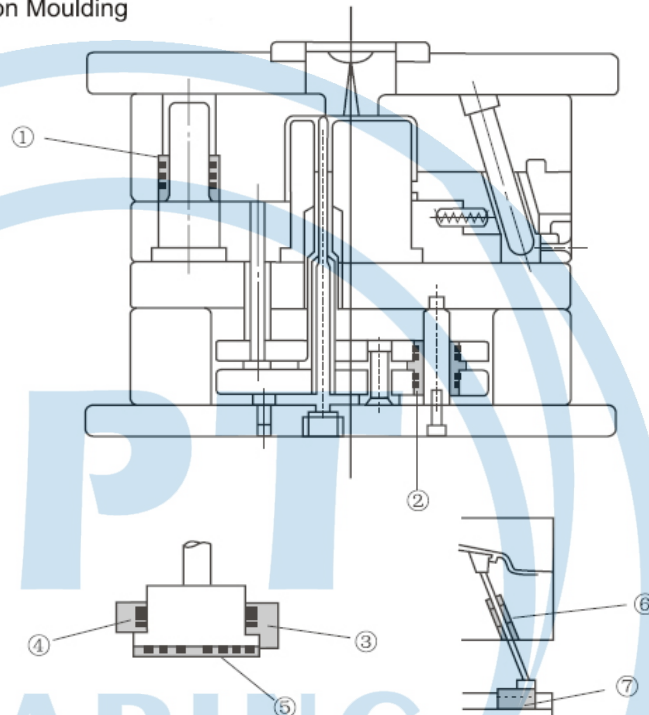
5. Lower Plate: SP, SRP,

SOLP, SOML, TWP

6. Guide Bushes: ST500

7.: SOCU-S

Injection Moulding



1. Wear Plate: WP, WPF,

MWPT, TWP, UWP, SRP

2. Cam Stroke Plate:

SSPW, SPWS

3. Cam Upper Plate:

SCUW, SCUF, SCUP,

SOPW, SOPS

4. Cam Side Block: SCSR

5. Cam side Plate: MWPF,

TWP, SSDP

6. Cam Positive Return Plate:

SPRP

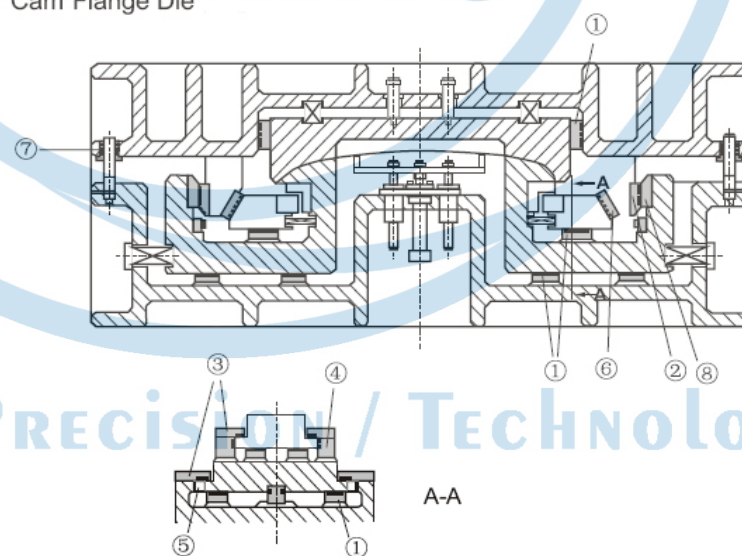
7. Guide Post Bushes:

TF500, TF 250

8. Cam Stroke Plate:

SSPS, SPSS

Cam Flange Die



A-A

Self-Lubricating Bushings

Main Materials Recommendation



Metal type

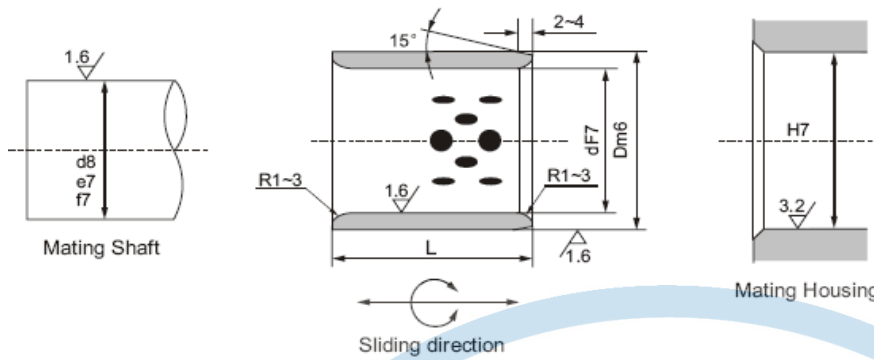
SPT standard	#500 strong cast bronze	500S1 copper alloy	500S2 copper alloy	500S3 copper alloy	500S5 strong cast bronze	500HP strong cast bronze	F250 cast iron	F250S5 Gcr15
Cu%	65	85	80	88	65	68		
Sn%		5		12				
Pb%		5						
Zn%	25	5			25	8		
Ni%			5			4		
Al%	6		10		6	10		
Fe%			5			4		
Mn%	4				4	3		
Density	8.0	8.8	7.6	8.8	8.0	8.0	7.3	7.8
Hardness	HB>210	HB>70	HB>150	HB>80	HB>250	HB>280	HB>160	HRC≥50
Tensile strength N/mm ²	>750	>200	>500	>360	>800	>510	>250	
Elongation%	>12	>15	>10	>8	>4	>0.5		
Coefficient of linear expansion	1.9*10 ⁻⁵ /°C	1.8*10 ⁻⁵ /°C	1.6*10 ⁻⁵ /°C	1.8*10 ⁻⁵ /°C	1.9*10 ⁻⁵ /°C	1.9*10 ⁻⁵ /°C	1.0*10 ⁻⁵ /°C	1.1*10 ⁻⁵ /°C
Limit temp.	300°C	400°C	400°C	400°C	300°C	300°C	400°C	300°C
Max.load N/mm ²	100	60	50	70	150	160	10	200
Max.Speed m/min	15	10	20	10	10	10	15	15
Max.PV N/mm ² *m/min	200	200	200	200	200	200	40	150
400N/mm ²	<0.01	<0.05	<0.04	<0.05	<0.005	<0.003	<0.015	<0.002

Solid lubricants

Lubricant	Features	Typical application
Graphite+add	Excellent resistance against chemical attacks and low friction. Temp. limit 400°C	For general machines and under atmosphere
PTFE+MoS ₂ +CF	Lowest in friction and good of water lubrication. Temp. limit 300°C	For water/sealubrication, like ship, hydraulic turbine, gasturbine etc.

Self-Lubricating Bushings

Series ST500



Material	#500+Graphite
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Unit:mm

d	D	ID F7	OD m6	Length													
				-0.10 -0.30													
				8	10	12	15	16	20	25	30	35	40	50	60	70	80
8	12	8	+0.028 +0.013	12	+0.018 +0.007	0812 08	0812 10	0812 12	0812 15								
10	14	10		14		1014 08	1014 10	1014 12	1014 15		1014 20						
12	18	12	+0.034 +0.016	18	+0.021 +0.008		1218 10	1218 12	1218 15	1218 16	1218 20	1218 25	1218 30				
13	19	13		19			1319 10		1319 15	1319 16							
14	20	14		20			1420 10	1420 12	1420 15		1420 20	1420 25	1420 30				
15	21	15		21			1521 10	1521 12	1521 15	1521 16	1521 20	1521 25	1521 30				
16	22	16		22			1622 10	1622 12	1622 15	1522 16	1622 20	1622 25	1622 30	1622 35	1622 40		
18	24	18		24				1824 12	1824 15	1824 16	1824 20	1824 25	1824 30	1824 35	1824 40		
20	28	20	+0.041 +0.020	28	+0.025 +0.009		2028 10	2028 12	2028 15	2028 16	2028 20	2028 25	2028 30	2028 35	2028 40	2028 50	
22	32	22		32				2232 12	2232 15		2232 20	2232 25					
25	33	25		33				2533 12	2533 15	2533 16	2533 20	2533 25	2533 30	2533 35	2533 40	2533 50	2533 60
30	38	30		38				3038 12	3038 15		3038 20	3038 25	3038 30	3038 35	3038 40	3038 50	3038 60
35	45	35	+0.050 +0.025	45	+0.030 +0.011						3545 20	3545 25	3545 30	3545 35	3545 40	3545 50	3545 60
40	50	40		50							4050 20	4050 25	4050 30	4050 35	4050 40	4050 50	4050 60
45	55	45		55									4555 30	4555 35	4555 40	4555 50	4555 60
50	60	50		60										5060 30	5060 35	5060 40	5060 50

Self-Lubricating Bushings

Series ST500



Unit:mm

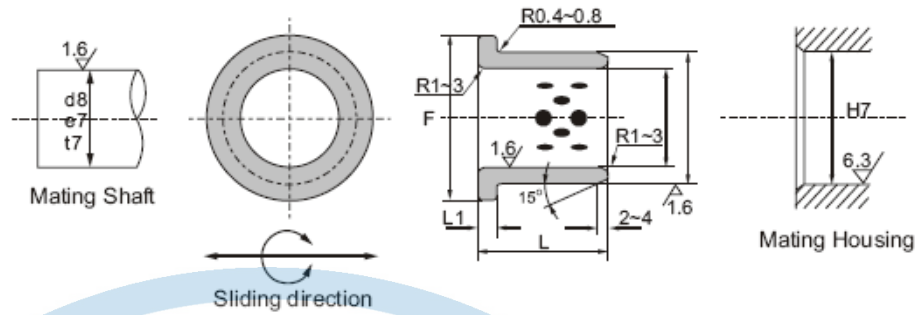
d	D	ID F7		OD m6		Length											-0.10	-0.30
						30	35	40	50	60	70	80	100	120	130	140	150	
50	62	50	+0.050 +0.025	62		5062 30	5062 35	5062 40	5062 50	5062 60	5062 70							
50	65	50		65		5065 30		5065 40	5065 50	5065 60	5065 70	5065 80	5065 100					
55	70	55		70	+0.030 +0.011			5570 40	5570 50	5570 60	5570 70							
60	74	60		74		6074 30	6074 35	6074 40	6074 50	6074 60	6074 70	6074 80						
60	75	60		75		6075 30	6075 35	6075 40	6075 50	6075 60	6075 70	6075 80	6075 100					
63	75	63		75						6375 60	6375 70	6375 80						
65	80	65		80					6580 50	6580 60	6580 70	6580 80						
70	85	70		+0.060 +0.030		85	+0.035 +0.013		7085 35	7085 40	7085 50	7085 60	7085 70	7085 80	7085 100			
70	90	70	90						7090 50	7090 60	7090 70	7090 80						
75	90	75	90							7590 60	7590 70	7590 80	7590 100					
75	95	75	95							7595 60	7595 70	7595 80	7595 100					
80	96	80	96						8096 40	8096 50	8096 60	8096 70	8096 80	8096 100	8096 120			
80	100	80	100						80100 40	80100 50	80100 60	80100 70	80100 80	80100 100	80100 120		80100 140	
90	110	90	+0.071 +0.036	110		90110 30		90110 50	90110 60	90110 70	90110 80	90110 100	90110 120					
100	120	100		120					100120 60	100120 70	100120 80	100120 100	100120 120		100120 140			
110	130	110		130							110130 80	110130 100	110130 120					
120	140	120		140	+0.040 +0.015						120140 80	120140 100	120140 120					
125	145	125		145								125145 100	125145 120					
130	150	130		150								130150 100		130150 130				
140	160	140		160								140160 100			140160 140			
150	170	150		170								150170 100					150170 150	
160	180	160		180								160180 100					160180 150	

Self-Lubricating Bushings

Series ST500F



Material	#500+Graphite
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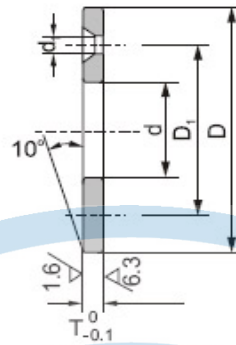
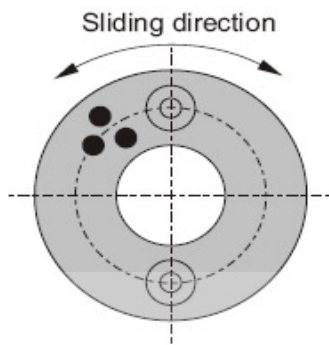


Unit: mm

d	D	ID F7		OD m6		F	L1 -0.10	L -0.10 -0.30										
								15	20	25	30	35	40	50	60	80	100	
10	14	10	+0.040 +0.025	14	+0.040 +0.025	22	2	1015	1020									
12	18	12	+0.050 +0.032	18	+0.041 +0.028	25	3	1215	1220									
13	19	13		19		25		1315	1320									
14	20	14		20		27		1415	1420									
15	21	15		21		28		1515	1520	1525	1530							
16	22	16		22		29		1615	1620	1625	1630							
20	30	20		30		40		2015	2020	2025	2030		2040					
25	35	25	+0.061 +0.040	35	+0.050 +0.034	45	5	2515	2520	2525	2530		2540					
30	40	30	40	50				3020	3025	3030	3035	3040	3050					
31.5	40	31.5	40	60				3120		3135								
35	45	35	45	65					3520		3530		3540	3550				
40	50	40	50	70					4020		4030		4040	4050				
45	55	45	55	75							4530		4540	4550	4560			
50	60	50	+0.075 +0.050	60	+0.060 +0.041	75	7.5				5030		5040	5050	5060			
55	65	55		65	80							5540		5560				
60	75	60		75	+0.062 +0.043	90						6040	6050		6080			
63	75	63		75	85	85									6367			
70	85	70		85	+0.073 +0.051	105		10						7050		7080		
75	90	75		90		110										7560		
80	100	80	+0.107 +0.072	100	+0.088 +0.063	120	10							8060	8080	80100		
90	110	90		110		+0.076 +0.054		130							9060	9080		
100	120	100		120		150										10080	100100	
120	140	120		140		170											12080	120100

Self-Lubricating Bushings

Series STW500



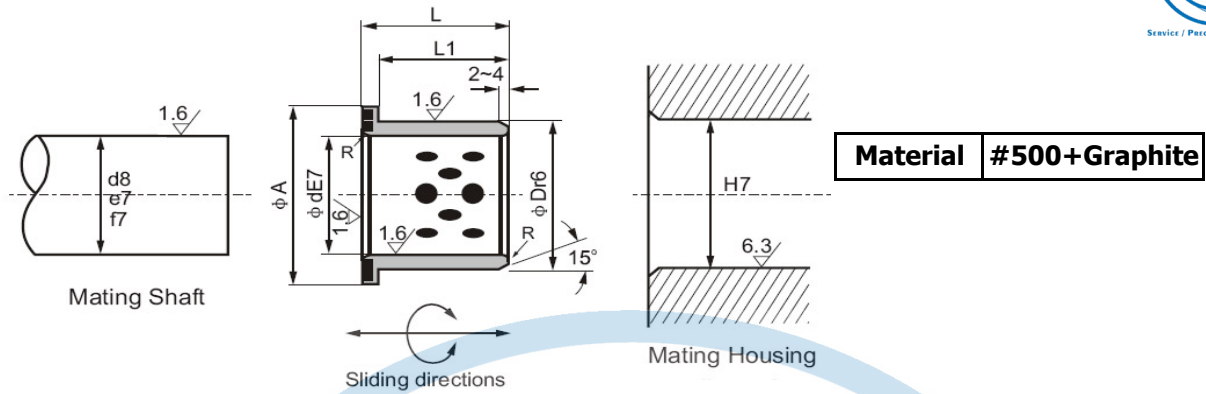
Material	#500+Graphite
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Unit: mm

Designation	d	D	T ⁰ _{-0.1}	Bolt			
				D	Qty	size	d1
STW500-10	10.2	30	3	-	-	-	-
STW500-12	12.2	40		28	2	M3	3.5
STW500-13	13.2						
STW500-14	14.2			50	35	2	M3
STW500-15	15.2						
STW500-16	16.2	35	2		M3	3.5	
STW500-16N	16.2						
STW500-18	18.2	55	35	2	M5	6	
STW500-20	20.2				-	-	-
STW500-20N	20.2		40	2	M5	6	
STW500-25	25.2						
STW500-25N	25.2	60	-	-	-	-	
STW500-30	30.2						
STW500-35	35.2		70	45	2	M5	6
STW500-40	40.2	80	50				
STW500-45	45.2	90	60	4	M6	7	
STW500-50	50.3	100	67.5				
STW500-55	55.3	110	75				
STW500-60	60.3	120	85	4	M8	9	
STW500-65	65.3	125	90				
STW500-70	70.3	130	95				
STW500-75	75.3	140	100	4	M10	11	
STW500-80	80.3	150	110				
STW500-90	90.5	170	120				
STW500-100	100.5	190	140				
STW500-120	120.5	200	160	4	M10	11	
			175				

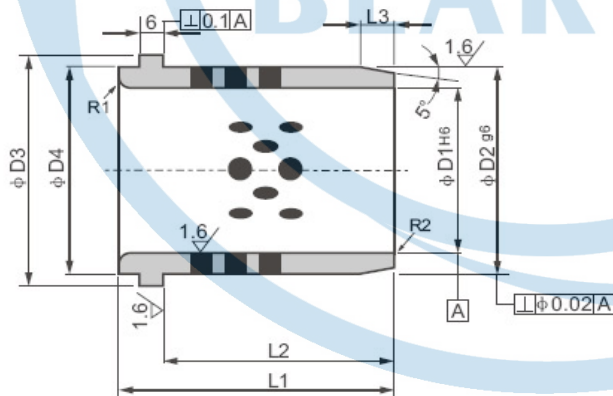
Self-Lubricating Bushings

Series STB500, SNA



Unit: mm

Designation	d E7		D r6		φA	L1	L
STB500-12X15	12	+0.050 +0.032	18	+0.034 +0.023	25	11	15
STB500-16X20	16		22	+0.041	30	15	20
STB500-20X25	20	+0.061 +0.040	28	+0.028	36	20	25
STB500-25X30	25		33	+0.050 +0.034	43	25	30
STB500-30X35	30		38		48	30	35
STB500-40X45	40	+0.075 +0.050	50		60	40	45
STB500-50X55	50		62	+0.060 +0.041	75	49	55
STB500-60X65	60	+0.090 +0.060	75	+0.062 +0.043	90	58	65



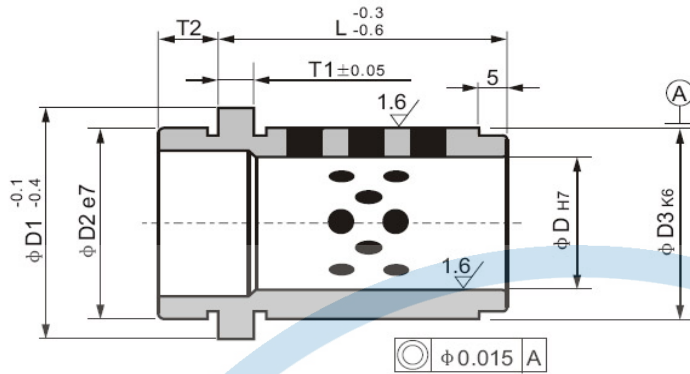
Unit: mm

Standard No.	D1 H6		D2 g6		D3	D4	L1	L2	L3	R1
SNA 32X50	32	+0.016 -0	40	-0.009	50	40	50	40	4	3
SNA 40X63	40		50	-0.025	63	50	63	50	5	3
SNA 50X71	50		63	-0.010	71	63	71	56	6	5
SNA 63X80	63	+0.019 -0	80	-0.029	90	80	80	63	8	6
SNA 80X100	80		100	-0.012 -0.034	112	100	100	80	10	8
SNA 100X125	100	+0.022 -0	125	-0.014	140	125	125	106	12	10
SNA 115X140	115		140	-0.039	155	140	140	120	12	10

Self-Lubricating Bushings

Flanged Type

Series STBB



Material	#500+Graphite
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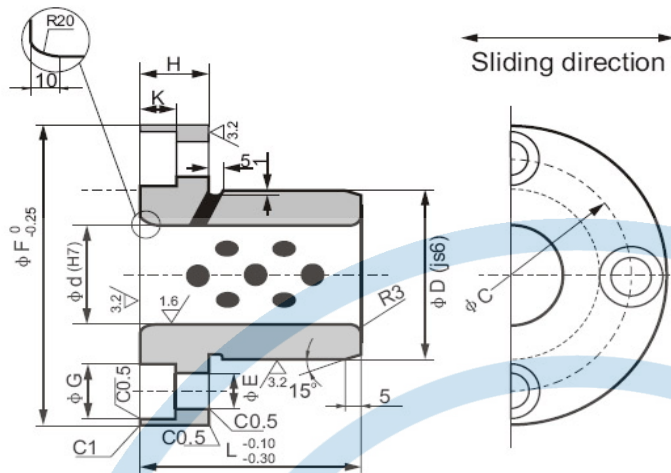
Unit: mm

T1	T2	D1	D2	D3	D	L	Code	D	Code	T1	T2	D1	D2	D3	D	L	Code	D	Code
3	3	16	14	14	9	12	STBB 09 012	10	STBB 10 012	6	8	36	30	30	22	17	STBB 22 017	24	STBB 24 017
						17	STBB 09 017		STBB 10 017							22	STBB 22 022		STBB 24 022
						22	STBB 09 022		STBB 10 022							27	STBB 22 027		STBB 24 027
						27	STBB 09 027		STBB 10 027							36	STBB 22 036		STBB 24 036
						36	STBB 09 036		STBB 10 036							46	STBB 22 046		STBB 24 046
6	6	25	20	20	14	17	STBB 14 017	15	STBB 15 017							56	STBB 22 056		SLB 24 056
						22	STBB 14 022		STBB 15 022							66	STBB 22 066		SLB 24 066
						27	STBB 14 027		STBB 15 027							76	STBB 22 076		SLB 24 076
						36	STBB 14 036		STBB 15 036							86	STBB 22 086		SLB 24 086
						46	STBB 14 046		STBB 15 046	6	8	47	42	42	30	27	STBB 30 027	32	STBB 32 027
6	8	31	26	26	18	56	STBB 14 056		STBB 15 056							36	STBB 30 036		STBB 32 036
						17	STBB 18 017	20	STBB 20 017							46	STBB 30 046		STBB 32 046
						22	STBB 18 022		STBB 20 022							56	STBB 30 056		STBB 32 056
						27	STBB 18 027		STBB 20 027							66	STBB 30 066		STBB 32 066
						36	STBB 18 036		STBB 20 036							76	STBB 30 076		STBB 32 076
						46	STBB 18 046		STBB 20 046							86	STBB 30 086		STBB 32 086
						56	STBB 18 056		STBB 20 056							96	STBB 30 096		STBB 32 096
						66	STBB 18 066		STBB 20 066							116	STBB 30 116		STBB 32 116
10	12	60	54	54	40	46	STBB 40 046	42	STBB 42 046							56	STBB 40 056		STBB 42 056
						56	STBB 40 056		STBB 42 056							66	STBB 40 066		STBB 42 066
						66	STBB 40 066		STBB 42 066							76	STBB 40 076		STBB 42 076
						76	STBB 40 076		STBB 42 076							86	STBB 40 086		STBB 42 086
						86	STBB 40 086		STBB 42 086							96	STBB 40 096		STBB 42 096
						96	STBB 40 096		STBB 42 096							116	STBB 40 116		STBB 42 116
						116	STBB 40 116		STBB 42 116							136	STBB 40 136		STBB 42 136
						136	STBB 40 136		STBB 42 136							156	STBB 40 156		STBB 42 156
						156	STBB 40 156		STBB 42 156										

Self-Lubricating Bushings

Oilless Guide Type

Series STF250



Material	F250+Graphite
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Unit: mm

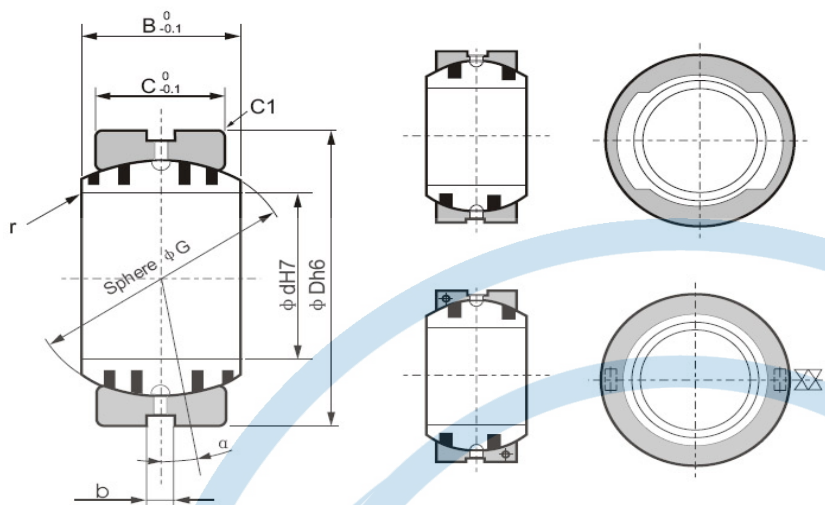
No.	Designation	Specification	ΦF	ΦD	Φd	H	L	ΦC	ΦE	ΦG	K
1	STF250-30	90/50X30X50	90	50	30	20	50	70	11	17.5	10.8
2	STF250-40	100/60X40X65	100	60	40	20	65	80	11	17.5	10.8
3	STF250-50	125/75X50X80	125	75	50	20	80	100	11	17.5	10.8
4	STF250-60	135/85X60X100	135	85	60	20	100	110	11	17.5	10.8
5	STF250-80	170/110X80X130	170	110	80	25	130	140	14	20	13
6	STF250-100	190/130X100X160	190	130	100	25	160	160	14	20	13

SERVICE / PRECISION / TECHNOLOGY

Self-Lubricating Bushings

Oilless Spherical Plain Bearings

Series STS



Inner ring	Material	#500+Graphite
Outer ring	Material	S45C
	Hardness	HRC25~30

Method of installing inner ring:

Type A: STS-015~090

Insertion with horizontal direction

Type B: STS-100

Insertion by splitting

Recommend shaft & housing:

Housing: H7

Shaft: g6

For common use

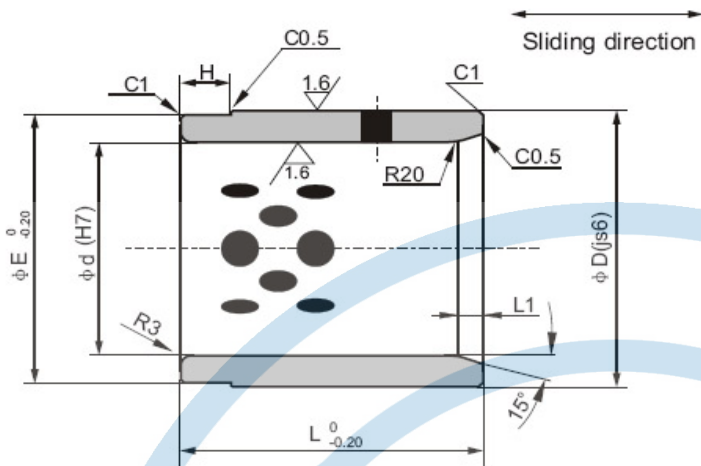
Designation	Dimensions(mm)							Aligning angle a°	Type
	Φd	ΦD	B	C	ΦG	r	b		
STS-015	15	26	12	9	22	R0.5	4	8	A
STS-020	20	32	16	14	28			4	
STS-025	25	42	21	18	36			5	
STS-030	30	50	27	23	44			6	
STS-035	35	55	30	26	49			5	
STS-040	40	62	33	28	55	6			
STS-050	50	80	42	36	70	5			
STS-060	60	100	53	45	90	6			
STS-070	70	110	58	50	99	5			
STS-080	80	130	70	60	115	6			
STS-090	90	140	76	65	125	6			
STS-100	100	160	88	75	145			6	B

SERVICE / PRECISION / TECHNOLOGY

Self-Lubricating Bushings

Oilless Guide Type

Series TF500, TF250



TF500

Material	#500+Graphite
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TF250

Material	F250+Graphite
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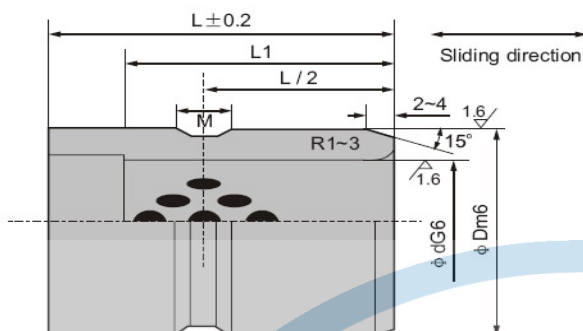
No.	Designation	Specification(mm)	ΦD	Φd	L	ΦE	H	L1
1	TF500-30	50X30X50	50	30	50	49	10	5
2	TF500-40	60X40X60	60	40	60	59	10	
3	TF500-50	70X50X75	70	50	75	69	15	10
4	TF500-60	80X60X90	80	60	90	79	20	
5	TF500-80	100X80X120	100	80	120	99	25	
6	TF500-100	120X100X150	120	100	150	119	25	
7	TF500-120	140X120X180	140	120	180	139	25	
1	TF250-30	50X30X50	50	30	50	49	10	5
2	TF250-40	60X40X60	60	40	60	59	10	
3	TF250-50	70X50X75	70	50	75	69	15	10
4	TF250-60	80X60X90	80	60	90	79	20	
5	TF250-80	100X80X120	100	80	120	99	25	
6	TF250-100	120X100X150	120	100	150	119	25	
7	TF250-120	140X120X180	140	120	180	139	25	

SERVICE / PRECISION / TECHNOLOGY

Self-Lubricating Bushings

Oilless Guide Type

Series PTF



Material #500+Graphite

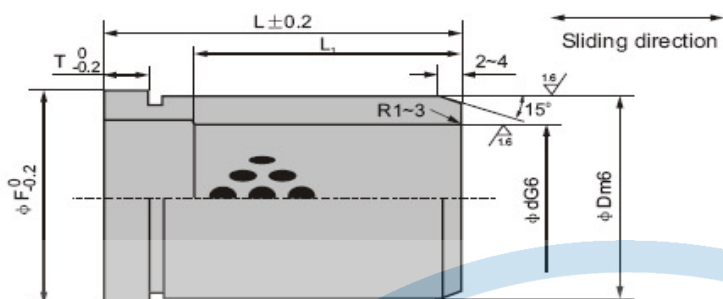
Unit: mm

Designation	φdG6	φDm6	L	L1	M	Designation	φdG6	φDm6	L	L1	M
PTF-12X9	12	18	9	9	-	PTF-35X29	35	48	29	29	8
PTF-12X14			14	14	4	PTF-35X34			34	34	
PTF-12X19			19	19		PTF-35X39			39	39	
PTF-12X24			24	24		PTF-35X49			49	49	
PTF-13X14	13	20	14	14	6	PTF-35X59	40	55	59	59	10
PTF-13X19			19	19		PTF-35X69			69	69	
PTF-13X24			24	24		PTF-35X79			79	70	
PTF-13X29			29	29		PTF-40X39			39	39	
PTF-13X34	16	25	34	30	6	PTF-40X49	50	70	49	49	10
PTF-16X14			14	14		PTF-40X59			59	59	
PTF-16X19			19	19		PTF-40X69			69	69	
PTF-16X24			24	24		PTF-40X79			79	79	
PTF-16X29	20	30	29	29	6	PTF-40X89	60	80	89	80	10
PTF-16X34			34	34		PTF-50X49			49	49	
PTF-16X39			39	35		PTF-50X59			59	59	
PTF-20X14			14	14		PTF-50X69			69	69	
PTF-20X19	25	35	19	19	8	PTF-50X79	70	90	79	79	10
PTF-20X24			24	24		PTF-50X89			89	89	
PTF-20X29			29	29		PTF-50X99			99	90	
PTF-20X34			34	34		PTF-60X59	80	100	59	59	10
PTF-20X39	30	42	39	39	8	PTF-60X69			69	69	
PTF-20X49			49	40		PTF-60X79			79	79	
PTF-25X24			24	24		PTF-60X89			89	89	
PTF-25X29	35	48	29	29	8	PTF-60X99	90	110	99	90	10
PTF-25X34			34	34		PTF-70X69			69	69	
PTF-25X39			39	39		PTF-70X79			79	79	
PTF-25X49			49	49		PTF-70X89	100	120	89	89	10
PTF-25X59	40	54	59	50	8	PTF-70X99			99	99	
PTF-30X29			29	29		PTF-70X109			109	100	
PTF-30X34			34	34		PTF-70X119			119	100	
PTF-30X39	45	60	39	39	8	PTF-80X69	110	130	69	69	10
PTF-30X49			49	49		PTF-80X79			79	79	
PTF-30X59			59	59		PTF-80X89			89	89	
PTF-30X69			69	60		PTF-80X99			99	99	
PTF-30X79	50	66	79	70	8	PTF-80X109	120	140	109	100	10
						PTF-80X119			119	100	

Self-Lubricating Bushings

Oiless Flanged Guide Type

Series PTFF



Material #500+Graphite

Unit: mm

Designation	ΦdG6	ΦDm6	ΦF	T	L	L1	Designation	ΦdG6	ΦDm6	ΦF	T	L	L1
PTFF-12X19	12	18	+0.018 +0.007	4	19	19	PTFF-35X39	35	48	+0.025 +0.009	54	10	39
PTFF-12X24					24	24	PTFF-35X49						49
PTFF-12X29					29	29	PTFF-35X59						59
PTFF-12X34					34	34	PTFF-35X69						69
PTFF-13X19	13	20	25	5	19	19	PTFF-35X79	40	+0.025 +0.009	55	61	10	79
PTFF-13X24					24	24	PTFF-35X89						89
PTFF-13X29					29	25	PTFF-35X99						99
PTFF-13X34					34	25	PTFF-40X39						39
PTFF-13X39	16	25	30	6	39	30	PTFF-40X49	50	+0.030 +0.011	76	12	15	49
PTFF-16X19					19	19	PTFF-40X59						59
PTFF-16X24					24	24	PTFF-40X69						69
PTFF-16X29					29	29	PTFF-40X79						79
PTFF-16X34	20	30	35	8	34	34	PTFF-40X89	60	80	86	15	119	89
PTFF-16X39					39	39	PTFF-40X99						99
PTFF-16X49					49	40	PTFF-40X109						109
PTFF-20X19					59	50	PTFF-50X49	70	+0.029 +0.010	96	15	129	119
PTFF-20X24	25	35	40	8	24	24	PTFF-50X59						129
PTFF-20X29					29	29	PTFF-50X69						149
PTFF-20X34					34	34	PTFF-50X79						99
PTFF-20X39	30	42	47	10	39	39	PTFF-50X89	80	+0.035 +0.013	108	15	149	109
PTFF-20X49					49	49	PTFF-50X99						109
PTFF-20X59					59	59	PTFF-50X109						129
PTFF-25X24					69	60	PTFF-50X119						149
PTFF-25X29	30	42	47	10	24	24	PTFF-60X99	90	+0.035 +0.013	108	15	149	99
PTFF-25X34					29	29	PTFF-60X109						109
PTFF-25X39					34	34	PTFF-60X119						109
PTFF-25X49					39	39	PTFF-60X129						129
PTFF-25X59	30	42	47	10	49	49	PTFF-60X149	100	+0.035 +0.013	108	15	149	120
PTFF-25X69					59	59	PTFF-70X99						99
PTFF-30X29					69	60	PTFF-70X109						109
PTFF-30X34					79	79	PTFF-70X119						119
PTFF-30X39	30	42	47	10	34	34	PTFF-70X129	80	+0.029 +0.010	90	15	149	119
PTFF-30X49					39	39	PTFF-70X149						120
PTFF-30X59					49	49	PTFF-80X99						99
PTFF-30X69					59	59	PTFF-80X109						109
PTFF-30X79	30	42	47	10	69	60	PTFF-80X119	80	+0.029 +0.010	90	15	149	119
					79	79	PTFF-80X129						129
							PTFF-80X149						149

Series SETF,SETF-K



Designation	Φd G6		ΦD h6		ΦF	L	L1	L2	L3					
SETF-10X24	10	+0.014	16	0	21	24	10	10	4					
SETF-10X28		+0.005				-0.011	28			14				
SETF-12X26	12		18		26		12							
SETF-12X28					28	14								
SETF-13X26	13	+0.017 +0.006	22		26	12								
SETF-13X28					28	14								
SETF-13X33					33	19								
SETF-13X38					38	24								
SETF-16X26	16		25	0 -0.013	26	12								
SETF-16X28					28	14								
SETF-16X33					33	19								
SETF-16X38					38	24								
SETF-20X26	20		30		26	12								
SETF-20X28					28	14								
SETF-20X33					33	19								
SETF-20X38					38	24								
SETF-25X26	25	+0.020 +0.007	35		26	12								
SETF-25X28					28	14								
SETF-25X33					33	19								
SETF-25X38					38	24								
SETF-30X33	30		40	0 -0.016	33	14	15	8						
SETF-30X38					38	19								
SETF-30X43					43	24								
SETF-32X38					38	19								
SETF-32X43	32		42		43	24								
SETF-32X48					48	29								
SETF-35X38					38	19								
SETF-35X43					43	24								
SETF-35X48	35	+0.025 +0.009	46	0 -0.019	48	29								
SETF-40X48					48	24								
SETF-40X53					53	29								
SETF-50X48					48	24								
SETF-50X53	50		62		67	53			29					
SETF-K-30X37	30	+0.020 +0.007	42	0 -0.016	47	37			14	15	8			
SETF-K-30X42						42			19					
SETF-K-30X47						47			24					
SETF-K-30X52						52	29							
SETF-K-40X53	40	+0.025 +0.009	55	0 -0.019	60	53	20	25						
SETF-K-40X57					57	24								
SETF-K-40X60			50		50	0 -0.016	55	60	32	20				
SETF-K-40X67							60	67	29	30				
SETF-K-40X70					50		55	70	42	20				
SETF-K-50X67	50				62	0 -0.019	67	67	29	30				
SETF-K-50X87			87	39				40						
SETF-K-60X67			60	+0.029 +0.010				74		82		67	29	30
SETF-K-60X87												87	39	40

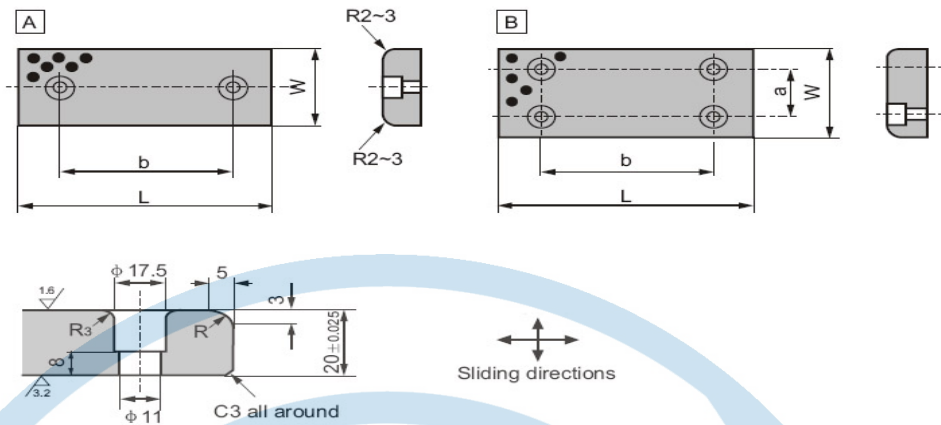
Self-Lubricating Bushings

Oilless Wear Plate

Series WP



Material
#500+Graphite



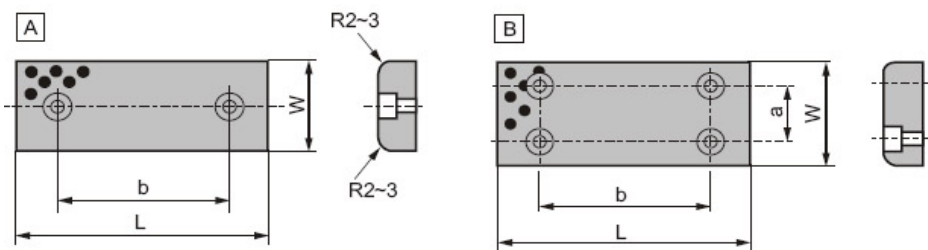
Unit: mm

Designation	W	L	a	b	Sketch
WP-28X75	28	75	-	45	A
WP-28X100		100		50	
WP-28X150		150		100	
WP-38X75	38	75	-	45	
WP-38X100		100		50	
WP-38X150		150		100	
WP-48X75	48	75	-	45	
WP-48X100		100		50	
WP-48X125		125		75	
WP-48X150		150		100	
WP-48X200	58	200	-	150	
WP-58X75		75		45	
WP-58X100		100		50	
WP-58X150	75	150	-	100	
WP-75X75		75		25	
WP-75X100		100		50	
WP-75X125		125		75	
WP-75X150	100	150	50	100	B
WP-75X200		200		150	
WP-100X100		100		50	
WP-100X125		125		75	
WP-100X150	125	150	50	100	
WP-100X200		200		150	
WP-100X250		250		200	
WP-100X300		300		200	
WP-125X125	150	125	100	75	
WP-125X150		150		100	
WP-125X200		200		150	
WP-125X250		250		200	
WP-125X300		300		200	
WP-125X350	150	350		200	
WP-150X150		150		100	
WP-150X200		200		150	
WP-150X250		250		200	

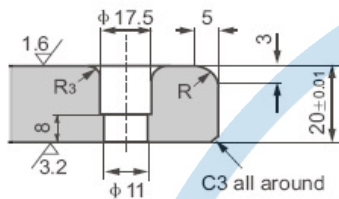
Self-Lubricating Bushings

Oilless Wear Plate

Series WPF



Material
F250+Graphite



Sliding directions

Unit: mm

Designation	W	L	a	b	Sketch
WPF-48X75	48	75	-	45	A
WPF-48X100		100		50	
WPF-48X125		125		75	
WPF-48X150		150		100	
WPF-48X200		200		150	
WPF-75X75	75	75	-	25	
WPF-75X100		100		50	
WPF-75X125		125		75	
WPF-75X150		150		100	
WPF-75X200		200		150	
WPF-75X250		250		200	
WPF-100X100	100	100	50	50	B
WPF-100X125		125		75	
WPF-100X150		150		100	
WPF-100X200		200		150	
WPF-100X250		250		200	
WPF-100X300		300		200	
WPF-125X125	125	125	50	75	
WPF-125X150		150		100	
WPF-125X200		200		150	
WPF-125X250		250		200	
WPF-125X300		300		200	
WPF-150X150	150	150	100	100	
WPF-150X200		200		150	
WPF-150X250		250		200	

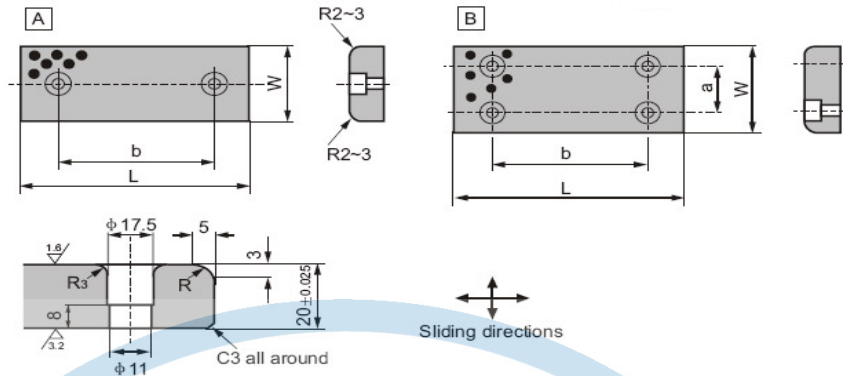
Self-Lubricating Bushings

Oilless Middle Wear Plate

Series MWPF



Material
F250+Graphite



Unit: mm

Designation	W	L	a	b	Sketch
MWPF-28X75	28	75	-	45	A
MWPF-28X100		100		50	
MWPF-28X125		125		75	
MWPF-28X150		150		100	
MWPF-28X200		200		150	
MWPF-38X75	38	75	-	45	
MWPF-38X100		100		50	
MWPF-38X125		125		75	
MWPF-38X150		150		100	
MWPF-38X200		200		150	
MWPF-48X75	48	75	-	45	
MWPF-48X100		100		50	
MWPF-48X125		125		75	
MWPF-48X150		150		100	
MWPF-48X200		200		150	
MWPF-58X75	58	75	-	45	
MWPF-58X100		100		50	
MWPF-58X150		150		100	
MWPF-75X75	75	75	-	25	
MWPF-75X100		100		50	
MWPF-75X125		125		75	
MWPF-75X150		150		100	
MWPF-75X200		200		150	
MWPF-100X100	100	100	50	50	B
MWPF-100X125		125		75	
MWPF-100X150		150		100	
MWPF-100X200		200		150	
MWPF-100X250		250		200	
MWPF-125X125	125	125	50	75	
MWPF-125X150		150		100	
MWPF-125X200		200		150	
MWPF-125X250		250		200	
MWPF-150X150	150	150	100	100	
MWPF-150X200		200		150	
MWPF-150X250		250		200	
MWPF-150X300		300		250	
MWPF-200X200	200	200	150	150	
MWPF-200X250		250		200	
MWPF-200X300		300		250	

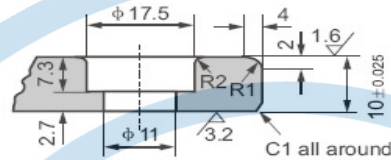
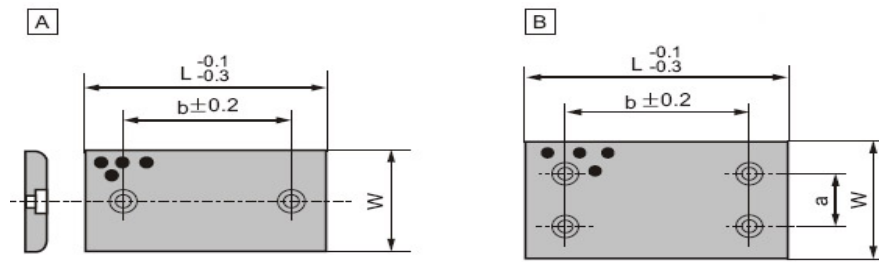
Self-Lubricating Bushings

Oilless Thin Wear Plate

Series TWP



Material
#500+Graphite



Sliding directions

W=28.38

W=48 UP

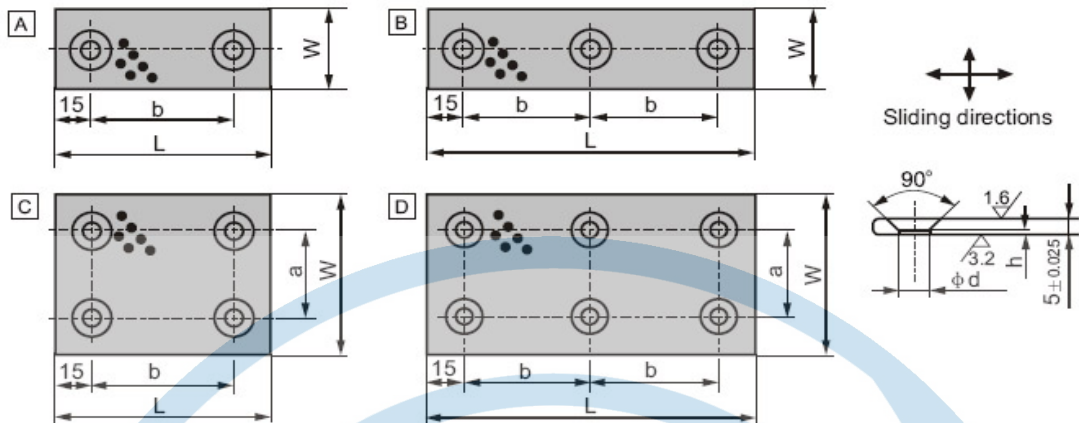
Unit:mm

Designation	W	L	a	b	Sketch
TWP-28X75	28	75	-	45	A
TWP-28X100		100		50	
TWP-28X125		125		75	
TWP-28X150		150		100	
TWP-38X75	38	75	-	45	
TWP-38X100		100		50	
TWP-38X125		125		75	
TWP-38X150		150		100	
TWP-48X75	48	75	-	45	
TWP-48X100		100		50	
TWP-48X125		125		75	
TWP-48X150		150		100	
TWP-48X200		200		150	
TWP-75X75	75	75	-	25	
TWP-75X100		100		50	
TWP-75X125		125		75	
TWP-75X150		150		100	
TWP-75X200		200		150	
TWP-100X100	100	100	50	50	B
TWP-100X125		125		75	
TWP-100X150		150		100	
TWP-100X200		200		150	
TWP-100X250		250		200	
TWP-125X150	125	150	50	100	
TWP-125X200		200		150	
TWP-125X250		250		200	
TWP-150X150	150	150	100	100	
TWP-150X200		200		150	

Self-Lubricating Bushings

Oilless thin wear plate

Series UWP



Material	#500+Graphite
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Unit: mm

Designation	W	d	h	L	a	b	Sketch
UWP-18X50	18	6.5	1.5	50	-	20	A
UWP-18X75				75		45	
UWP-18X100				100		70	
UWP-18X150				150		60	B
UWP-28X50	28	10	0.8	50	-	20	A
UWP-28X75				75		45	
UWP-28X100				100		70	
UWP-28X150				150		60	B
UWP-38X50	38	10	0.8	50	-	20	A
UWP-38X75				75		45	
UWP-38X100				100		70	
UWP-38X150				150		60	B
UWP-48X75	48	10	0.8	75	-	45	A
UWP-48X100				100		70	
UWP-48X125				125		95	
UWP-48X150				150		60	B
UWP-75X75	75	10	0.8	75	45	45	C
UWP-75X100				100		70	
UWP-75X125				125		95	
UWP-75X150				150		60	D
UWP-100X100	100	10	0.8	100	70	70	C
UWP-100X125				125		95	
UWP-100X150				150		60	D

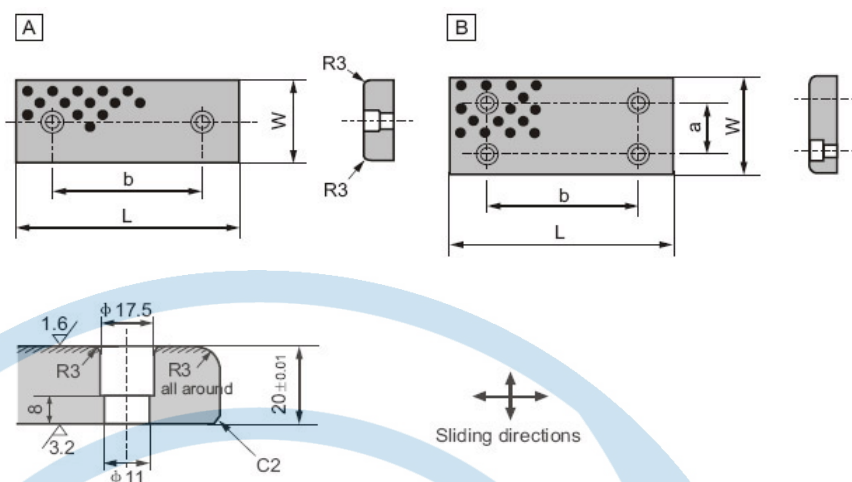
Self-Lubricating Bushings

Oilless Wear Plate

Series SRP



SRP oilless wear plate use 45# Carbon steel as their base material and have finely finished Surface with holes in which a specially formulated solid lubricant is embedded. The surface hardness can over to HRC40.



Material	45C
Hardness	HRC>40

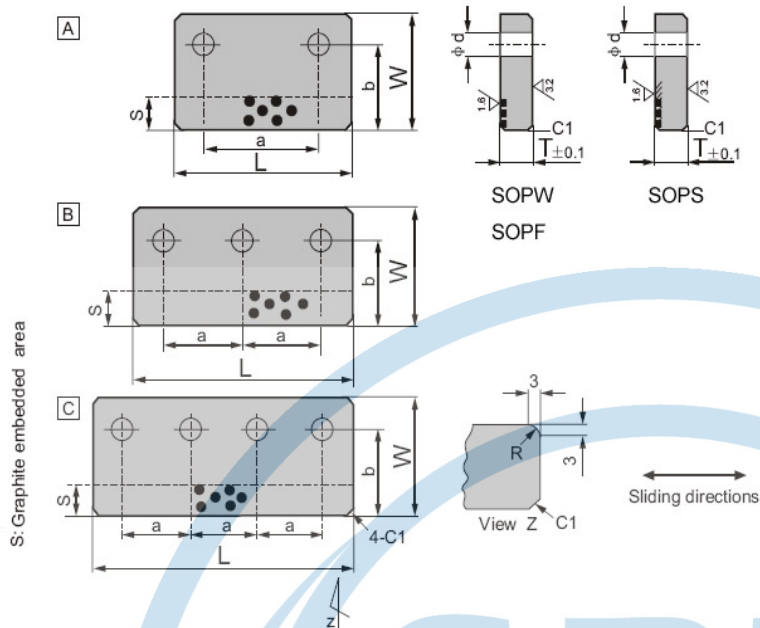
Unit: mm

Designation	W	L	a	b	Sketch
SRP-48X75	48	75	-	45	A
SRP-48X100		100		50	
SRP-48X125		125		75	
SRP-48X150		150		100	
SRP-48X200		200		150	
SRP-75X75	75	75	-	25	A
SRP-75X100		100		50	
SRP-75X125		125		75	
SRP-75X150		150		100	
SRP-75X200		200		150	
SRP-100X100	100	100	50	50	B
SRP-100X125		125		75	
SRP-100X150		150		100	
SRP-100X200		200		150	
SRP-100X250		250		200	
SRP-125X125	125	125	100	75	B
SRP-125X150		150		100	
SRP-125X200		200		150	
SRP-125X250		250		200	
SRP-150X150	150	150	100	100	B
SRP-150X200		200		150	
SRP-150X250		250		200	

Self-Lubricating Bushings

Oiless Cam Upper Plate

Series SOPW, SOPF, SOPS



SOPW use #500 as base material with solid lubricant.

SOPF use F250 casting iron as base material with solid lubricant.

SOPS use 45# carbon steel as base material with solid lubricant.

Material	SOPW	#500+Graphite
	SOPF	F250+Graphite
	SOPS	45C+Graphite

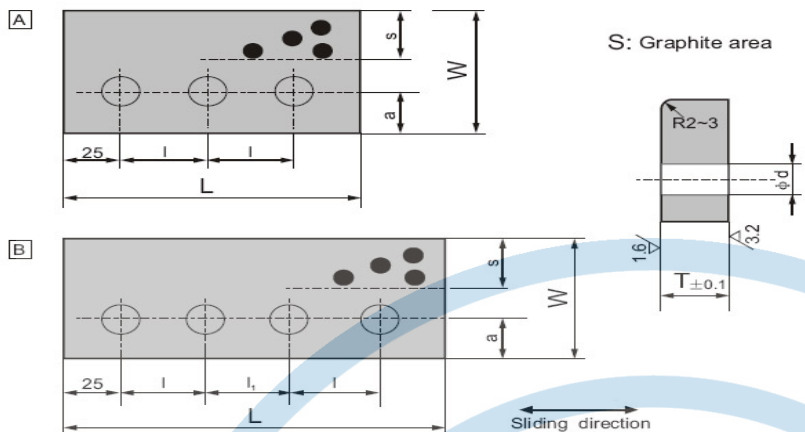
Unit: mm

Designation	W	L	T	a	b	Φd	s	Sketch
SOPW-70X160	70	160	25	110	50	18	25	A
SOPW-70X200		200		75			30	B
SOPW-70X240		240		90				
SOPW-85X200	85	200	28	75	60	22	30	C
SOPW-85X240		240		90				
SOPW-85X300		300		80				C
SOPW-85X350		350		90				
SOPF-70X160	70	160	25	110	50	18	25	A
SOPF-70X200		200		75			30	B
SOPF-70X240		240		90				
SOPF-85X200	85	200	28	75	60	22	30	C
SOPF-85X240		240		90				
SOPF-85X300		300		80				C
SOPF-85X350		350		90				
SOPF-100X200	100	200	28	75	70	22	30	B
SOPF-100X240		240		90				C
SOPF-100X300		300		80				C
SOPF-100X350		350		90				C
SOPS-70X160	70	160	25	110	50	18	25	A
SOPS-70X200		200		75			30	B
SOPS-70X240		240		90				
SOPS-85X200	85	200	28	75	60	22	30	C
SOPS-85X240		240		90				
SOPS-85X300		300		80				C
SOPS-85X350		350		90				
SOPS-100X200	100	200	28	75	70	22	30	B
SOPS-100X240		240		90				C
SOPS-100X300		300		80				C
SOPS-100X350		350		90				C

Self-Lubricating Bushings

Oilless Cam Upper Plate

Series SCUW, SCUF



Material	SCUW	#500+Graphite
	SCUF	F250+Graphite

Unit: mm

Designation	T	L	W	l	l1	a	s	Φd	Sketch
SCUW-20X150	20	150	52	50	-	20	12	13	A
SCUW-20X200		200		75	-				B
SCUW-20X250		250		50	50				B
SCUW-30X150	30	150	72	50	-	25	22	18	A
SCUW-30X200		200		75	-				B
SCUW-30X250		250		50	50				B
SCUW-35X150	35	150	77	50	-	25	27	18	A
SCUW-35X200		200		75	-				B
SCUW-35X250		250		50	50				B
SCUW-40X150	40	150	82	50	-	25	32	18	A
SCUW-40X200		200		75	-				B
SCUW-40X250		250		50	50				B
SCUW-40X150D		150	105	50	-				A
SCUW-40X200D		200		50	50				B
SCUW-40X250D		250		75	50				B
SCUF-20X150	20	150	52	50	-	20	12	13	A
SCUF-20X200		200		75	-				B
SCUF-20X250		250		50	50				B
SCUF-30X150	30	150	72	50	-	25	22	18	A
SCUF-30X200		200		75	-				B
SCUF-30X250		250		50	50				B
SCUF-35X150	35	150	77	50	-	25	27	18	A
SCUF-35X200		200		75	-				B
SCUF-35X250		250		50	50				B
SCUF-40X150	40	150	82	50	-	25	32	18	A
SCUF-40X200		200		75	-				B
SCUF-40X250		250		50	50				B
SCUF-40X150D		150	105	50	-				A
SCUF-40X200D		200		50	50				B
SCUF-40X250D		250		75	50				B

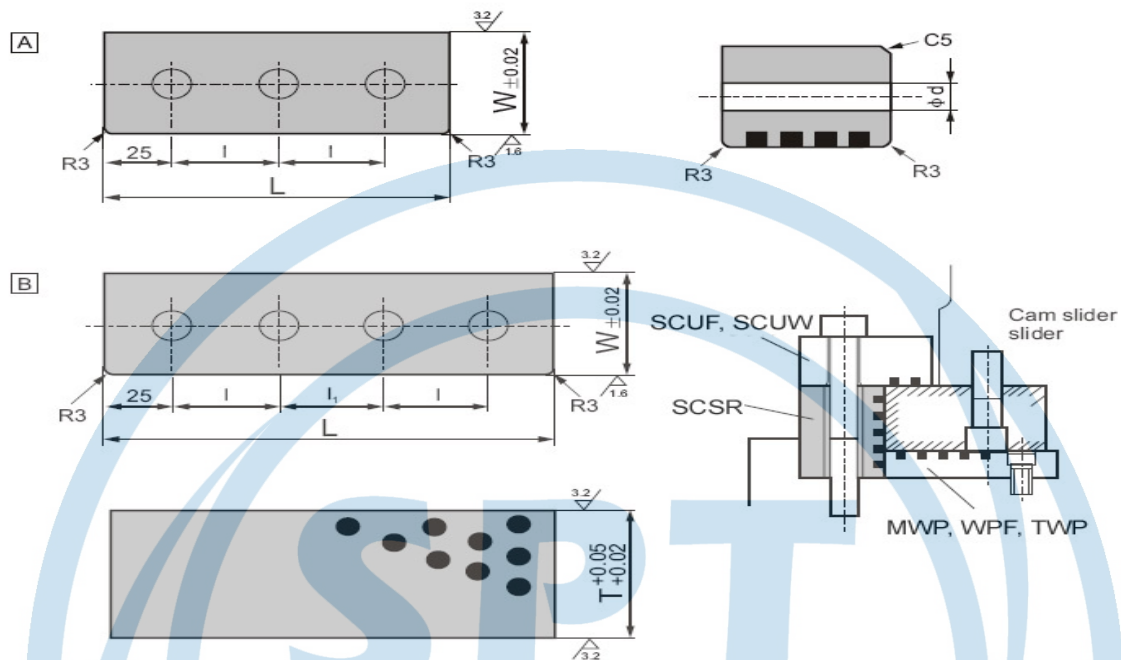
Self-Lubricating Bushings

Oilless Cam Side Block

Series SCSR



Material	F250+Graphite
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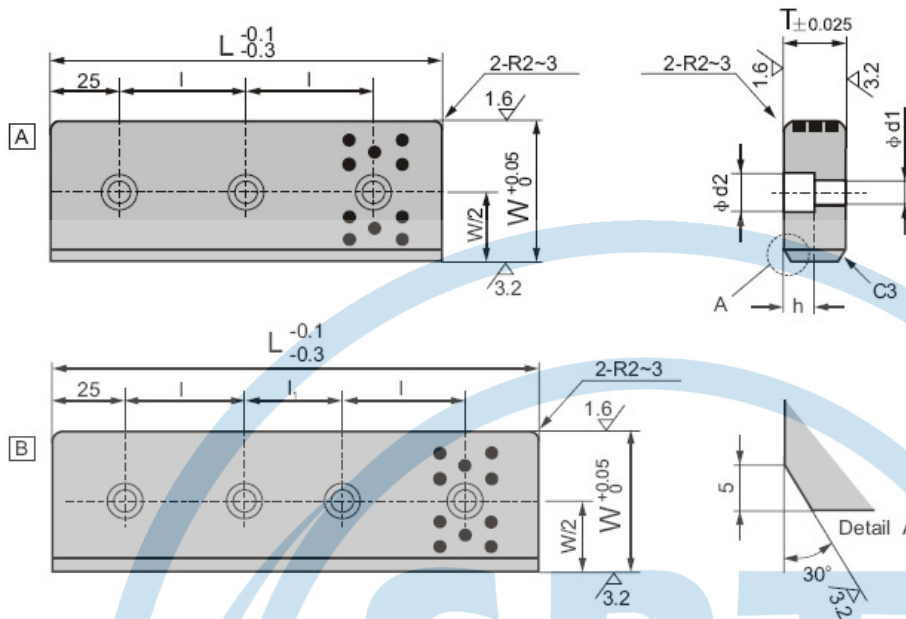
Unit: mm

Designation	T	L	W	l	l1	Φd	Sketch
SCSR-40X150	40	150	40	50	-	14	A
SCSR-40X200		200		75	50		B
SCSR-40X250		250					
SCSR-55X150	55	150	50	50	-	20	A
SCSR-55X200		200		75	50		B
SCSR-55X250		250					
SCSR-70X150	70	150	50	50	-	20	A
SCSR-70X200		200		75	50		B
SCSR-70X250		250					
SCSR-30X150	30	150	40	50	-	14	A
SCSR-30X200		200		75	50		B
SCSR-30X250		250					
SCSR-45X150	45	150	50	50	-	20	A
SCSR-45X200		200		75	50		B
SCSR-45X250		250					
SCSR-60X150	60	150	50	50	-	20	A
SCSR-60X200		200		75	50		B
SCSR-60X250		250					

Self-Lubricating Bushings

Oilless Cam Side Plate

Series SSDP



Material #500+Graphite

Unit: mm

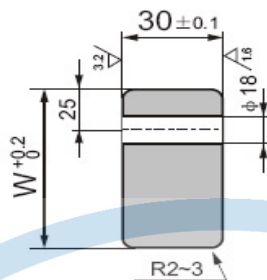
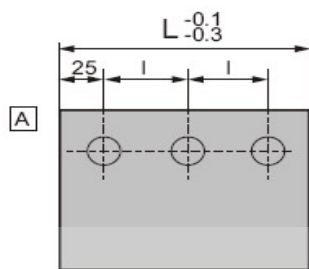
Designation	T	W	L	l	l1	Φd1	Φd2	h	Sketch
SSDP-50X150X20	20	50	150	50	-	11	17.5	12	A
SSDP-50X200X20			200	75	-				B
SSDP-50X250X20			250	75	50				A
SSDP-75X150X20		75	150	50	-				B
SSDP-75X200X20			200	75	-				A
SSDP-75X250X20			250	75	50				B
SSDP-50X150X35	35	50	150	50	-	13	20	15	A
SSDP-50X200X35			200	75	-				B
SSDP-50X250X35			250	75	50				A
SSDP-75X150X35		75	150	50	-				B
SSDP-75X200X35			200	75	-				A
SSDP-75X250X35			250	75	50				B

SERVICE / PRECISION / TECHNOLOGY

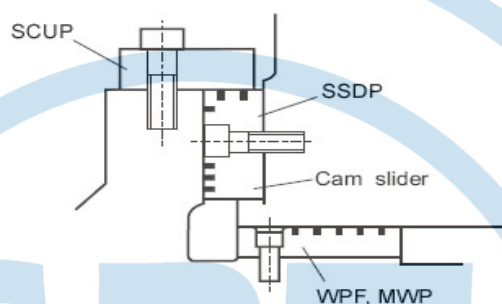
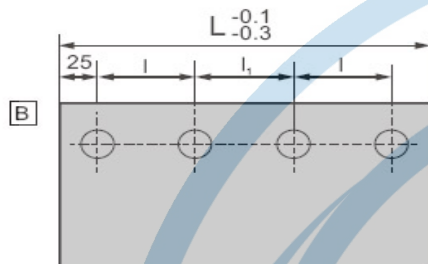
Self-Lubricating Bushings

Cam Upper Plate

Series SCUP



Material	45C
Hardness	HRC>45



Unit: mm

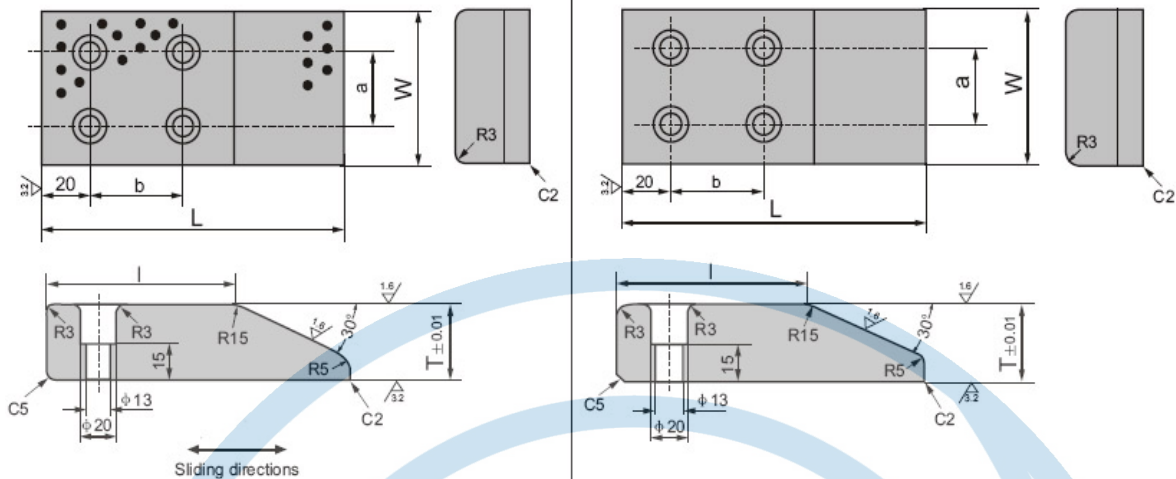
Designation	W	L	l	l1	Sketch
SCUP-67X150	67	150	50	-	A
SCUP-67X200		200	75	-	
SCUP-67X250		250	75	50	B
SCUP-82X150	82	150	50	-	A
SCUP-82X200		200	75	-	
SCUP-82X250		250	75	50	B

SERVICE / PRECISION / TECHNOLOGY

Self-Lubricating Bushings

Cam Stroke Plate

Series SSPW, SSPS



SSPW	Material	#500+Graphite
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SSPS	Material	45C
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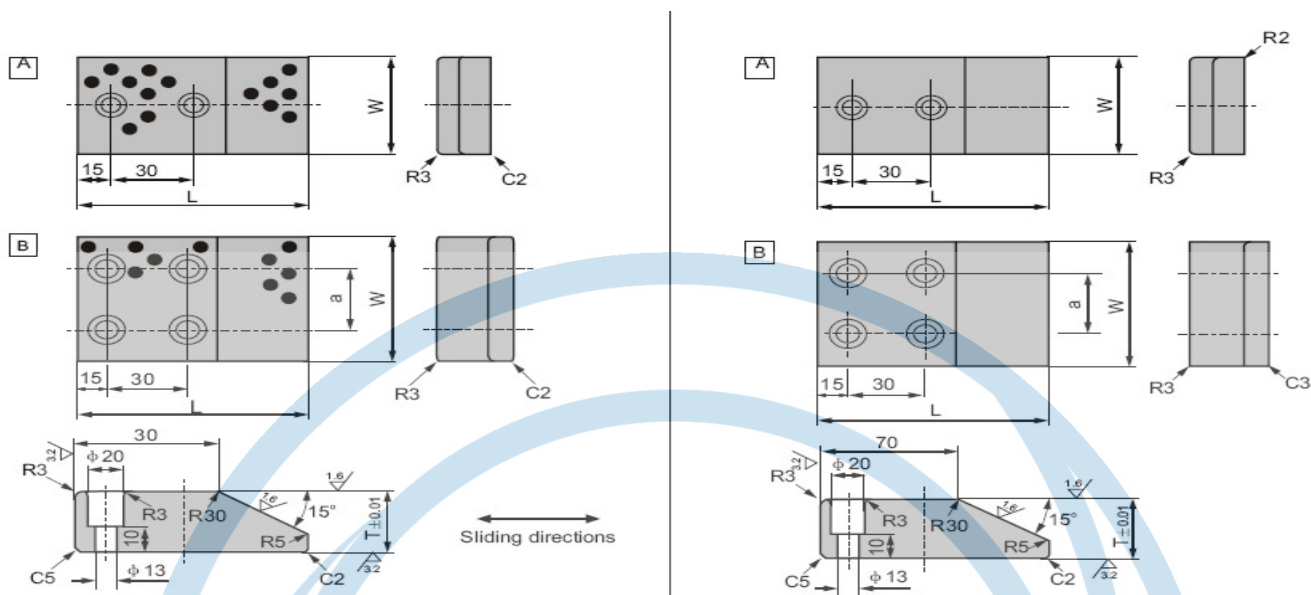
Unit: mm

Designation	W	L	T	l	a	b
SSPW-75X130	75	130	30	95	40	50
SSPW-75X150		150	45	90		45
SSPW-75X170		170	60			
SSPW-75X200		200		120		75
SSPW-100X130	100	130	30	95	60	50
SSPW-100X150		150	45	90		45
SSPW-100X170		170	60			
SSPW-100X200		200				
SSPW-125X130	125	130	30	95	85	50
SSPW-125X150		150	45	90		45
SSPW-125X170		170	60			
SSPW-125X200		200				
SSPW-150X130	150	130	30	95	110	50
SSPW-150X150		150	45	90		45
SSPW-150X170		170	60			
SSPW-150X200		200				
SSPS-75X130	75	130	30	95	40	50
SSPS-75X150		150	45	90		45
SSPS-75X170		170	60			
SSPS-75X200		200				
SSPS-100X130	100	130	30	95	60	50
SSPS-100X150		150	45	90		45
SSPS-100X170		170	60			
SSPS-100X200		200				
SSPS-125X130	125	130	30	95	85	50
SSPS-125X150		150	45	90		45
SSPS-125X170		170	60			
SSPS-125X200		200				
SSPS-150X130	150	130	30	95	110	50
SSPS-150X150		150	45	90		45
SSPS-150X170		170	60			
SSPS-150X200		200				

Self-Lubricating Bushings

Cam Stroke Plate

Series SPWS, SPSS



SPWS	Material	#500+Graphite
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SPSS	Material	45C
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Unit: mm

Designation	W	L	T	a	Sketch
SPWS-50X110	50	110	25	-	A
SPWS-50X130		130	30		
SPWS-50X150		150	35		
SPWS-75X110	75	110	25	40	B
SPWS-75X130		130	30		
SPWS-75X150		150	35		
SPWS-100X110	100	110	25	60	
SPWS-100X130		130	30		
SPWS-100X150		150	35		
SPSS-50X110	50	110	25	-	A
SPSS-50X130		130	30		
SPSS-50X150		150	35		
SPSS-75X110	75	110	25	40	B
SPSS-75X130		130	30		
SPSS-75X150		150	35		
SPSS-100X110	100	110	25	60	
SPSS-100X130		130	30		
SPSS-100X150		150	35		

Self-Lubricating Bushings

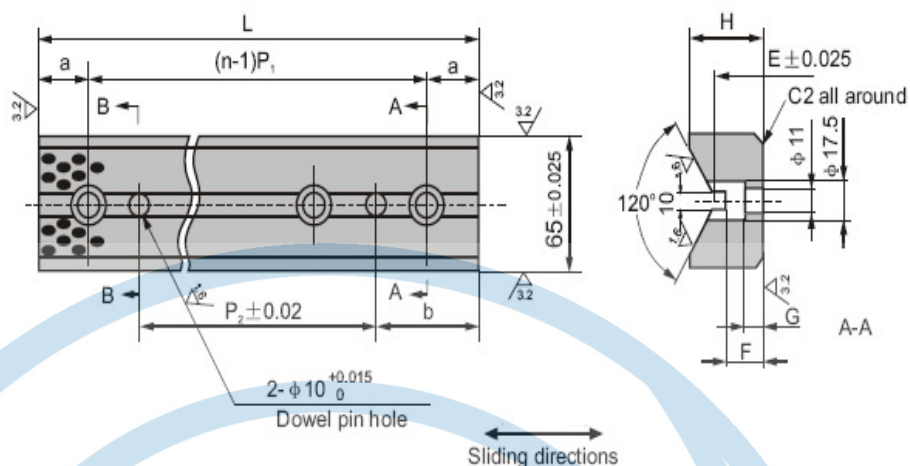
Oilless Cam Bottom Guide Plate

Series SCBS, SCBSP



SCBS

Material
#500+Graphite

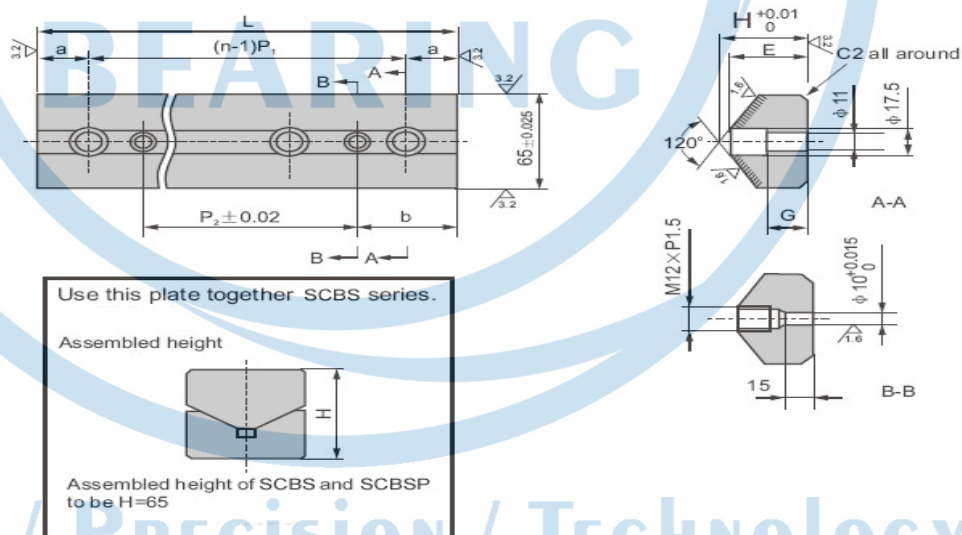


Unit: mm

Designation	L	H	E	F	G	a	P1	Bolt n	b	P2
SCBS-100	100	35	18	15	8	20	60	2	40	20
SCBS-150	150					25	50	3	50	50
SCBS-200	200							4		100
SCBS-250	250							5		150
SCBS-300	300							6		200

SCBSP

Material
45C HRC>45



Unit: mm

Designation	L	H	E	G	a	P1	Bolt n	b	P2
SCBSP-100	100	47	44	20	20	60	2	40	20
SCBSP-150	150				25	50	3	50	50
SCBSP-200	200						4		100
SCBSP-250	250						5		150
SCBSP-300	300						6		200

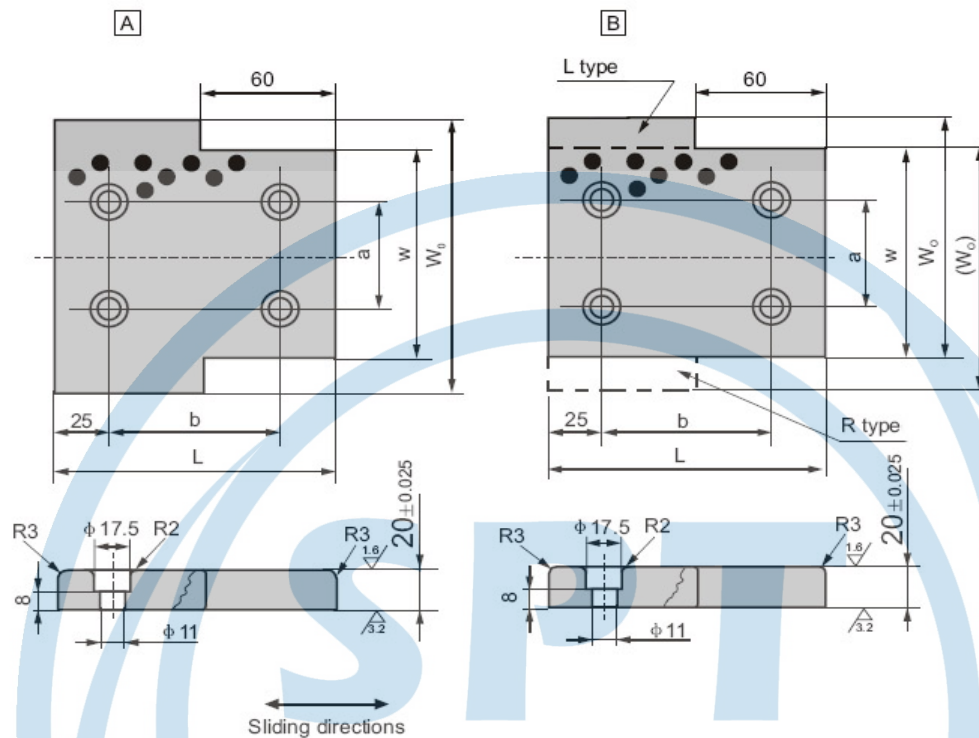
Self-Lubricating Bushings

Oilless Cam Positive Return Plate

Series SPRP



Material	#500+Graphite
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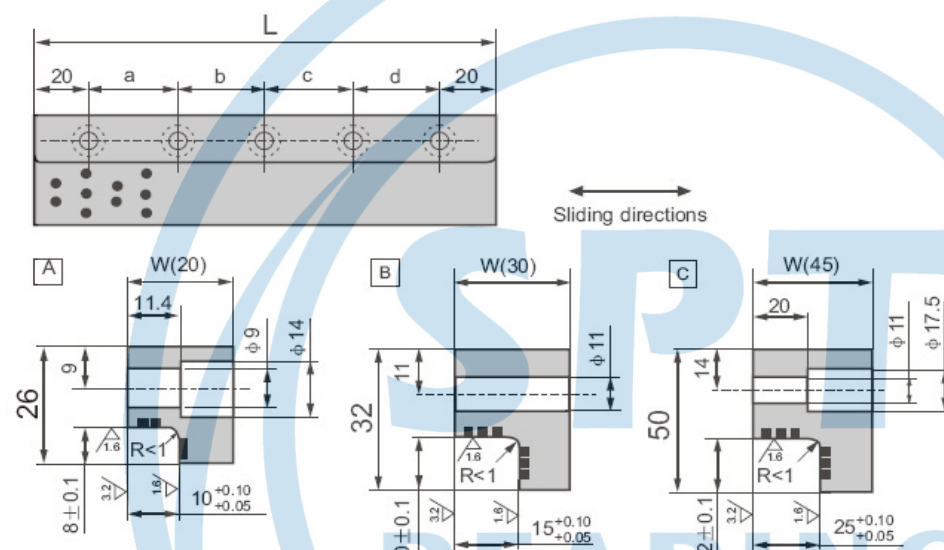
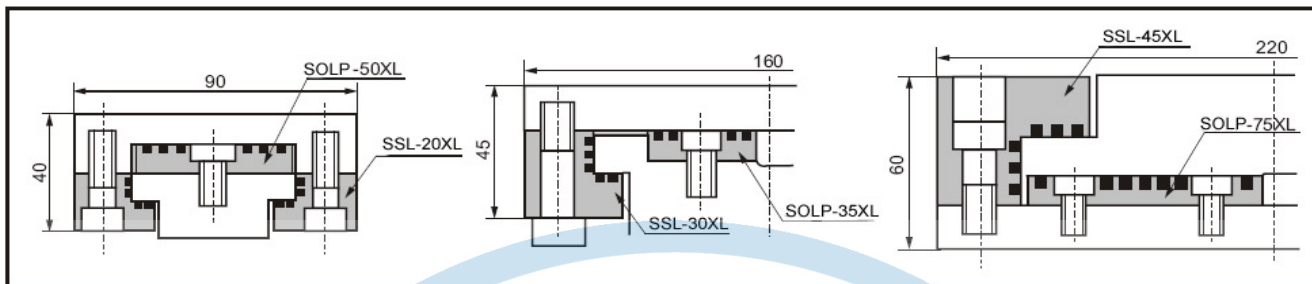
Unit: mm

Designation	W	L	Wo	a	b	Sketch
SPRP-100X125	100	125	130	50	75	A
SPRP-100X150		150			100	
SPRP-125X150	125	150	155	75	100	
SPRP-125X200		200			150	
SPRP-125X250		250			200	
SPRP-150X200	150	200	180	100	150	B
SPRP-150X250		250			200	
SPRP-L(R)-100X125	100	125	115	50	75	
SPRP-L(R)-100X150		150			100	
SPRP-L(R)-125X150	125	150	140	75	100	
SPRP-L(R)-125X200		200			150	
SPRP-L(R)-125X250		250			200	
SPRP-L(R)-150X200	150	200	165	100	150	
SPRP-L(R)-150X250		250			200	

Self-Lubricating Bushings

Oilless L Shaped Plate

Series SSL



Material #500+Graphite

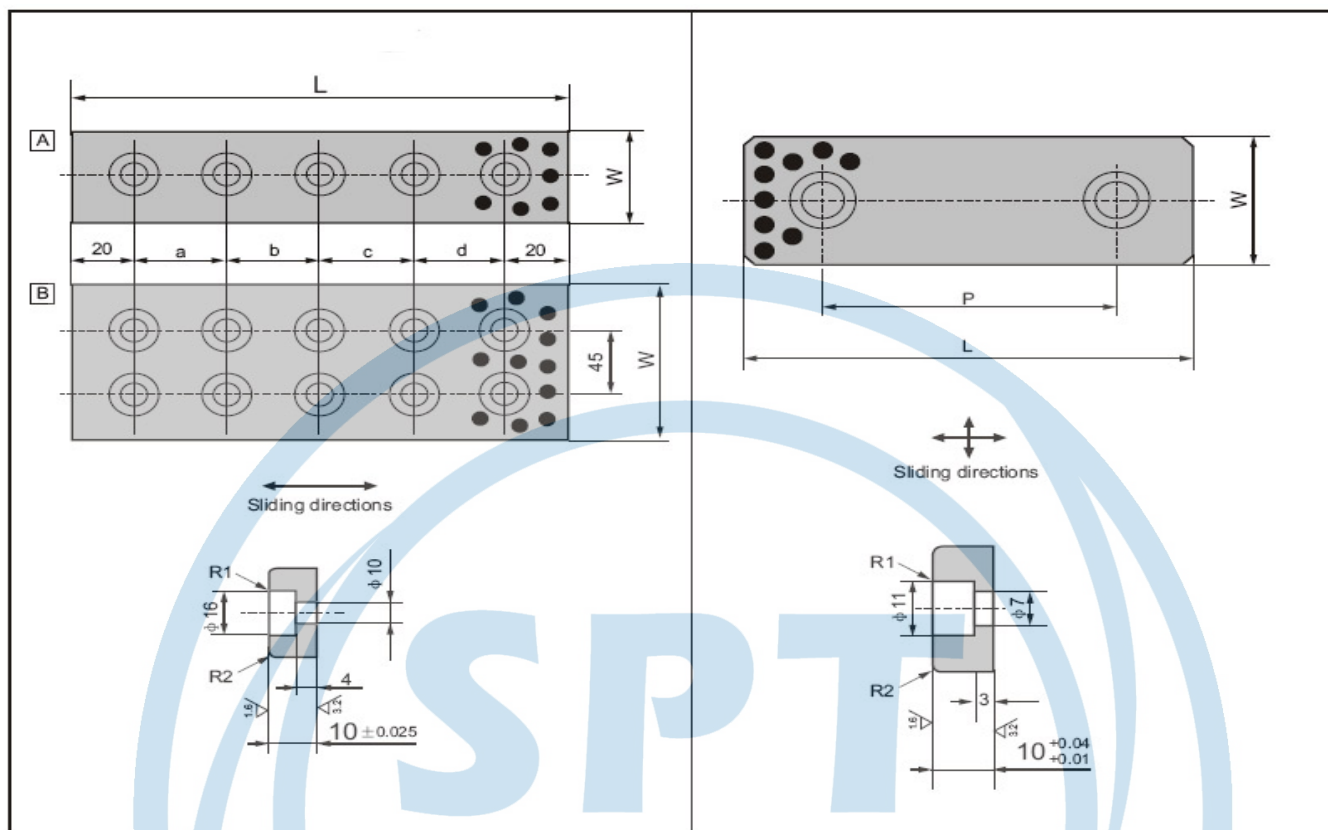
Unit: mm

Designation	W	L	Bolt location				Bolt		Sketch
			a	b	c	d	Type	Qty.	
SSL-20X100	20	100	60	-	-	-	M8	2	A
SSL-20X150		150	55	55	-	-		3	
SSL-20X200		200	55	50	55	-		4	
SSL-30X100	30	100	60	-	55	-	M10	2	B
SSL-30X150		150	55	55	-	-		3	
SSL-30X200		200	55	50	-	-		4	
SSL-30X250		250	70	70	70	-		4	
SSL-45X200	45	200	55	50	55	-		4	C
SSL-45X250		250	70	70	70	-		4	
SSL-45X300		300	65	65	65	65		5	
SSL-45X350		350	80	75	75	80		5	

Self-Lubricating Bushings

Oilless Slide Plate

Series SOLP, SOML



Material #500+Graphite

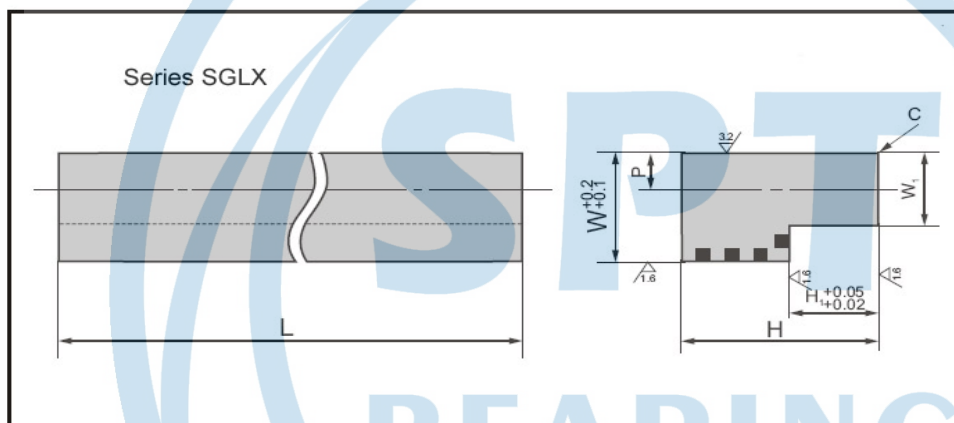
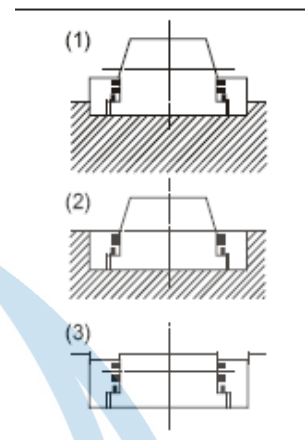
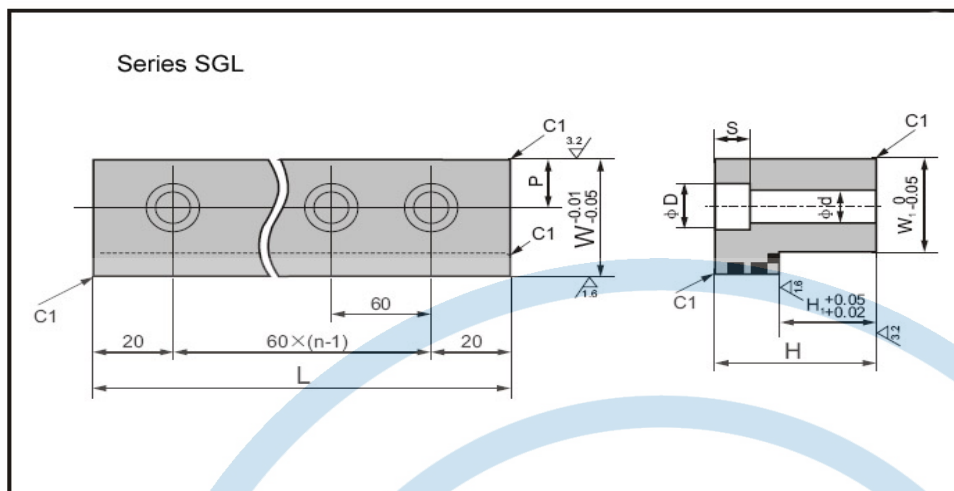
Unit: mm

Designation	W	L	BoltXlocation				Bolt		Sketch
			a	b	c	d	Type	Qty.	
SOLP-35X100	35	100	60	-	-	-	M8	2	A
SOLP-35X150		150	55	55	-	-		3	
SOLP-35X200		200	55	50	55	-		4	
SOLP-35X250		250	70	70	70	-		4	
SOLP-35X300		300	65	65	65	65		5	
SOLP-35X350		350	80	75	75	80		5	
SOLP-50X100	50	100	60	-	-	-		2	
SOLP-50X150		150	55	55	-	-		3	
SOLP-50X200		200	55	50	55	-		4	
SOLP-50X250		250	70	70	70	-		4	
SOLP-50X300		300	65	65	65	65		5	
SOLP-50X350		350	80	75	75	80		5	
SOLP-75X150	75	150	110	-	-	-		4	B
SOLP-75X200		200	80	80	-	-		6	
SOLP-75X250		250	105	105	-	-		6	
SOLP-75X300		300	85	90	85	-		8	
SOLP-75X400		400	120	120	120	-		8	
SOLP-75X500		500	115	115	115	115		10	
SOML-18X75	18	75							
SOML-18X100		100							
SOML-18X125		125							
SOML-18X150		150							
SOML-28X75	28	75							
SOML-28X100		100							
SOML-28X125		125							
SOML-28X150		150							
SOML-38X75	38	75							
SOML-38X100		100							
SOML-38X125		125							
SOML-38X150		150							
SOML-48X75	48	75							
SOML-48X100		100							
SOML-48X125		125							
SOML-48X150		150							

Self-Lubricating Bushings

Oilless Guide Rail

Series SGL, SGLX

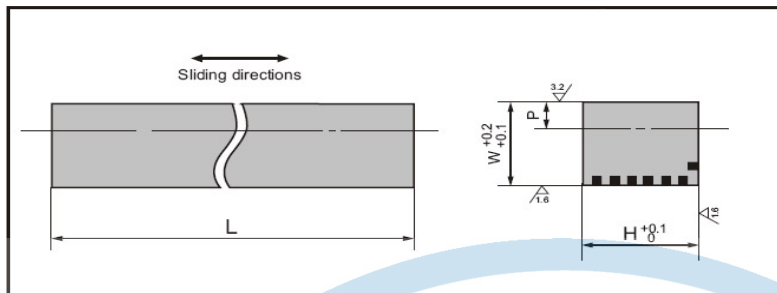


Material
#500+Graphite

Designation	W	W1	L	H	H1	n	P	ΦD	Φd	S	Designation	W	W1	H	H1	L	Recom.bolt			
																	P	Size		
SGL-100X30	23	15	100	30	15	2	7.5	11	7	7	SGLX-20X15	20	15	15	5	320	8	M8		
SGL-160X30			160			3					SGLX-20X20			20						
SGL-220X30			220			4					SGLX-20X25			25						
SGL-100X41			100	41	26	2					SGLX-20X23			23	8					
SGL-160X41			160			3					SGLX-20X28			28						
SGL-220X41			220			4					SGLX-25X28	28								
SGL-100X25	28	20	100	25	10	2	10	18	11	13	SGLX-25X33	25	18	33	10		10			
SGL-160X25			160			3					SGLX-25X43	43								
SGL-220X25			220			4					SGLX-30X38	30	19	38						
SGL-100X35			100	35	15	2					SGLX-30X43	43	15							
SGL-160X35			160			3					SGLX-30X53	53								
SGL-220X35			220			4					SGLX-35X43	35		23	43					
SGL-100X56			100	56	26	2					SGLX-35X53	35	23	53	20		12	M10		
SGL-160X56			160			3					SGLX-35X63	35	23	63						
SGL-220X56			220			4					SGLX-40X45	40	28	45						
											</									

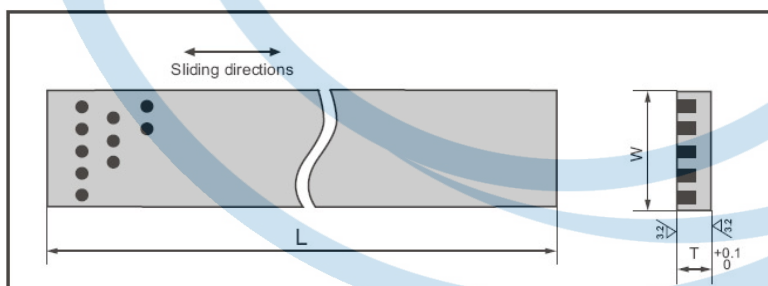
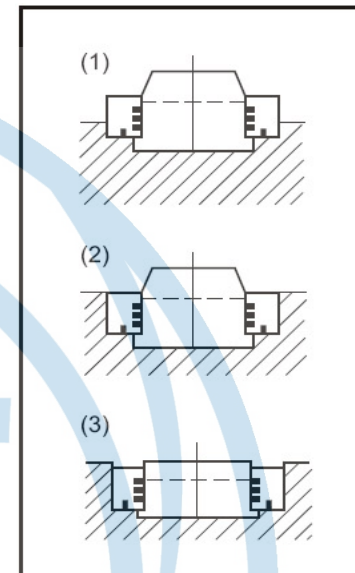
Self-Lubricating Bushings

Oilless Guide Block, and Lower Plate
Series SGBX, SP



Material #500+Graphite

Designation	W	H	L	Recom. Bolt					
				P	Size				
SGBX-20X10	20	10	320	10	M8				
SGBX-20X15		15							
SGBX-20X20		20							
SGBX-25X18	25	18	605			12	M10		
SGBX-25X23		23							
SGBX-25X33		33							
SGBX-30X23	30	23						14	M12
SGBX-30X28		28							
SGBX-30X38		38							
SGBX-35X28	35	28		14	M12				
SGBX-35X38		38							
SGBX-35X48		48							
SGBX-40X28	40	28	14	M12					
SGBX-40X38		38							
SGBX-40X48		48							



Material #500+Graphite

Designation	W	H	L	Recom. Bolt
SP-20X5X305	20	5.3	305	M6X10 Countersunk head screw
SP-25X5X305	25			
SP-30X5X305	30		400	
SP-30X5X400				
SP-35X10X605	35	10.3	605	M8X15 Hex socket round head screw
SP-40X10X605	40			
SP-50X10X605	50			
SP-60X15X605	60	15.3		M10X20 Hex socket bolt
SP-80X15X605	80			
SP-80X20X605				
SP-100X20X605		100		

Series SSB, SOVL



Material	#500+Graphite
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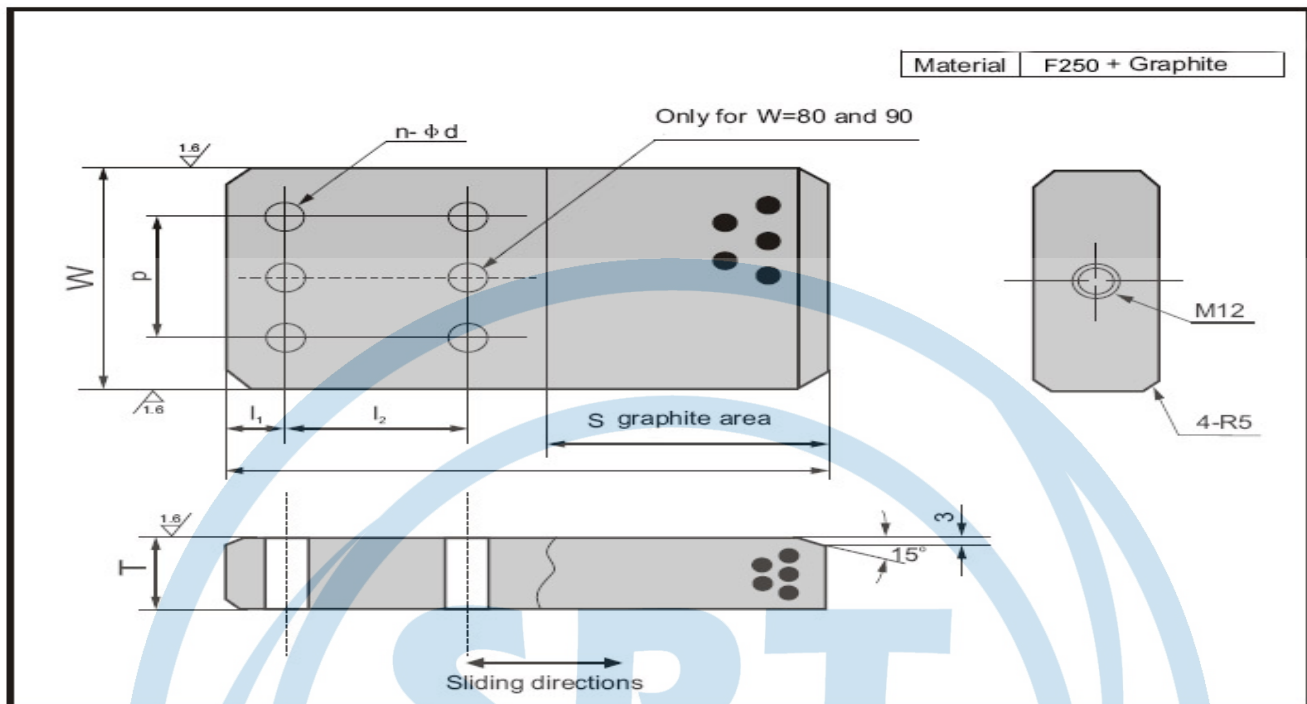


Designation	A	B	C	D	E
SOVL-0X205	12	5	15		6
SOVL-1X205	17				
SOVL-1X320		7	20	5	7.5
SOVL-2X205	22				
SOVL-2X320					
SOVL-3X205	27				
SOVL-3X320					
SOVL-4X205	36	10	28	8	11
SOVL-4X320					
SOVL-5X205	46				
SOVL-5X320					
SOVL-6X205	66	22			
SOVL-6X320	(56)		40	12	14
SOVL-7X205	86	26			
SOVL-7X320	(76)				

Self-Lubricating Bushings

Oilless Guide Bar

Series SPG



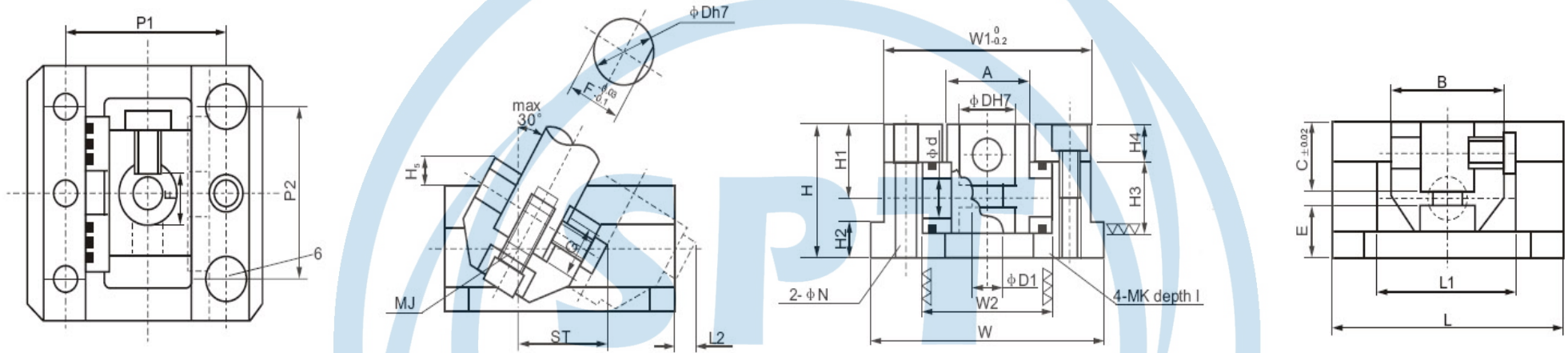
Unit: mm

Designation	W		L	T	S	l1	l2	P	n	Φd
SPG-80X220	80	0	220	40	80	25	60	-	2	22
SPG-80X260		-0.025	260				70			
SPG-80X300			300				80			
SPG-120X280	120	0	280	60	120	30	80	70	4	26
SPG-120X340		-0.035	340				100			
SPG-120X380			380				110			
SPG-150X340	150	0	340	75	130	30	110	100	4	26
SPG-150X380		-0.040	380				120			
SPG-150X430			430				130			
SPG-180X340	180	0	340	90	140	25	130	-	2	22
SPG-180X380		-0.046	380				140			
SPG-180X430			430				150			
SPG-90X220	80	0	220	40	80	25	60	-	2	22
SPG-90X260		-0.025	260				70			
SPG-90X300			300				80			
SPG-130X280	130	0	280	60	120	30	80	70	4	26
SPG-130X340		-0.035	340				100			
SPG-130X380			380				110			
SPG-160X340	160	0	340	75	130	25	110	100	4	26
SPG-160X380		-0.040	380				120			
SPG-160X430			430				130			
SPG-190X340	190	0	340	90	140	30	130	120	4	26
SPG-190X380		-0.046	380				140			
SPG-190X430			430				150			

Self-Lubricating Bushings

Oilless Inclined Ejector Core Unit

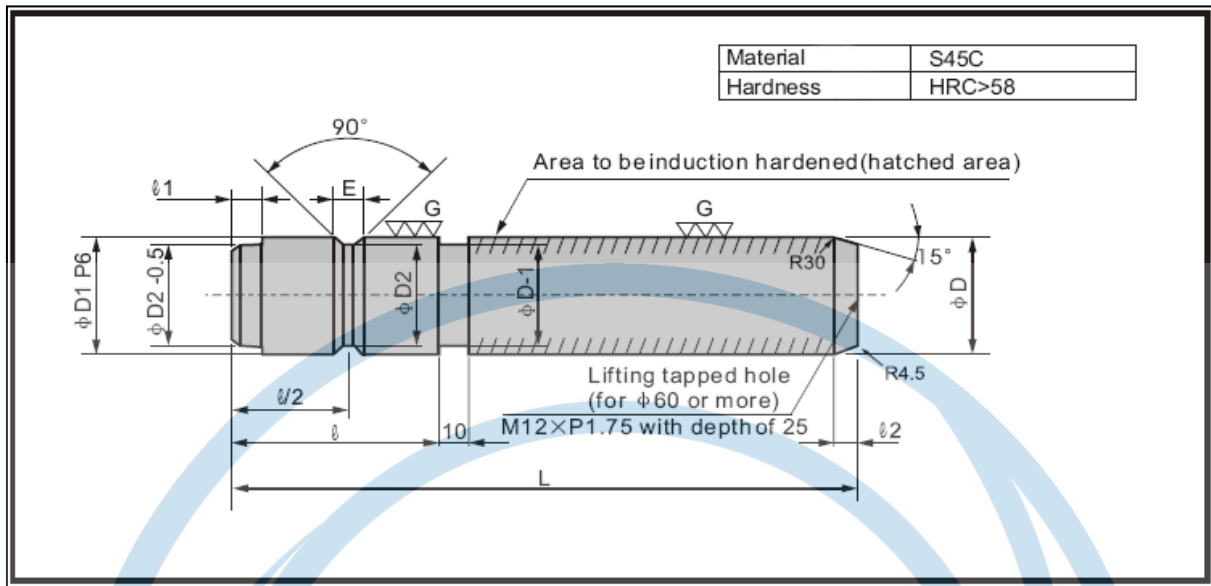
Series SOCU-S



Unit: mm

Designation	ΦD	Φd	ΦD1	A	B	C	E	F	G	MJ	H	H1	H2	H3	H4	H5	L	L1	L2	W	W1	W2	P1	P2	MK	I	ΦN	ST
SOCU-S-8	8	7	4.5	11	20	8	10	7	8	M4	22	13	5	11	7	11	32	20	3.6	33	30	19	24	20	M3	9.5	3	10
SOCU-S-10	10	7	5.5	15	25	10	13	9	9	M5	27	13	5	15	8	11	45	25	4.5	45	40	25	32	30	M4	14	4	18
SOCU-S-12	12	10	7	17	25	12	15	11	10	M6	32	18	7	16	10	4	50	30	8	57	51	31	39	35	M6	14	6	20
SOCU-S-16	16	12	9	22	30	16	15	15	12	M8	36	20	8	20	10	5	65	40	8	65	58	38	46	40	M6	16	6	25
SOCU-S-20	20	14	11	26	40	20	16	18	16	M10	42	23	11	22	12	8	80	50	8	80	72	44	56	55	M8	19	8	30
SOCU-S-25	25	16	14	32	45	25	17	23	20	M12	50	28	15	26	15	8	90	55	12	93	85	52	66	65	M10	22	10	35
SOCU-S-30	30	18	14	38	50	30	17	27	25	M12	55	30	15	30	15	9	100	60	12	101	93	60	74	70	M10	25	10	40
SOCU-S-35	35	20	14	45	60	35	18	32	30	M12	62	35	15	34	18	10	120	75	8	120	110	70	85	80	M12	27	10	45
SOCU-S-40	40	25	18	55	70	40	19	36	35	M16	70	40	15	44	18	12	135	85	8	130	120	80	95	90	M12	30	10	50
SOCU-S-45	45	30	18	60	80	45	24	40	40	M16	80	45	15	50	20	14	150	95	10	140	130	90	105	110	M12	35	10	55

Guide Post
Series SSGP



Designation	ΦD		ΦD1 p6		ΦD2	L	e	e1	e2	E
SSGP-25X80	25		25	+0.035 +0.022	21	80	30			
SSGP-25X100						100				
SSGP-25X120						120				
SSGP-30X100	30	-0.005 -0.015	30		26	100	40	5	5	8
SSGP-30X120						120				
SSGP-30X140						140				
SSGP-40X120	40		40		36	120	50			
SSGP-40X140						140				
SSGP-40X160						160				
SSGP-50X160	50		50	+0.042 +0.026	45	160	70			10
SSGP-50X200						200				
SSGP-50X250						250				
SSGP-60X200	60	-0.010 -0.020	60		55	200	90			
SSGP-60X250						250				
SSGP-60X300						300				
SSGP-60X350	65			+0.051 +0.032	60	350	100	10	10	12
SSGP-65X250						250				
SSGP-65X300						300				
SSGP-65X350	80	-0.010 -0.025	80		75	350	120			
SSGP-80X250						250				
SSGP-80X300						300				
SSGP-80X350	100		100	+0.059 +0.037	95	350	150			
SSGP-100X300						300				
SSGP-100X400						400				