

CSB Bearings France

3, boulevard Eugene Marie B.P.111,
F-27800 Brionne, France

Tel: +33 232 433 276
Fax: +33 232 471 468
Email: p.mouclier@csb-bearings.fr

www.csb-bearings.fr

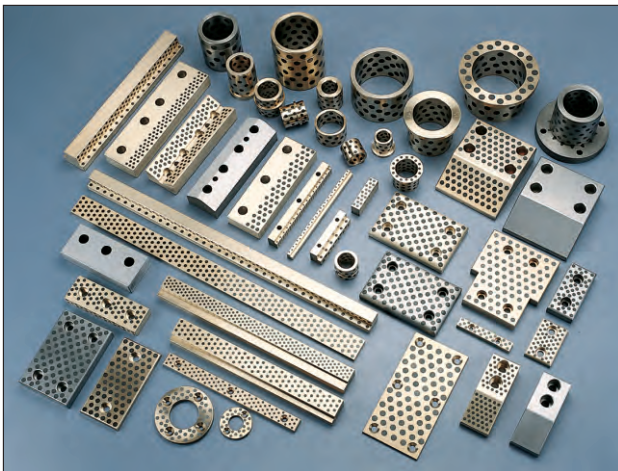
Metallic Self-lubricating Bearings



Metallic Self-lubricating Bearings

CSB650: Cast bronze with graphite plug	P69-P76
CSB650S5: High hardness cast bronze with graphite plug	
CSB650HP: Special high hardness bronze with graphite plug	
CSB600: Solid bronze turned bearings	P77
CSB650GT: Steel shell cast bronze liner with graphite plug	P78
CSB250: Cast iron with graphite plug	P79-P83
CSB450: Steel backed with high precision bronze	P84-P85
CSB452G: Cast iron high precision with solid lubricants	P86
CSB-SNF: Powder sintered bearing	P87
JOCU: Oilless unit parts	P88-P92

CSB650 Cast Bronze Bearings with Graphite



Structure

CSB650 material is made of strong cast bronze based metal with special solid lubricants embedded. The base metal withstands high load and the solid lubricants provide self-lubrication. The bearing shows excellent performance without pre-lubrication under conditions of extreme high/low temperature with low speed. This material provides a maintenance-free bearing solution, particularly for high load, intermittent or oscillating motion.

Features

1. May work without any oil for long period
2. Extremely high load capacity, good anti-wear and lower 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 temperature from -40°C $\sim +300^{\circ}\text{C}$

Typical Applications

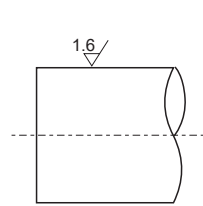
This kind of bearing can be applied under dry, high temperature, high pressure, corrosive, water or other chemical environments when no oil can be introduced. It is widely used in automotive products line, water engineering, dam gate, plastic industries, successive casting machines, steel rollers in metallurgy industry, mineral machines, ships, turbo generators, hydraulic turbines and injection molding machines...

CSB650 Cast Bronze Bearings with Graphite

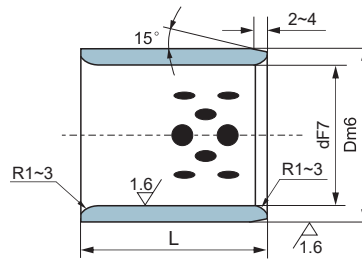
Main Metal Type						
Grade	650	650S1	650S2	650S3	650S5	650HP
Material	CuZn25Al5Mn4Fe3	CuSn5Pb5Zn5	CuAl10Ni5Fe5	CuSn12	CuZn25Al5Mn4Fe3	CuZn32Al5Ni3
Density	8	8.9	7.8	8.9	8	8
HB hardness	>210	>70	>150	>95	>250	>280
Tensile strength N/mm ²	>750	>200	>600	>260	>800	>540
Yeild strength N/mm ²	>450	>90	>260	>150	>450	>450
Elongation %	>12	>15	>10	>8	>8	>0.3
Coefficient of linear expansion	1.9x10 ⁻⁵ /°C	1.8x10 ⁻⁵ /°C	1.6x10 ⁻⁵ /°C	1.8x10 ⁻⁵ /°C	1.9x10 ⁻⁵ /°C	1.8x10 ⁻⁵ /°C
Max. temp.	-40~+300°C	-40~+400°C	-40~+400°C	-40~+400°C	-40~+150°C	-40~+150°C
Max. load N/mm ²	100	60	50	70	120	150
Max. speed (Dry) m/min	15	10	20	10	15	15
Max. PV N/mm ² *m/min (Lubrication)	200	60	60	80	200	200
Compression deformation 300N/mm ²	<0.01mm	<0.05mm	<0.04mm	<0.05mm	<0.005mm	<0.005mm

Solid Lubricants		
Lubricant	Features	Typical application
SL1 Graphite+add	Excellent resistance against chemical attacks and low friction. Temp limit 400°C	Suite for general machines and under atmosphere
SL4 PTFE+MOS ₂ +add	Lower in friction and good for water lubrication, Temp. limit 300°C	Suite for water/sea lubrication, like ship, hydraulic turbine, gas turbine etc.

JDB650 Metric Cylindrical Bushes

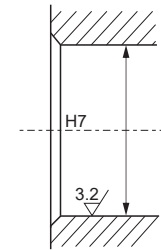


Mating shaft
d8 High load
e7 light load
f7 High precision



Sliding direction

Material 650# + Graphite



Mating housing

Unit:mm

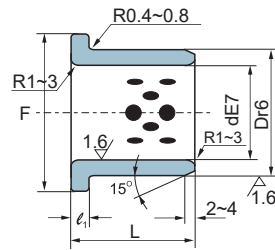
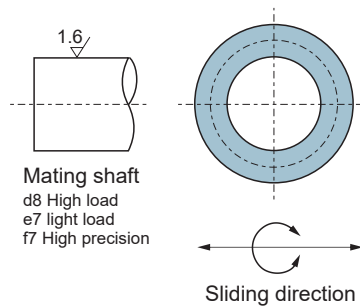
dF7	Dm6	L ^{-0.10} _{-0.30}													
		8	10	12	15	16	20	25	30	35	40	50	60	70	80
8 +0.028 +0.013	12	JDB650 081208	JDB650 081210	JDB650 081212	JDB650 081215										
	14 +0.018 +0.007	JDB650 101408	JDB650 101410	JDB650 101412	JDB650 101415		JDB650 101420								
12 +0.034 +0.016	18		JDB650 121810	JDB650 121812	JDB650 121815	JDB650 121816	JDB650 121820	JDB650 121825	JDB650 121830						
	19		JDB650 131910		JDB650 131915	JDB650 131916									
14 +0.034 +0.016	20		JDB650 142010	JDB650 142012	JDB650 142015		JDB650 142020	JDB650 142025	JDB650 142030						
	21 +0.021 +0.008		JDB650 152110	JDB650 152112	JDB650 152115	JDB650 152116	JDB650 152120	JDB650 152125	JDB650 152130						
16 +0.041 +0.020	22		JDB650 162210	JDB650 162212	JDB650 162215	JDB650 162216	JDB650 162220	JDB650 162225	JDB650 162230	JDB650 162235	JDB650 162240				
	24			JDB650 182412	JDB650 182415	JDB650 182416	JDB650 182420	JDB650 182425	JDB650 182430	JDB650 182435	JDB650 182440				
20 +0.025 +0.009	28		JDB650 202810	JDB650 202812	JDB650 202815	JDB650 202816	JDB650 202820	JDB650 202825	JDB650 202830	JDB650 202835	JDB650 202840	JDB650 202850			
	32			JDB650 223212	JDB650 223215		JDB650 223220	JDB650 223225							
25 +0.050 +0.025	33			JDB650 253312	JDB650 253315	JDB650 253316	JDB650 253320	JDB650 253325	JDB650 253330	JDB650 253335	JDB650 253340	JDB650 253350	JDB650 253360		
	38			JDB650 303812	JDB650 303815		JDB650 303820	JDB650 303825	JDB650 303830	JDB650 303835	JDB650 303840	JDB650 303850	JDB650 303860		
35 +0.030 +0.011	45						JDB650 354520	JDB650 354525	JDB650 354530	JDB650 354535	JDB650 354540	JDB650 354550	JDB650 354560		
	50						JDB650 405020	JDB650 405025	JDB650 405030	JDB650 405035	JDB650 405040	JDB650 405050	JDB650 405060	JDB650 405070	JDB650 405080
45	55								JDB650 455530	JDB650 455535	JDB650 455540	JDB650 455550	JDB650 455560		
	60								JDB650 506030	JDB650 506035	JDB650 506040	JDB650 506050	JDB650 506060	JDB650 506070	JDB650 506080

JDB650 Metric Cylindrical Bushes

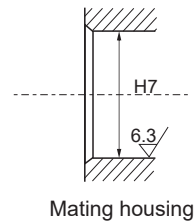
Unit:mm

dF7		Dm6		L ^{-0.10} L ^{-0.30}												
				30	35	40	50	60	70	80	100	120	140	150		
50	+0.050 +0.025	62		JDB650 506230	JDB650 506235	JDB650 506240	JDB650 506250	JDB650 506260	JDB650 506270							
				JDB650 506530		JDB650 506540	JDB650 506550	JDB650 506560	JDB650 506570	JDB650 506580	JDB650 5065100					
55	+0.060 +0.030	70	+0.030 +0.011			JDB650 557040	JDB650 557050	JDB650 557060	JDB650 557070							
60		74		JDB650 607430	JDB650 607435	JDB650 607440	JDB650 607450	JDB650 607460	JDB650 607470	JDB650 607480						
60		75		JDB650 607530	JDB650 607535	JDB650 607540	JDB650 607550	JDB650 607560	JDB650 607570	JDB650 607580	JDB650 6075100					
63		75						JDB650 637560	JDB650 637570	JDB650 637580						
65		80					JDB650 658050	JDB650 658060	JDB650 658070	JDB650 658080						
70		85			JDB650 708535	JDB650 708540	JDB650 708550	JDB650 708560	JDB650 708570	JDB650 708580	JDB650 7085100					
70		90					JDB650 709050	JDB650 709060	JDB650 709070	JDB650 709080						
75		90						JDB650 759060	JDB650 759070	JDB650 759080	JDB650 7590100					
75		95						JDB650 759560	JDB650 759570	JDB650 759580	JDB650 7595100					
80		96				JDB650 809640	JDB650 809650	JDB650 809660	JDB650 809670	JDB650 809680	JDB650 8096100	JDB650 8096120				
80	100			JDB650 8010040	JDB650 8010050	JDB650 8010060	JDB650 8010070	JDB650 8010080	JDB650 80100100	JDB650 80100120	JDB650 80100140					
90	110		JDB650 9011030		JDB650 9011050	JDB650 9011060	JDB650 9011070	JDB650 9011080	JDB650 90110100	JDB650 90110120						
100	120					JDB650 10012060	JDB650 10012070	JDB650 10012080	JDB650 100120100	JDB650 100120120	JDB650 100120140					
110	130							JDB650 11013080	JDB650 110130100	JDB650 110130120						
120	140							JDB650 12014080	JDB650 120140100	JDB650 120140120	JDB650 120140140					
125	145								JDB650 125145100	JDB650 125145120	JDB650 125145140					
130	150								JDB650 130150100	JDB650 130150120	JDB650 130150140					
140	160								JDB650 140160100	JDB650 140160120	JDB650 140160140					
150	170								JDB650 150170100	JDB650 150170120	JDB650 150170140	JDB650 150170150				
160	180								JDB650 160180100	JDB650 160180120	JDB650 160180140	JDB650 160180150				

JFB650 Metric Flange Bushes



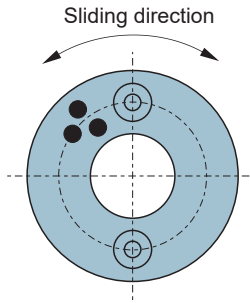
Material 650# + Graphite



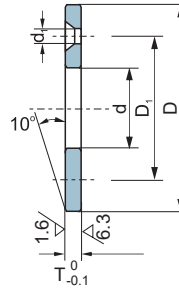
Unit:mm

d	D	IDE7	ODr6	F	ℓ_1 -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	22	2	JFB650 1015	JFB650 1020										
12	18	12		18			JFB650 1215	JFB650 1220										
13	19	13			19	26	3	JFB650 1315	JFB650 1320									
14	20	14	+0.050 +0.032		20			JFB650 1415	JFB650 1420									
15	21	15		+0.041 +0.028	21	JFB650 1515	JFB650 1520	JFB650 1525	JFB650 1530									
16	22	16		22	29	JFB650 1615	JFB650 1620	JFB650 1625	JFB650 1630									
20	30	20		30	40	5	JFB650 2015	JFB650 2020	JFB650 2025	JFB650 2030		JFB650 2040						
25	35	25		+0.061 +0.040			35	JFB650 2515	JFB650 2520	JFB650 2525	JFB650 2530			JFB650 2540				
30	40	30		40	50	5		JFB650 3020	JFB650 3025	JFB650 3030	JFB650 3035	JFB650 3040	JFB650 3050					
31.5	40	31.5		+0.050 +0.034			40	JFB650 3120			JFB650 3135							
35	45	35		45	60	5		JFB650 3520		JFB650 3530		JFB650 3540	JFB650 3550					
40	50	40		+0.075 +0.050			50	JFB650 4020			JFB650 4030		JFB650 4040	JFB650 4050				
45	55	45		55	70	5				JFB650 4530		JFB650 4540	JFB650 4550	JFB650 4560				
50	60	50		+0.060 +0.041			60				JFB650 5030		JFB650 5040	JFB650 5050	JFB650 5060			
55	65	55		65	80	5						JFB650 5540		JFB650 5560				
60	75	60		+0.062 +0.043			75							JFB650 6040	JFB650 6050		JFB650 6080	
63	75	63		75	85	7.5									JFB650 6380			
70	85	70		+0.090 +0.060			85								JFB650 7050		JFB650 7080	
75	90	75		90	110	10								JFB650 7560				
80	100	80		+0.073 +0.051			100									JFB650 8060	JFB650 8080	JFB650 80100
90	110	90		110	130	10								JFB650 9060	JFB650 9080			
100	120	100		+0.107 +0.072			120										JFB650 10080	JFB650 100100
120	140	120		+0.088 +0.063	170										JFB650 12080	JFB650 120100		

JTW650 Metric Thrust Washer



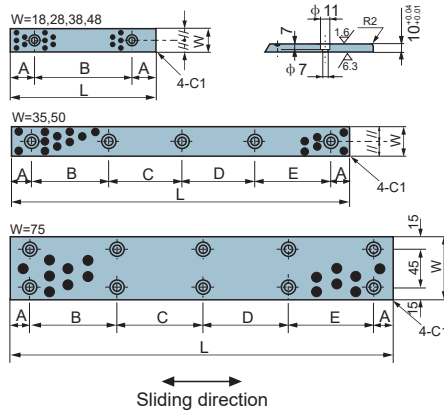
Material 650# + Graphite



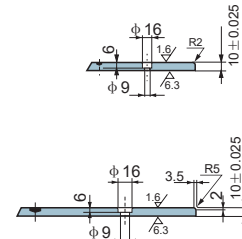
Unit:mm

Stanard No.	d	D	T _{-0.1} ⁰	Bolt						
				D1	Q'ty	Size	d1			
JTW650 -10	10.2	30	3	20	2	M 3	3.5			
JTW650 -10N				-----				-----	-----	
JTW650 -12	12.2	40		28	2	M 3	3.5			
JTW650 -12N				-----				-----	-----	
JTW650 -13	13.2			28				2	M 3	3.5
JTW650 -14	14.2			35						
JTW650 -15	15.2	50		35	2	M 3	3.5			
JTW650 -16	16.2			-----				-----	-----	
JTW650 -16N	18.2	50		5	35	2	M 3	3.5		
JTW650 -18					M 5		6			
JTW650 -20	20.2	-----				-----		-----		
JTW650 -20N	25.2	55			40	2	M 5	6		
JTW650 -25N			-----		-----				-----	
JTW650 -30	30.2	60	7		45	2	M 5	6		
JTW650 -35	35.2	70			50					
JTW650 -40	40.2	80	8		60	2	M 6	7		
JTW650 -45	45.3	90			67.5					
JTW650 -50	50.3	100	10		75	4	M 8	9		
JTW650 -55	55.3	110			85					
JTW650 -60	60.3	120	10		90	4	M 8	9		
JTW650 -65	65.3	125		95						
JTW650 -70	70.3	130	10	100	4	M 8	9			
JTW650 -75	75.3	140		110						
JTW650 -80	80.3	150	10	120	4	M 8	9			
JTW650 -90	90.5	170		140						
JTW650 -100	100.5	190	10	160	4	M 10	11			
JTW650 -120	120.5	200		175						

JSP650 Wear Plate



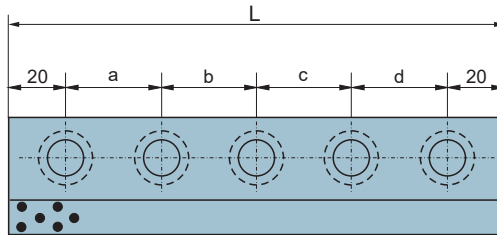
Material 650# + Graphite



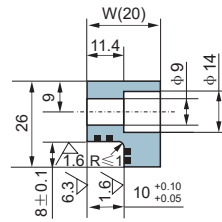
Unit:mm

Standard No.	W	L	A	B	C	D	E	Flat head screw	No. of holes	
JSP650 -1875	18	75	15	45				M 6	2	
JSP650 -18100		100		50						
JSP650 -18125		125	25	75						
JSP650 -18150		150		100						
JSP650 -2875	28	75	15	45						
JSP650 -28100		100		50						
JSP650 -28125		125	25	75						
JSP650 -28150		150		100						
JSP650 -35100	35	100		60				M 8	3	
JSP650 -35150		150		55	55					
JSP650 -35200		200	20	55	50	55				
JSP650 -35250		250		70	70	70				
JSP650 -35300		300		65	65	65	65			
JSP650 -35350		350		80	75	75	80			
JSP650 -3875	38	75	15	45				M 6	2	
JSP650 -38100		100		50						
JSP650 -38125		125	25	75						
JSP650 -38150		150		100						
JSP650 -4875	48	75	15	45						
JSP650 -48100		100		50						
JSP650 -48125		125	25	75						
JSP650 -48150		150		100						
JSP650 -50100	50	100		60				M 8	3	
JSP650 -50150		150		55	55					
JSP650 -50200		200	20	55	50	55				
JSP650 -50250		250		70	70	70				
JSP650 -50300		300		65	65	65	65			
JSP650 -50400		400		90	90	90	90			
JSP650 -75150	75	150	20	110				M 8	4	
JSP650 -75200		200		80	80					
JSP650 -75250		250		105	105					
JSP650 -75300		300		85	90	85				
JSP650 -75400		400		120	120	120				
JSP650 -75500		500		115	115	115	115			

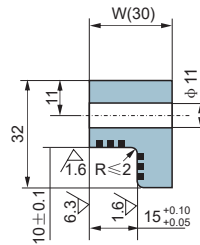
JSL650 Wear Plate



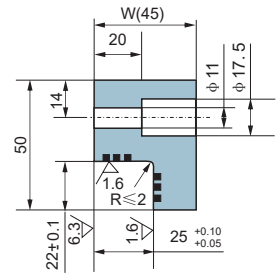
Material 650# + Graphite



A



B



C

Sliding direction

Unit:mm

Stanard No.	W	L	Bolt				Size	Q'ty	Sketch
			a	b	c	d			
JSL650-20×100	20	100	60	---	---	---	M8	2	A
JSL650-20×150		150	55	55	---	---		3	
JSL650-20×200		200	55	50	55	---		4	
JSL650-30×100	30	100	60	---	---	---	M10	2	B
JSL650-30×150		150	55	55	---	---		3	
JSL650-30×200		200	55	50	55	---		4	
JSL650-30×250		250	70	70	70	---		4	
JSL650-45×200	45	200	55	50	55	---	M10	4	C
JSL650-45×250		250	70	70	70	---		4	
JSL650-45×300		300	65	65	65	65		5	
JSL650-45×350		350	80	75	75	80		5	

CSB600 Solid Bronze Turned Bearings



Structure

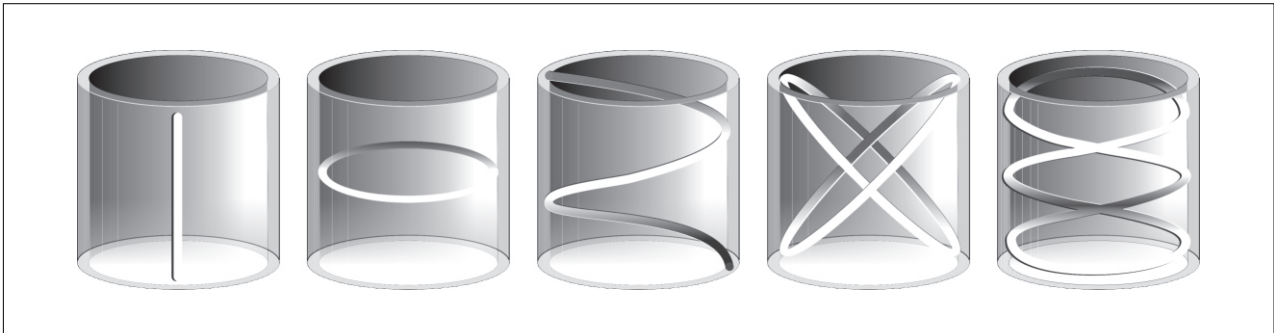
Machined cast bronze bearings offer technically and economically favorable bearings solutions. It is with high load capability, low weight and good corrosion resistance. CSB can offer different types of bronze alloys according to the required life time, service etc. The tolerance is much tighter than wrapped bronze bushes.

Available

- Cylindrical bushes
- Thrust washers
- Flange bushes
- Non-standard parts as design

CSB600 supplied by customer ordering, the tolerance is according to CSB650 standard dimension.

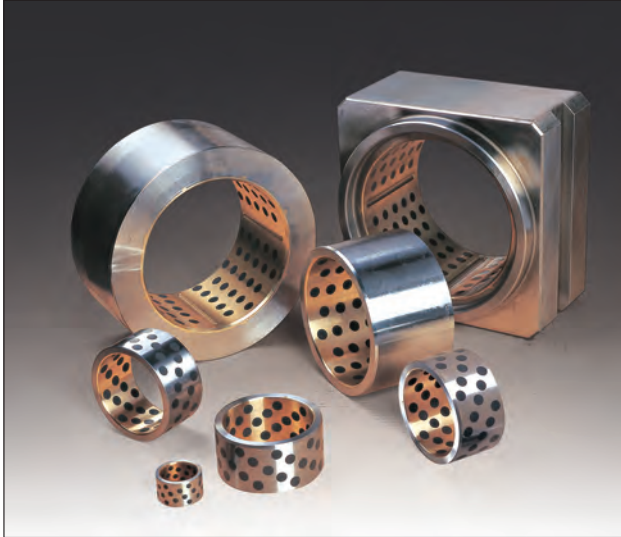
Oil Groove



Tech. Data

	600	600S1	600S2	600S3	600S4	600S5
Material	CuZn25Al6Mn4Fe3	CuSn5Pb5Zn5	CuAl10Ni5Fe5	CuSn12	CuSn10Pb10	CuZn25Al6Mn4Fe3
Density	8.0	8.9	7.8	8.9	8.9	8.0
Yield point N/mm ²	> 450	> 90	> 260	> 150	> 100	> 450
Tensile strength N/mm ²	> 750	> 200	> 600	> 260	> 210	> 800
Elongation %	> 12	> 15	> 10	> 8	> 8	> 8
Hardness HB	> 210	> 70	> 150	> 95	> 75	> 250

CSB650GT Steel Shell Cast Bronze Liner with Graphite Plug



Structure

Steel shell with cast bronze bearing material liner with specially formulated solid lubricants embedded into the holes in the liner material. The process of casting bronze on steel achieves an integral metallurgical structure between bronze and steel with an increased carrying capacity while the material cost is considerably reduced. The solid lubricant can reduce the coefficient of friction and performs the self-lubricating function.

Features

CSB650GT combines the advantages of a metallic bearing and the self lubricating of graphite. It is particularly good for low-speed and high load applications, where external lubrication is not practical. The new based material provides economic solution and even good resistance to shock loads.

Available

- Cylindrical bushes
- Thrust washers
- Flange bushes
- Non-standard parts as design

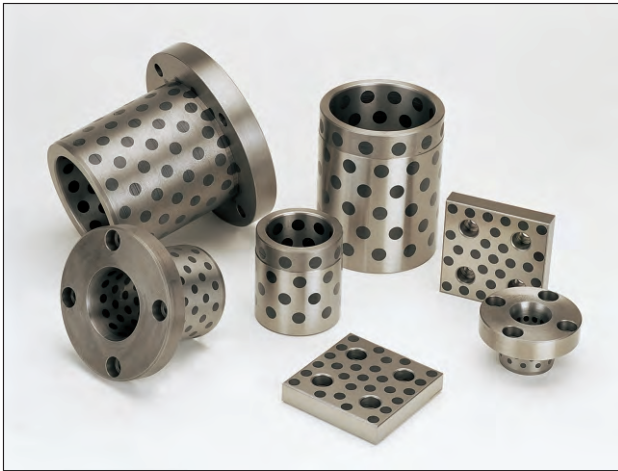
CSB650GT supplied by customer ordering, the tolerance is according to CSB650 standard dimension.

Tech. Data				
Max. load	Static	250N/mm ²	Temp.	-100°C~+300°C
	Dynamic	100N/mm ²		Friction coefficient
Max. speed	Dry	0.5m/s	Thermal conductivity	60W(m*k) ⁻¹
	Lubrication	1.0m/s	Coef. of thermal expansion	19*10 ⁻⁶ *K ⁻¹
Max. PV		3.25N/mm ² *m/s	Interlay bonding strength	150N/mm ²
Bronze alloy hardness		HB>210		

Typical Applications

This type of products can be widely used under high temperature and high load with low speed conditions, such as successive casting machinery, mineral machinery, injection molding machinery, dock machinery and so on.

CSB250 Cast Iron with Graphite Plug



Structure

CSB250 material is made of cast iron based metal with special lubricants embedded. The base metal withstands high load and the solid lubricants provide for self-lubrication. The bearing shows excellent performance without pre-lubrication under conditions of extreme high or lower temperature with lower speed.

Features

This material provides a maintenance free bearing solution, particularly for high load and intermittent oscillating motion. Solid lubricants within the cast iron, combines the high load characteristics of cast iron with the wear resistance and low friction of graphite. Applications covered are automotive production line equipment, moulds & dies, plastic machinery industry etc.

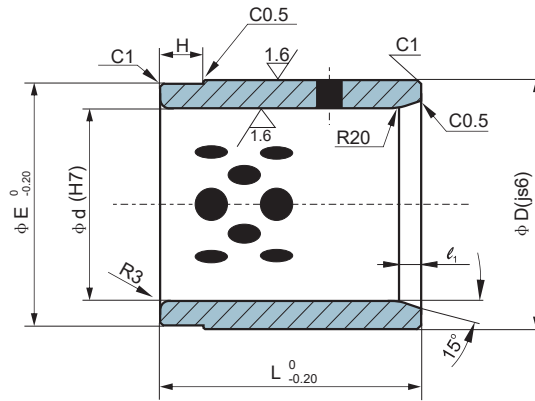
Tech. Data

Max. load	Static	70N/mm ²	Tensile strength	150N/mm ²
	Dynamic	10N/mm ²	Temp.	-40℃~+400℃
Max. speed	Dry	0.15m/s	Friction coefficient	0.08~0.20
	Hydrodynamic	1m/s	Hardness	HB > 160
Max. PV		0.8N/mm ² *m/s		

Typical Applications

This type of product can be widely used under high temperature and high load with low speed conditions like the mould, machinery assembly line, automotive assembly line, automotive mold, steel mill, plastic industries and so on.

GB250 Self-lubricating Bearing

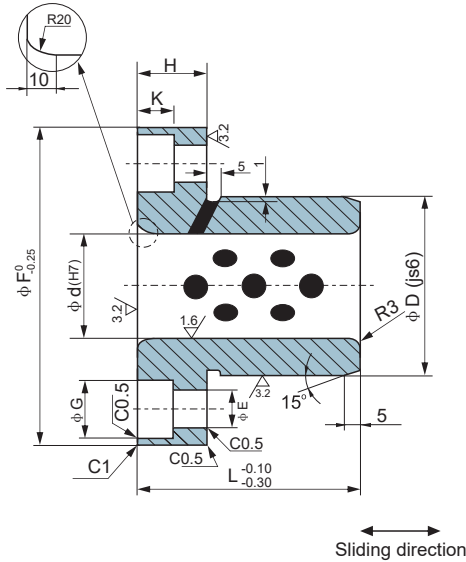


Material 250# + Graphite

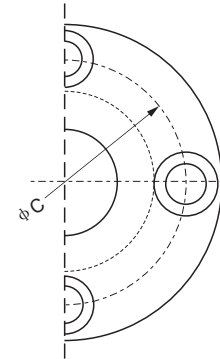
Unit:mm

Item	Code	Specification	ϕD	ϕd	L	ϕE	H	l_1
1	GB250-30	30 × 50 × 50	50	30	50	49	10	5
2	GB250-40	40 × 60 × 60	60	40	60	59	10	
3	GB250-50	50 × 70 × 75	70	50	75	69	15	10
4	GB250-60	60 × 80 × 90	80	60	90	79	20	
5	GB250-80	80 × 100 × 120	100	80	120	99	25	
6	GB250-100	100 × 120 × 150	120	100	150	119	25	
7	GB250-120	120 × 140 × 180	140	120	180	139	25	

HGB250 Self-lubricating Bearing



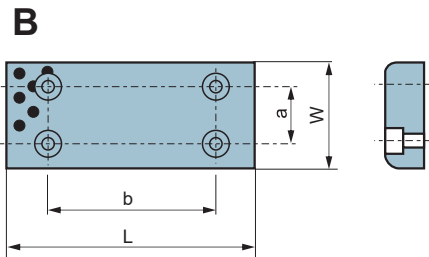
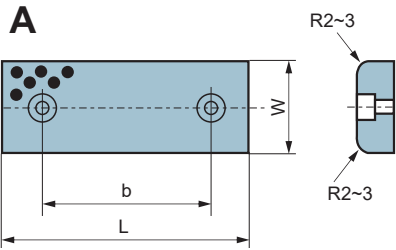
Material 250# + Graphite



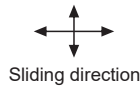
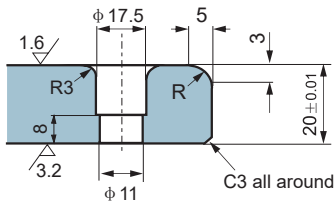
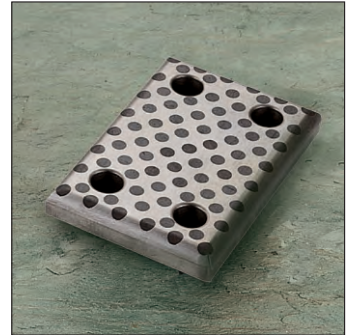
Unit:mm

Item	Code	Specification	ϕF	ϕD	ϕd	H	L	ϕC	ϕE	ϕG	K
1	HGB250-30	30×50/90×50	90	50	30	20	50	70	11	17.5	10.8
2	HGB250-40	40×60/100×65	100	60	40	20	65	80	11	17.5	10.8
3	HGB250-50	50×75/125×80	125	75	50	20	80	100	11	17.5	10.8
4	HGB250-60	60×85/135×100	135	85	60	20	100	110	11	17.5	10.8
5	HGB250-80	80×110/170×130	170	110	80	25	130	140	14	20	13
6	HGB250-100	100×130/190×160	190	130	100	25	160	160	14	20	13

CSB250 JESF Wear Plate



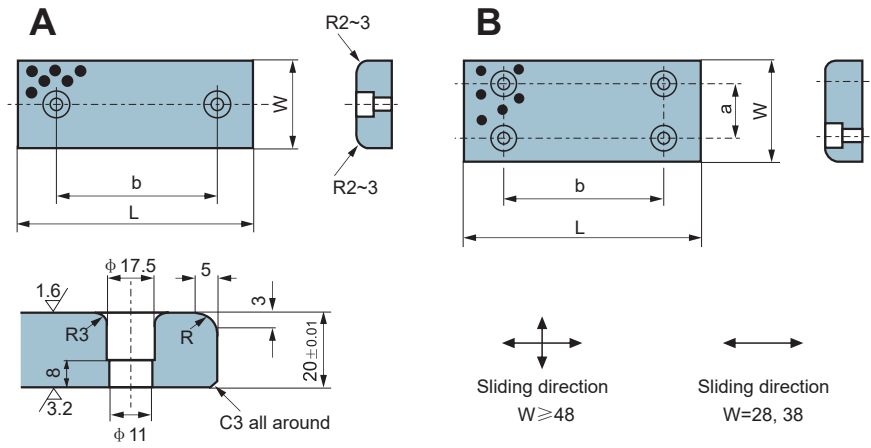
Material 250# + Graphite



Unit:mm

Standard No.	W	L	a	b	Sketch
JESF-48 × 75	48	75	-	45	A
JESF-48 × 100		100		50	
JESF-48 × 125		125		75	
JESF-48 × 150		150		100	
JESF-48 × 200		200		150	
JESF-75 × 75	75	75	-	25	A
JESF-75 × 100		100		50	
JESF-75 × 125		125		75	
JESF-75 × 150		150		100	
JESF-75 × 200		200		150	
JESF-75 × 250		250		200	
JESF-100 × 100	100	100	50	50	B
JESF-100 × 125		125		75	
JESF-100 × 150		150		100	
JESF-100 × 200		200		150	
JESF-100 × 250		250		200	
JESF-100 × 300		300		200	
JESF-125 × 125	125	125	50	75	B
JESF-125 × 150		150		100	
JESF-125 × 200		200		150	
JESF-125 × 250		250		200	
JESF-125 × 300		300		200	
JESF-150 × 150	150	150	100	100	B
JESF-150 × 200		200		150	
JESF-150 × 250		250		200	

CSB250 JMWP Wear Plate



Material 250# + Graphite



Unit:mm

Standard No.	W	L	a	b	Sketch
JMWP-28×75	28	75	-	45	A
JMWP-28×100		100		50	
JMWP-28×125		125		75	
JMWP-28×150		150		100	
JMWP-28×200		200		150	
JMWP-38×75	38	75	-	45	
JMWP-38×100		100		50	
JMWP-38×125		125		75	
JMWP-38×150		150		100	
JMWP-38×200		200		150	
JMWP-48×75	48	75	-	45	
JMWP-48×100		100		50	
JMWP-48×125		125		75	
JMWP-48×150		150		100	
JMWP-48×200		200		150	
JMWP-58×75	58	75	-	45	
JMWP-58×100		100		50	
JMWP-58×150		150		100	
JMWP-75×75	75	75	-	25	B
JMWP-75×100		100		50	
JMWP-75×125		125		75	
JMWP-75×150		150		100	
JMWP-75×200		200		150	
JMWP-100×100	100	100	50	50	
JMWP-100×125		125		75	
JMWP-100×150		150		100	
JMWP-100×200		200		150	
JMWP-100×250		250		200	
JMWP-125×125	125	125	50	75	
JMWP-125×150		150		100	
JMWP-125×200		200		150	
JMWP-125×250		250		200	
JMWP-150×150		150		150	
JMWP-150×200	200		150		
JMWP-150×250	250		200		
JMWP-150×300	300		250		
JMWP-200×200	200		200	150	150
JMWP-200×250		250	200		
JMWP-200×300		300	250		

CSB450 High Precision Bearings



Structure

CSB450 is a steel shell lined with a bronze alloy bearing material. CSB450G is a steel shell lined with a bronze alloy with solid lubricants for high load capacity and high speed application.



Structure

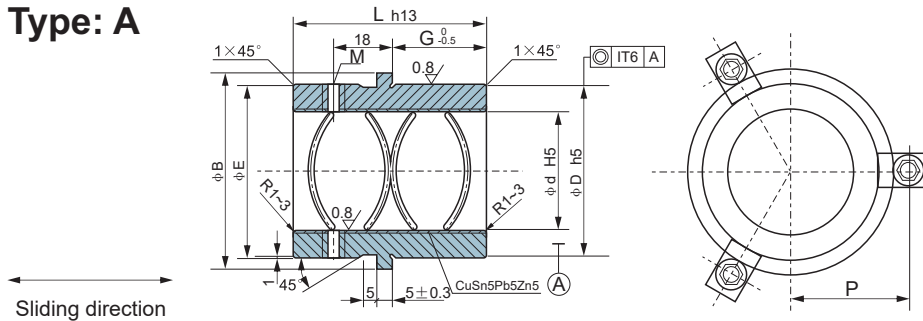
CSB452G is cast iron backed with solid lubricant bearing material, suitable for high load capacity and high speed applications. This material has a lower cost compared with the CSB450G range.

Tech. Data

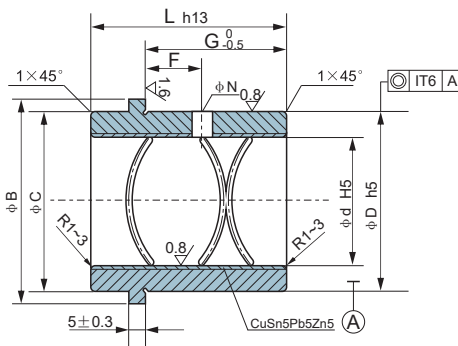
CSB Standard	CSB450	CSB450G	CSB452G
Steel	≥45HRC	≥45HRC	Cast iron ≥160HB
Bronze alloy	≥80HB	≥80HB	
Max. static load	50N/mm ²	50N/mm ²	50N/mm ²
Max. dynamic load	30N/mm ²	30N/mm ²	10N/mm ²
Max. speed	1.5m/s	2m/s	2m/s
Max. PV	1.8N/mm ² *m/s	1.8N/mm ² *m/s	1.5N/mm ² *m/s
Friction coefficient	0.05~+0.20	0.03~+0.15	0.03~+0.15
Temp. (°C)	-50~+250	-50~+250	-50~+400

CSB450 Metric Bushes

Type: A



Type: B



Order

CSB450-18×37×50B

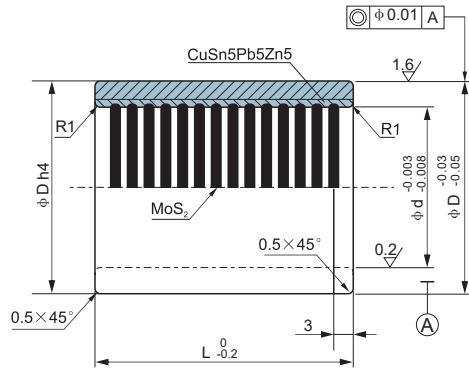
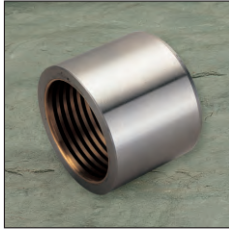
d G L Type

Material

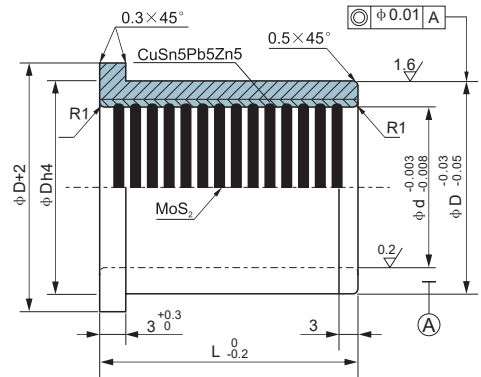
Unit:mm

Type	d	D	B	C	E	F	G	L	M	N	P	Housing
B	18-19	28	34	29	—	8	18	31	—	5	20.5	$28^{+0.013}_0$
A				—	31	—	27	50	M6×1	—		
				—	—	—	18	70				
				—	—	—	23	36				
B	24-25	38	44	39	—	12	23	36	—	5	25.5	$38^{+0.016}_0$
A				—	41	—	23	55	M10×1	—		
				—	—	—	32	80				
				—	—	—	23	80				
B	30-32	45	53	48	—	16	30	43	—	5	31.5	$45^{+0.016}_0$
A				—	50	—	26	60	M10×1	—		
				—	—	—	37	90				
				—	—	—	26	90				
B	40-42	54	63	58	—	19	38	51	—	8	36.5	$54^{+0.019}_0$
A				—	60	—	54	67	M10×1	—		
				—	—	—	30	100				
				—	—	—	47	30				
B	50-52	65	79	74	—	19	48	61	—	8	44.5	$65^{+0.019}_0$
A				—	76	—	62	75	M10×1	—		
				—	—	—	35	110				
				—	—	—	57	35				
B	63	81	92	87	—	19	61	74	—	8	51	$81^{+0.022}_0$
A				—	89	—	77	90	M10×1	—		
				—	—	—	48	130				
				—	—	—	67	48				
B	80	100	111	106	—	19	78	91	—	8	60.5	$100^{+0.022}_0$
A				—	108	—	48	100	M10×1	—		
				—	—	—	77	150				
				—	—	—	48					

CSB450G/452G Metric Bushes

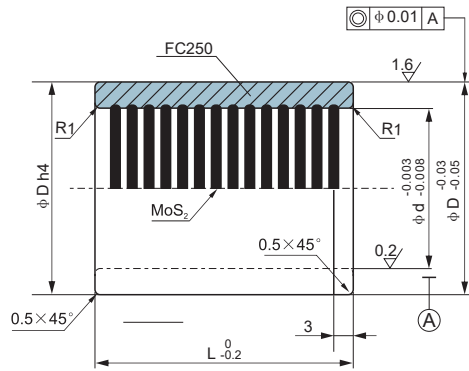


CSB450G

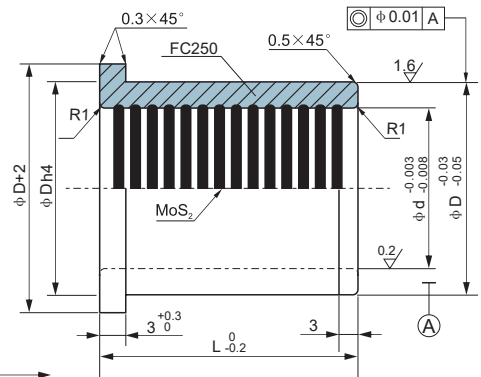


CSB450GF

Sliding direction



CSB452G



CSB452GF

Sliding direction

Unit:mm

Type	d	D h4	L								
			10	13	16	20	22	25	30	35	
CSB450G CSB452G	10	16	0 -0.005	10	13	16	20	22	25		
	13	20	0 -0.006		13	16	20	22	25		
	16	24				16	20	22	25	30	35
	20	28					20	22	25	30	35
	25	34	0 -0.007				20	22	25	30	35
CSB450GF CSB452GF	10	16	0 -0.005	10	13	16	20	22	25		
	13	20	0 -0.006		13	16	20	22	25		
	16	24				16	20	22	25	30	35
	20	28					20	22	25	30	35
	25	34	0 -0.007				20	22	25	30	35

CSB-SNF Powder Sintered Bearings



Structure

The base material for sintered parts such as sliding bearings or other formed parts are iron, bronze, iron with bronze and other metal in powder form. This powder is formed under high pressure in dies into a temperature which is just below the melting point. According to the work condition, the bearings can impregnate with different oil or solid lubricants for the self-lubricating. Sintered self-lubricating bearings are the ideal and economical solution for applications where lubrication is difficult or lubrication could not be applied.

Features

1. Good wear resistance with lower friction
2. Lower maintenance requirement
3. Lower the material cost for large production
4. High speed with lower noise
5. Can be machined again after installation if possible
6. Different structures could be available against special request

Tolerance

Inside Diameter ID: F7
 Outside Diameter OD: r7
 Flange Diameter: js13
 Flange Thickness: js13
 Length: js13

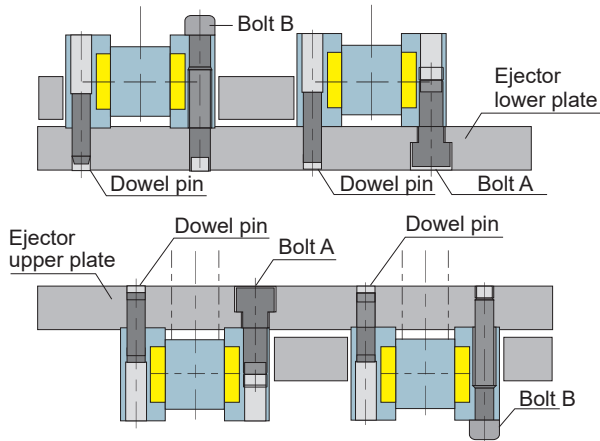
Main Material Supply

Material type	Chemical compositions							Mechanical properties			
	Fe	C	Cu	Sn	Zn	Pb	others	Density g/cm ³	Oil %	Pressure stress kgf/mm ²	HB
SNF-11	<0.5	0.5~2.0	Remain	5~7	5~7	2~4	<1.5	6.4	≥18	>15	20~50
SNF-12	<0.5	0.5~2.0	Remain	5~7	5~7	2~4	<1.5	6.8	≥12	>20	30~60
SNF-21	<0.5	0.5~2.0	Remain	8~11	—	—	<1.0	6.0	≥25	>15	25~55
SNF-22	<0.5	0.5~2.0	Remain	8~11	—	—	<1.0	6.4	≥18	>20	35~65
SNF-31	Remain	—	18~22	—	—	—	<3	6.0	≥18	>30	30~60
SNF-32	Remain	—	18~22	—	—	—	<3	6.4	≥12	>35	40~70
SNF-41	Remain	<1.0	—	—	—	—	<3	6.0	≥18	>15	30~60
SNF-42	Remain	<1.0	—	—	—	—	<3	6.4	≥12	>20	40~70
SNF-51	Remain	0.25~0.6	70~90				<3	6.4	≥18	>30	30~60
SNF-52	Remain	0.25~0.6	50~70				<3	6.8	≥12	>25	40~70

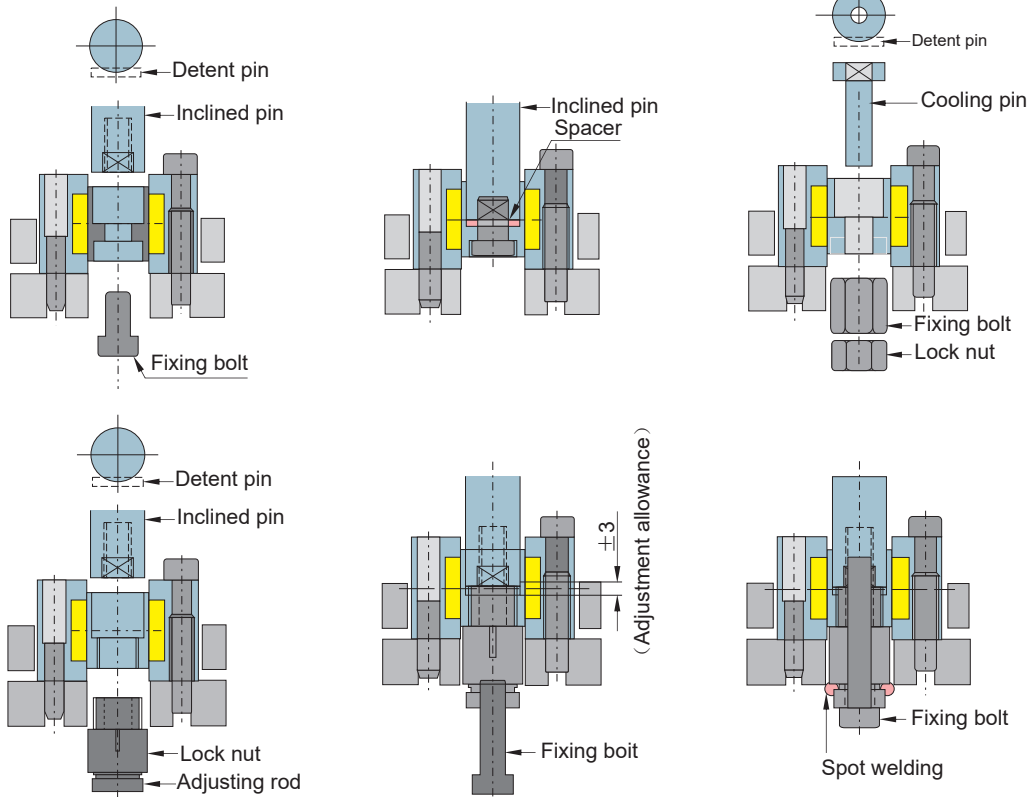
JOCU Oilless Unit Parts

This JOCU unit allows smooth removal of various core blocks at the desired angle with completely no lubrication.

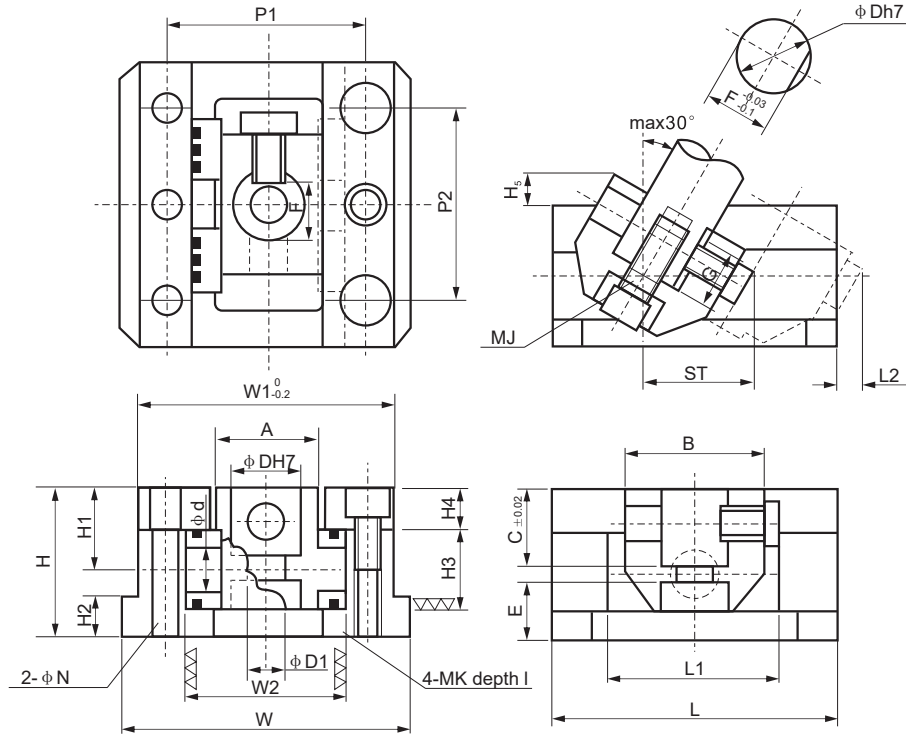
Installation method on molding



Inclined pin Installation method



JOCU-S Oilless Unit Parts

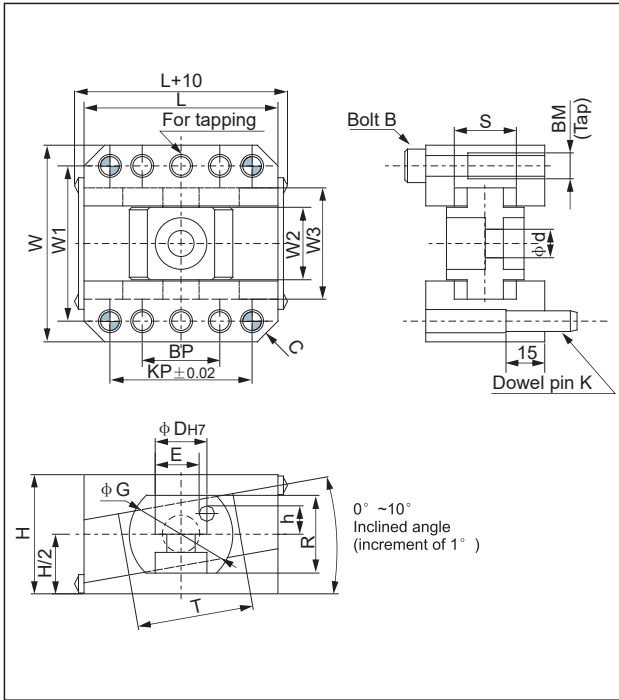


Unit: mm

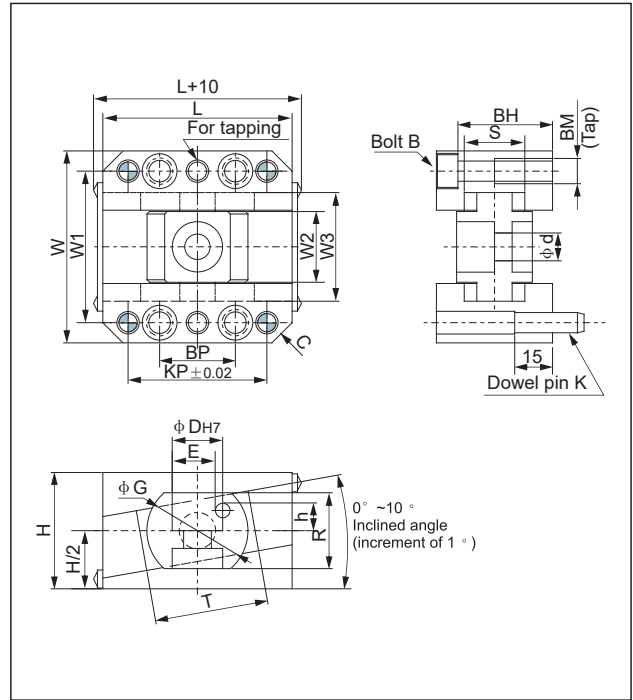
Standard No.	φ D	φ d	φ D1	A	B	C	E	F	G	MJ	H	H1	H2	H3	H4
JOCU-S-8	8	7	4.5	11	20	8	10	7	8	M4	22	12.5	5	11	7
JOCU-S-10	10	7	5.5	15	25	10	12.5	9	9	M5	27	15.5	5	15	8
JOCU-S-12	12	10	7	17	25	12	15	11	10	M6	32	18	7	16	10
JOCU-S-16	16	12	9	22	30	16	15	14.5	12	M8	36	20	8	20	10
JOCU-S-20	20	14	11	26	40	20	16	18	16	M10	42	23	11	22	12
JOCU-S-25	25	16	14	32	45	25	17	22.5	20	M12	50	28	15	26	15
JOCU-S-30	30	18	14	38	50	30	17	27	25	M12	55	30	15	30	15
JOCU-S-35	35	20	14	45	60	35	18	32	30	M12	62	35	15	34	18
JOCU-S-40	40	25	18	55	70	40	19	36	35	M16	70	40	15	44	18
JOCU-S-45	45	30	18	60	80	45	24	40	40	M16	80	45	15	50	20

Standard No.	H ₅	L	L1	L2	W	W1	W2	P1	P2	MK	l	φ N	ST
JOCU-S-8	10.5	32	20	3.6	33	30	19	24	20	M3	9.5	3	10
JOCU-S-10	11.3	45	25	4.5	45	40	25	32	30	M4	14	4	18
JOCU-S-12	4	50	30	8	57	51	31	39	35	M6	14	6	20
JOCU-S-16	5	65	40	8	65	58	38	46	40	M6	16	6	25
JOCU-S-20	8	80	50	8	80	72	44	56	55	M8	19	8	30
JOCU-S-25	8	90	55	12	93	85	52	66	65	M10	22	10	35
JOCU-S-30	9	100	60	12	101	93	60	74	70	M10	25	10	40
JOCU-S-35	10	120	75	8	120	110	70	85	80	M12	27	10	45
JOCU-S-40	12	135	85	8	130	120	80	95	90	M12	30	10	50
JOCU-S-45	14	150	95	10	140	130	90	105	110	M12	35	10	55

JOCU-FC/JOCU-F Oilless Unit Parts



JOCU-FC



JOCU-F

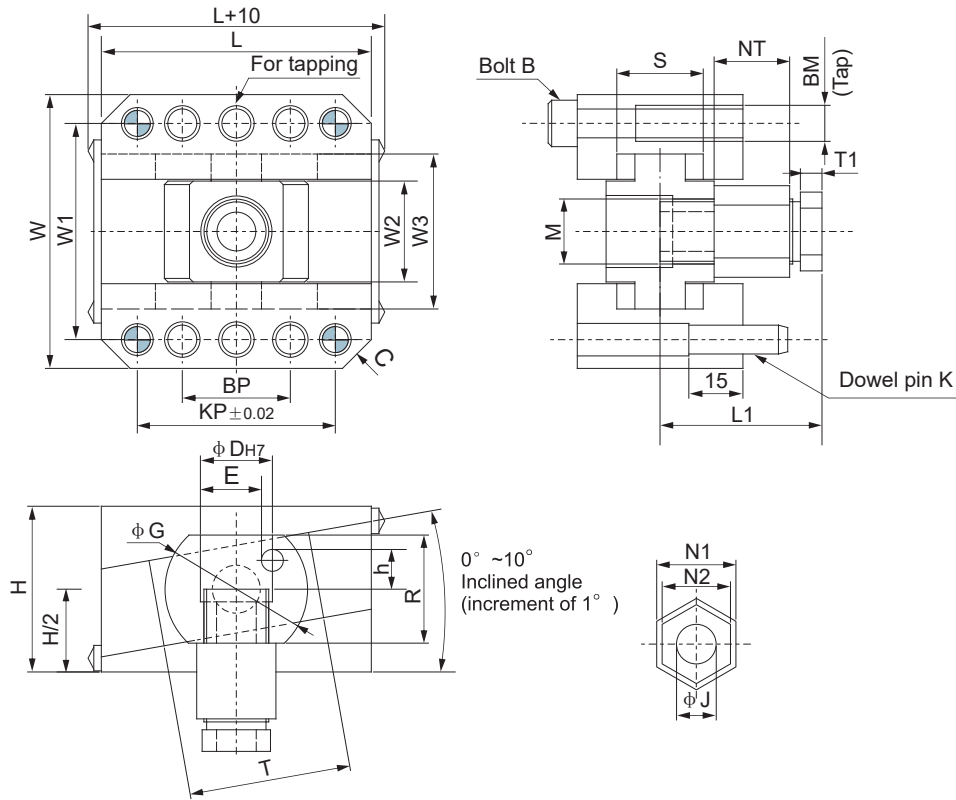
Unit:mm

Standard No.	D (pin diameter)	W	L	H	W1	BP	B (Accessory)	KP	k	BM	E	h	C	T	d	W2	W3	G	R	S
JOCU-FC-8	8	41	44	24	33	12	M3×30	25	φ4×25	M4	7.5	6.5	3	25	5	12	24	20	16	13
JOCU-FC-10	10	47	50	28	38	16	M4×35	30	φ5×25	M5	8.5	6.5	3	32	6	14	28	20	16	17
JOCU-FC-12	12	53	60	36	42	20	M6×50	40	φ6×25	M8	10	8	4	40	7	17	31	25	20	20
JOCU-FC-25	25	75	85	48	62	40	M8×65	65	φ8×30	M10	22	14	8	50	14	33	48	45	35	26
JOCU-FC-30	30	81	100	54	68	50	M8×70	80	φ8×30	M10	27	15	8	60	14	38	55	50	38	30
JOCU-FC-35	35	100	115	60	80	50	M10×80	85	φ10×30	M12	31	15	8	70	14	44	64	55	40	34
JOCU-FC-40	40	108	125	65	88	50	M10×85	85	φ10×30	M12	36	16	8	80	18	50	72	60	43	38

Unit:mm

Standard No.	D (pin diameter)	W	L	H	W1	BP	B (Accessory)	KP	k	BM	BH	E	h	C	T	d	W2	W3	G	R	S
JOCU-F-16	16	64	70	40	50	25	M6×45	50	φ6×25	M8	33.5	13	10	6	45	9	21	36	30	24	24
JOCU-F-20	20	76	75	46	60	30	M8×55	55	φ8×30	M10	37.5	17	13	8	45	11	28	43	40	30	24
JOCU-F-25	25	81	85	48	65	40	M8×55	65	φ8×30	M10	39.5	22	14	8	50	14	33	48	45	35	26
JOCU-F-30	30	88	100	54	72	50	M8×60	80	φ8×30	M10	45.5	27	15	8	60	14	38	55	50	38	30

JOCU-MC Oilless Unit Parts

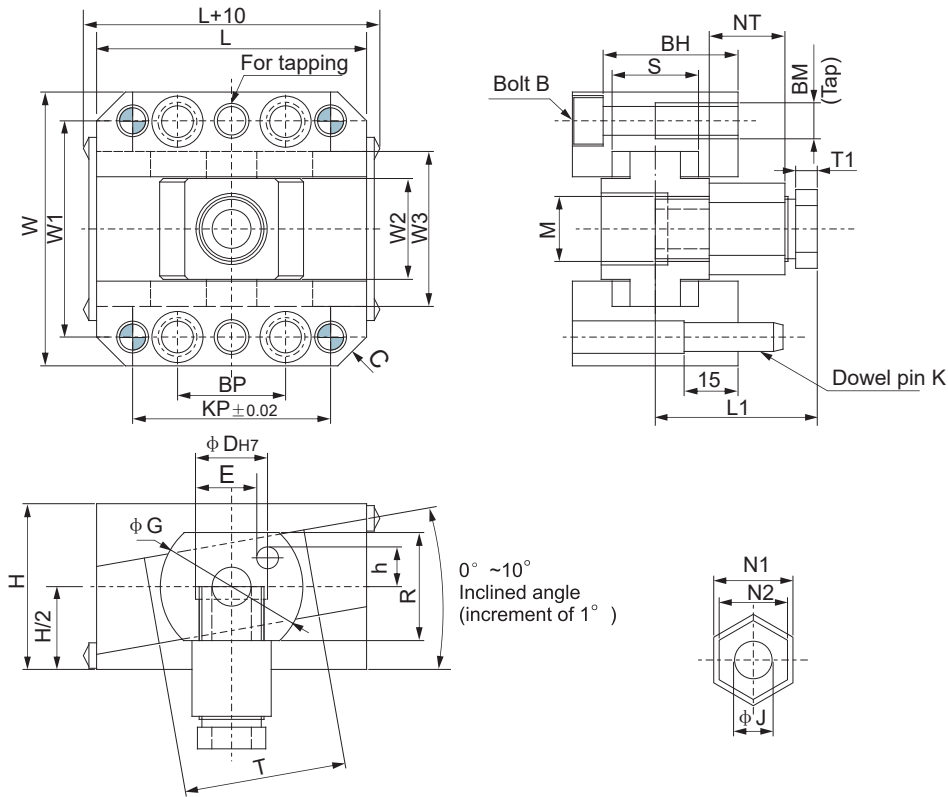


Unit:mm

Standard No.	D (pin diameter)	W	L	H	W1	BP	B (Accessory)	KP	k	BM	E	h
JOCU-MC-25	25	75	85	48	62	40	M8×65	65	φ 8×30	M10	22	14
JOCU-MC-30	30	81	100	54	68	50	M8×70	80	φ 8×30	M10	27	15
JOCU-MC-35	35	100	115	60	80	50	M10×80	85	φ 10×30	M12	31	15
JOCU-MC-40	40	108	125	65	88	50	M10×85	85	φ 10×30	M12	36	16

Standard No.	C	T	N1	N2	NT	J	W2	W3	G	R	S	L1	T1	M×Pitch
JOCU-MC-25	8	50	27	22	21.5	13	33	48	45	35	26	49	7	M22×P1.5
JOCU-MC-30	8	60	32	27	26	13	38	55	50	38	30	55	7	M27×P1.5
JOCU-MC-35	8	70	36	32	28	13	44	64	55	40	34	58	7	M30×P1.5
JOCU-MC-40	8	80	41	38	29	17	50	72	60	43	38	60.5	7	M36×P1.5

JOCU-M Oilless Unit Parts



Unit:mm

Standard No.	D (pin diameter)	W	L	H	W1	BP	B (Accessory)	KP	k	BM	BH	E
JOCU-M-16	16	64	70	40	50	25	M6×45	50	φ 6×25	M8	33.5	13
JOCU-M-20	20	76	75	46	60	30	M8×55	55	φ 8×30	M10	37.5	17
JOCU-M-25	25	81	85	48	65	40	M8×55	65	φ 8×30	M10	39.5	22
JOCU-M-30	30	88	100	54	72	50	M8×60	80	φ 8×30	M10	45.5	27

Standard No.	h	C	T	N1	N2	NT	J	W2	W3	G	R	S	L1	T1	M×Pitch
JOCU-M-16	10	6	45	17	14	21	9	21	36	30	24	24	42	6	M14×P1.5
JOCU-M-20	13	8	45	22	19	21	11	28	43	40	30	24	45	6	M18×P1.5
JOCU-M-25	14	8	50	27	22	21.5	13	33	48	45	35	26	49	7	M22×P1.5
JOCU-M-30	15	8	60	32	27	26	13	38	55	50	38	30	55	7	M27×P1.5