

# Outline of Spherical Bushing Unit

# Spherical Bushing Set



## ■ For operation of spherical bushing unit

### (1) Assembly and fixing method of unit

- ① Insert the unit at the specified position of the shaft.
- ② Fix the inner ring and the shaft with set screws.
- ③ Fix the case with bolts.

- ⚠ Make sure that the mating part for the unit is suitable for operating conditions.
  - Be careful that there is no foreign matter or step on the mounting surface.
  - When three units or more are used, align the shaft correctly. (The tolerance should be +/-0.25 mm.)

### (2) Fixing method of shaft and inner ring

- ① Fix the inner ring at the position where the flange does not come in contact with the outer ring end. Fix it with the clearance of 0.1 mm as a guideline. If interference between the inner ring flange and the outer ring end due to thermal expansion/shrink of the shaft is concerned, adjust the clearance appropriately. (One straight type screw per position is used)
- ② If the unit is used at a place or environment where vibration or impact is applied, provide seating at the set screw position of the shaft with a file or borer.

### (3) For thrust load

- ① If thrust load is applied, use the flange type inner ring. Solid lubricant is embedded at one side of the outer ring.
- ② When a flange type is used, make assembly so that the flange area may match the solid lubricant surface at the side.

### (4) For greasing

Grease groove is provided at the outer ring. Greasing can improve wear resistance and durability.

### (5) Accuracy and design of shaft

The recommended tolerance of the mating shaft is g6. Since the inner ring slides with the outer ring, material and hardness of the shaft is not particularly important. Heat treatment of the shaft surface is not required either.

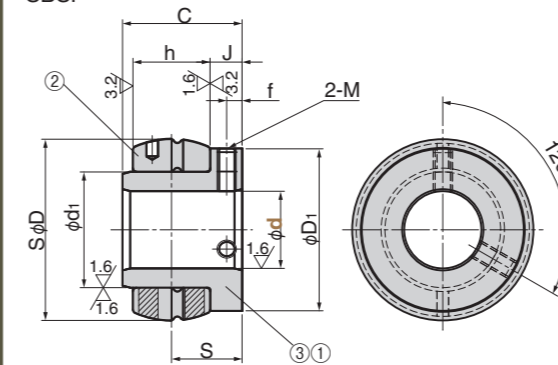
### (6) Measures for heat generation

If the unit is used at high temperature, thermal expansion (thrust direction) of the shaft occurs. If the flange type inner ring is used, it is recommended to design the flange outside.

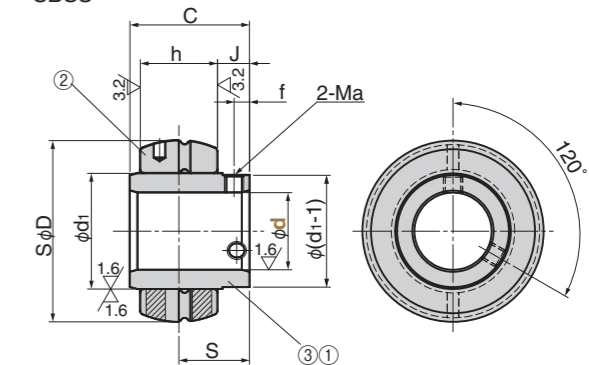
**SBSF** (Inner ring flange type)  
**SBSS** (Inner ring straight type)  
**SBSR** (②, Outer Ring Only)



SBSF



SBSS



- ⚠ Recommended mating post tolerance is g6
- ⚠ To minimize thrust from the inner flange type bushing, solid lubricant is embedded on the outer ring edge.
- ⚠ Stopper pin for outer ring (SUJ2, 1pce) is attached.

No.	Description	Qty	Material and remark
①	Inner ring	1	S45C Non-electrolytic nickel plating
②	Outer ring	1	Copper alloy with graphite (SO#50SP2)
③	Hexagon socket head screw	2	SCM435

d	Inner ring									Outer ring				Case No.	Catalog No.	d		
	Tolerance	d <sub>1</sub>	Tolerance	D <sub>1</sub>	C	S	J	M	Ma	f	D	Tolerance	d <sub>1</sub>				Tolerance	h
20		28	<sup>0</sup> / <sub>-0.013</sub>	43.5	31	18.3	8.3			4	47	<sup>-0.080</sup> / <sub>-0.105</sub>	28	<sup>+0.061</sup> / <sub>+0.040</sub>	20	204		20
25	<sup>+0.021</sup> / <sub>0</sub>	33		47.5	34	19.7	8.7	5	4	4	52		33		22	205		25
30		40	<sup>0</sup> / <sub>-0.016</sub>	57.5	38.1	22.2	9.7	6	5	5	62	<sup>-0.100</sup> / <sub>-0.130</sub>	40	<sup>+0.075</sup> / <sub>+0.050</sub>	25	206	SBSF	30
35		50		67.5	42.9	25.4	11.9		6	6	72		50		27	207	SBSS	35
40		60		74.5	49.2	30.2	15.7	8		7	80		60		29	208	SBSR	40
45	<sup>+0.025</sup> / <sub>0</sub>	65	<sup>0</sup> / <sub>-0.019</sub>	79.5	49.2	30.2	15.7		8	7	85	<sup>-0.120</sup> / <sub>-0.155</sub>	65	<sup>+0.090</sup> / <sub>+0.060</sub>	29	209		45
50		70		84.5	51.6	32.6	17.6	10		8	90		70		30	210		50



Order	Catalog No.	d
	SBSF	35
	SBSR	35