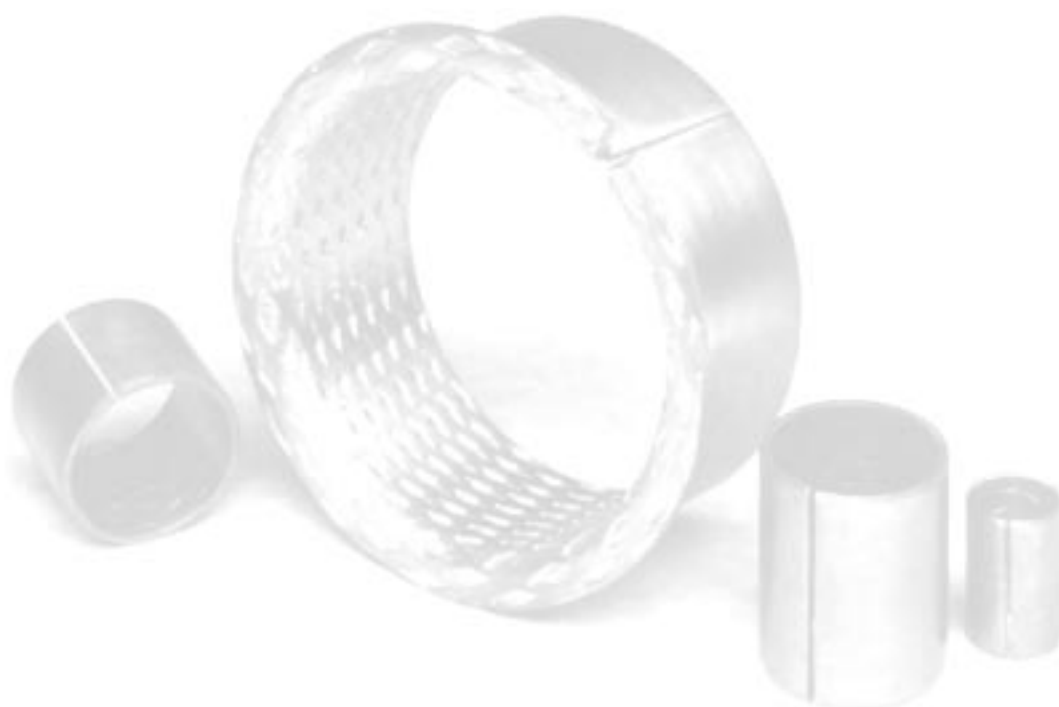


BRONZE WRAPPED BUSHES

ebo SERIE SB





Ibáñez Industrial, S.A.

- ✓ **S**ince 1976 sliding bearing specialist.
- ✓ **M**ore than 5.000.000 pieces on stock.
- ✓ **F**acility: 2.000 m²

MATERIALS

Made out of cold-rolled bronze bands with **92% Copper and 8% Tin** composition, cut according to part dimensions and bended to fit its shape.

On its inner surface there are several uniform distributed indentations that act as grease tanks. The grease selection will depend on mechanism requirements, being the one applied in standard ball bearing the most used.

This material has a very high hardness / friction coefficient ratio, high thermal conductivity that allows the transmission of heat produced by friction and more than effective resistance against corrosion.

NORM: ISO 3547 / DIN 1494



All bushings have the **ebo** surface mark with its reference, allowing an easy traceability.

MECHANICAL PROPERTIES

The following table shows the main mechanical properties of this type of bearing:

Density	8.8 gr/cm ³
Max. Load (static)	470 N/mm ²
Thermal Conductivity	58 W/m · K
Thermal Expansion	18.5 · 10 ⁻⁶ / K
Elongation	40%
PV factor	2.8 N/mm ² · m/s
Friction Coefficient	0.08 - 0.25

CORROSION RESISTANCE

The corrosion resistance of the serie SB bushings is high due to the material that is compounded. This bearing can work in **dirty and aggressive environments**.

Water doesn't corrode the metal, although the need of adding lubricant when fitting makes this bushing not able to work in submerged applications.

Only is corroded by those substances that by its own nature attack bronze. It must also pay attention to agents that could wear the lubricant.

TEMPERATURES

The temperature limits come highly influenced by the selection of lubricants. At first it is suggested a constant working range between -20 °C to 100 °C.

The extreme value of the range could be modified by the application of high temperature oils or greases.

APPLICATIONS

A remarkable characteristic of these bearings is that have a thin wall, allowing the possibility of reducing machines or mechanical appliances. By other hand, there is no theoretical limit about maximum diameter can be made.

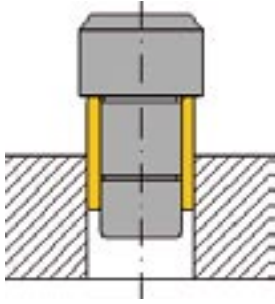
This bushing can be considered as one of the best selections for the next applications:

- ✓ High loads.
- ✓ Rotating, oscillating and sliding movements.
- ✓ Corrosive environments.
- ✓ Dirty environments.
- ✓ Shocks produced on the shaft.

So, they are ideal for the next machinery:

- ✓ Farm mechanization.
- ✓ Mining.
- ✓ Fluid-power cylinders.
- ✓ Wood industry.
- ✓ Ceramic industry.

FITTING



Bushings must be fitted into **H7** rigid housings. It is advised the use of a guiding mandrel with the help of a press machine, as shown in the figure, to avoid deviations and loss of shape in bearings. The guiding mandrel's tolerance has to be **m6**.

The shaft's tolerance must be **f7**, with a surface rugosity less than **Ra 0.4 and Rz 3 mm**. It is also advised using shafts with chrome-plated or nickel-plated surfaces. The work with stainless steel shafts is possible.

The inner tolerances of the fitted bushing are shown in tables following next pages.

CALCULATION

What would be the maximum load that **SBA 20 10** with a speed of 1.500 rev/min can support ?

$$V = \frac{\pi \cdot Di \cdot N}{60 \cdot 10^3} = \frac{\pi \cdot 20 \cdot 1500}{60 \cdot 10^3} = 1.57 \text{ m/s}$$

$$P \cdot V = 2.8 \quad P = 2.8 / 1.57 = 1.78 \text{ N/mm}^2$$

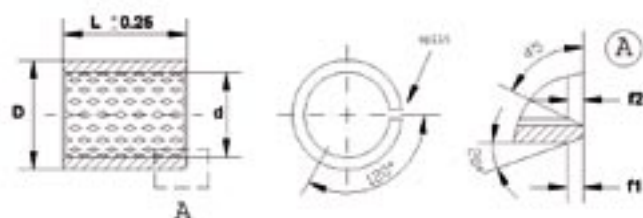
$$P = F / S \quad F = S \cdot P = Di \cdot L \cdot P = 20 \cdot 10 \cdot 1.78$$

$$F = 356 \text{ N}$$

EXAMPLE APPLICATIONS

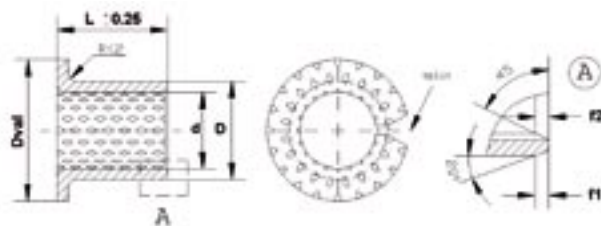


PLAIN BUSHES



Ref.	Nominal Diameters		f1	f2	(d) Fitted		D		Lengths					
	d	D			Min.	Max.	Min.	Max.						
SBA	08	10	0,6	0,4	+0,000	+0,030	+0,030	+0,065	5	18				
SBA	10	12							7	8	10	15	20	
SBA	12	14							8	10	12	15	20	
SBA	14	16	0,6	0,4	+0,000	+0,043	+0,030	+0,065	10	15	20	25		
SBA	15	17							10	15	20	25		
SBA	16	18							10	15	20	25		
SBA	18	20							10	15	20	25		
SBA	20	23							6	10	15	20	25	30
SBA	22	25							8	15	20	25	30	40
SBA	24	27	0,6	0,4	+0,000	+0,052	+0,035	+0,075	10	15	20	25	30	
SBA	25	28							15	20	25	30		
SBA	28	31							13	15	20	25	30	
SBA	30	34							15	20	25	30	40	
SBA	32	36							15	20	25	30	40	
SBA	35	39	1,2	0,4	+0,000	+0,062	+0,045	+0,085	15	20	25	30	35	40
SBA	35	40							40	20	25	30	35	40
SBA	40	44							20	25	30	38	40	50
SBA	45	50							20	25	30	40	50	60
SBA	50	55							20	25	30	40	50	60
SBA	55	60							20	25	30	40	50	60
SBA	60	65	1,8	0,6	+0,000	+0,074	+0,055	+0,100	25	30	35	40	50	60
SBA	65	70							30	40	50	60	70	80
SBA	70	75							40	50	60	70	80	90
SBA	75	80							30	40	50	60	70	80
SBA	80	85							30	40	50	60	80	100
SBA	85	90							30	40	60	80	100	
SBA	90	95	1,8	0,6	+0,000	+0,087	+0,070	+0,120	40	50	90	80	100	
SBA	100	105							50	60	100			
SBA	105	110							60	100				
SBA	110	115							60	100				
SBA	115	120							60	100				
SBA	120	125							60	100				
SBA	125	130							60	100				
SBA	130	135	1,8	0,6	+0,000	+0,100	+0,100	+0,170	60	100				
SBA	135	140							60	100				
SBA	140	145							60	100				
SBA	145	150							60	100				
SBA	150	155							60	100				
SBA	155	160							60	100				
SBA	160	165							60	100				
SBA	165	170							60	100				
SBA	170	175							60	100				
SBA	175	180							60	100				
SBA	180	185							60	100				
SBA	185	190							60	100				
SBA	190	195	1,8	0,6	+0,000	+0,115	+0,130	+0,210	60	100				
SBA	195	200							60	100				
SBA	200	205							60	100				
SBA	215	210							60	100				
SBA	225	230							60	100				
SBA	230	235							60	100				
SBA	240	245							60	100				
SBA	250	255							60	100				
SBA	260	265	1,8	0,6	+0,000	+0,130	+0,170	+0,260	60	100				
SBA	280	285							60	100				
SBA	290	295							60	100				
SBA	300	305							60	100				

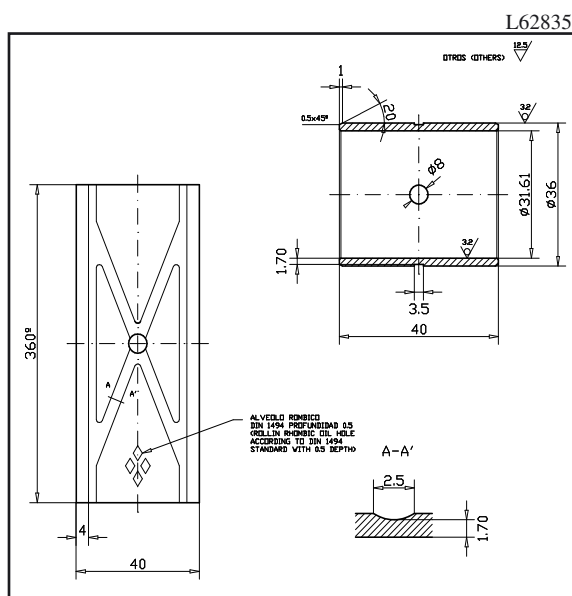
FLANGED BUSHES



Ref.	Nominal Diameters			Flange Thickness	f1	f2	(d) Fitted		D		Lengths	
	d	D	Dval				Min.	Max.	Min.	Max.		
SBB	25	28	35	1,5	0,6	0,4	+0,000	25,052	28,035	28,075	15	25
SBB	30	34	45	2	0,6	0,4	+0,000	30,052	34,045	34,085	20	30
SBB	35	39	50	2				35,062	39,045	39,085	20	30
SBB	40	44	55	2				40,062	44,045	44,085	25	40
SBB	45	50	60	2,5	1,2	0,4	+0,000	45,062	50,045	50,085	30	45
SBB	50	55	65	2,5				50,062	55,100	55,055	30	50
SBB	55	60	70	2,5				55,074	60,100	60,055	30	50
SBB	60	65	75	2,5	1,2	0,4	+0,000	60,074	65,100	65,055	30	60
SBB	65	70	80	2,5				65,074	70,100	70,055	30	60
SBB	70	75	85	2,5				70,074	75,100	75,055	40	70
SBB	80	85	100	2,5				80,074	85,120	85,070	40	80
SBB	90	95	110	2,5				90,087	95,120	95,070	50	90
SBB	100	105	120	2,5	1,2	0,4	+0,000	100,087	105,120	105,070	50	90
SBB	110	115	130	2,5				110,087	115,120	115,070	50	90
SBB	120	125	140	2,5				120,087	125,170	125,100	50	90
SBB	130	135	155	2,5				130,100	135,170	135,100	60	90
SBB	140	145	165	2,5	1,2	0,4	+0,000	140,100	145,170	145,100	60	90
SBB	150	155	180	2,5				150,100	155,170	155,100	60	90
SBB	160	165	190	2,5				160,100	165,170	165,100	60	90
SBB	170	175	200	2,5				170,100	175,170	175,100	60	90
SBB	180	185	215	2,5				180,100	185,210	185,130	60	90
SBB	190	195	225	2,5	1,8	0,6	+0,000	190,115	195,210	195,130	60	90
SBB	200	205	235	2,5				200,115	205,210	205,130	60	90
SBB	225	230	260	2,5				225,115	230,210	230,130	60	90
SBB	250	255	290	2,5				250,115	255,260	255,170	60	90
SBB	265	270	305	2,5	1,8	0,6	+0,000	265,130	270,260	270,170	60	90
SBB	285	290	325	2,5				285,130	290,260	290,170	60	90
SBB	300	305	340	2,5				300,130	305,260	305,170	60	90

SPECIAL PARTS

There is the possibility of producing parts under customer especial requirements.







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<http://www.ibinsa.com>
ibinsa@ibinsa.com

TELS. +34.93.753.08.79
 +34.93.753.23.89
 FAX. +34.93.753.18.96



IBAÑEZ INDUSTRIAL, S.A.

Calle A nº 6

Pol. Ind. La Baileta - Can Xinxà
 08348 Cabrils - BARCELONA
 SPAIN