



SELF-LUBRICATING BEARINGS



Well-known brand name for high performance sintered self-lubricating bearings in bronze or steel alloys.



MAIN ADVANTAGES OF SINTERED SELF-LUBRICATING BEARINGS

Depending on the type of material and lubricant used, a self-lubricating bearing can offer the following technical advantages:

Performance

An extremely wide range of operating loads, speeds and temperatures:

- › Dynamic loads from 6 to 75 MPa.
- › Speeds from 0 to 8 m/s.
- › Temperatures from -180°C to +300°C.

Suitable for use in a wide range of environments:

- › Marine environment.
- › Radio-active environments.
- › Contact with corrosive liquids or substances incompatible with oils.
- › Food preparation.

Cost savings

- › Maintenance-free operation.
- › Lower price compared to cast metal and machined bearings.
- › Supports complex forms and shapes.
- › High dimensional accuracy.
- › Excellent surface finish.
- › Reduced weight compared to similar non-porous components.

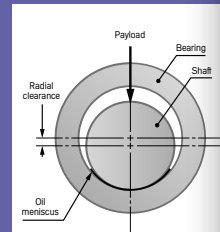
Safety

- › Permanent oil film lubrication.
- › Low friction factor.
- › Quiet operation.
- › Good operation at low speed and shock resistant.
- › Good corrosion resistance.

Principles of lubrication

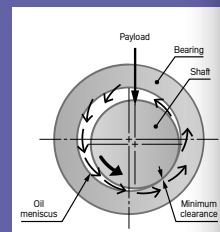
Stationary position:

- › Shaft in contact with the bearing.
- › Presence of an oil meniscus at the point of contact through the action of capillary forces.
- › This oil meniscus is very helpful for instant lubrication during startup.



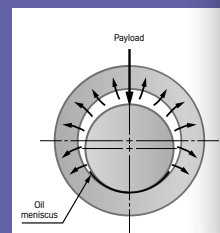
Rotating shaft:

- › Oil is drawn out of the bearing in the upper aspiration zone.
- › The oil is driven around by the rotation of the shaft and forms an oil wedge that produces the pressure necessary to lift the shaft.
- › The pressure produced forces part of the circulating oil into the pores of the bearing.

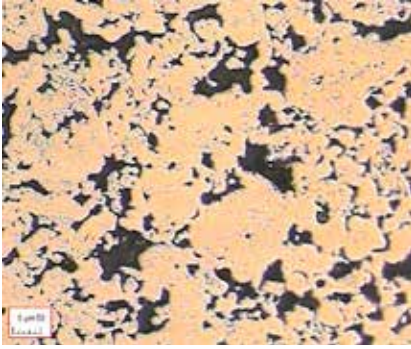


After operation:

- › The oil is re-absorbed by the porous bearing, under the action of capillary forces.
- › The oil meniscus remains at the point of contact ready for instant lubrication at startup.



Standard Materials and Impregnation



Sinter bronze micro-section



Sinter iron micro-section

A self lubricating bearing is a functional part of a journal bearing

Its properties are due to the presence of two components:

- › A metallic frame which serves to support and transmit the mechanical load.
- › A lubricant which acts as an interface between two surfaces and reduces friction.

STANDARD MATERIAL GRADES	Bronze BP 25	Iron alloy FP 20	Iron alloy SO 16 (blanks only)
AFNOR equivalent	FU-E10-62	FC10-U3-56	FC50-U20-60
DIN 30910 equivalent	Sint A50	Sint A10	N/A
Min. density (g/cm ³)	6,2	5,6	6
Max. payload (daN/cm ²)	100	225	600
Max. linear speed (m/s)	6	4	0,3
Max. PV (daN/cm ² x m/s)	18	18	9
Temperature range (°C)	-5 / +90	-5 / +90	0 / +105
Impregnation oil	MT100	MT100	METADOP
Min. open porosity (%)	23	20	16

How to choose the correct material grade?

Bronze BP 25	Iron alloy FP 20	Iron alloy SO 16
Good coefficient of friction	Recommended for medium or low speeds	Recommended for medium or low speeds
Good corrosion resistance	Good bearing strength	Good bearing strength
Recommended for high speeds	Recommended for high payloads	Recommended for very high payloads
Shaft surface finish Ra ≤ 0,6	Shaft surface finish Ra ≤ 0,3	Shaft surface finish Ra ≤ 0,3
Shaft hardness ≥ 80 kg/mm ²	Shaft hardness ≥ 120 kg/mm ²	Shaft hardness ≥ 120 kg/mm ²

Usage Guidelines

- › Our products are always supplied in plastic bags
- › Keep the products in their original packaging
- › Do not store on absorbent supports
- › Do not drop or otherwise shock the packaging or the products
- › Do not splash or submerge the products in water
- › Do not reuse after dis-assembly



Alloys Available For Self-Lubricating Bearings

Bronze-based grades

Tools need to be created for all material grades except BP25, FP20 and SO16 that are available in the dimensions indicated in the standard bearings catalogue.

Grades	AFNOR or ISO description	AFNOR or ISO standard	DIN 3090 standard equivalent	Cu %	Sn %	Cg %	Total other elements %	K N/mm ²	Brinell hardness HB	A %	Expansion 10 ⁻⁶ /°C	Min. specific density	Min. open porosity %	Static load daN/cm ²
BP25	FU-E10-62	NFA 95731	SINT A50	complement	8-10.5	-	< 2	140	25	>2	18	6.2	23	200
BP22	FU-E10-64 ISO P4012Z	NF ISO 5755/1	SINT A50	complement	9-11	-	< 2	140	30	>3	18	6.4	22	200
BP15	FU-E10-68 ISO P4013Z	NF ISO 5755/1	SINT B50	complement	9-11	-	< 2	180	35	>4	18	6.8	17	350
BP10	FU-E10-70	Non-standard	SINT C50	complement	9-11	-	< 2	220	40	>5	18	7	10	450
BG22	FU-E10Cg1-62 ISO P4022Z	NF ISO 5755/1	SINT A51	complement	9-11	0.5-2	< 2	120	20	>1	18	6.2	20	150
BG20	FU-E10Cg1-66 ISO P4023Z	NF ISO 5755/1	SINT B51	complement	9-11	0.5-2	< 2	160	30	>3	18	6.6	17	250
BG10	FU-E10Cg5-66	Non-standard	Non-standard	complement	9-11	5	< 2	100	20	>1	18	6.6	5	120
BPV30	FU-E10-62	NFA 95731	Non-standard	complement	8-10.5	-	< 2	160	28	>2	18	6.2	23	200
BPV50	FU-E10-62 ISO P4012Z	NF ISO 5755/1	Non-standard	complement	9-11	-	< 2	160	28	>2	18	6.2	22	200
BPV60	FU-E10-68 ISO P4013Z	NF ISO 5755/1	Non-standard	complement	9-11	-	< 2	180	35	>4	18	6.8	17	380

Other alloys on request.

Iron-based grades

Grades	AFNOR or ISO description	AFNOR or ISO standard	DIN 30910 standard equivalent	Cu %	Fe %	C %	Total other elements %	K N/mm ²	Brinell hardness HB	A %	Expansion 10 ⁻⁶ /°C	Min. specific density	Min. open porosity %	Static load daN/cm ²
FP20	FC10-U3-56	Non-standard	SINT A10	1-4	complement	< 0.25	< 2	200	28	>2	11	5.6	20	450
FP18	F80-U3-60 ISO P2053Z	NF ISO 5755/2	SINT B11	1-4	complement	0.2-0.9	< 2	350	HRB>56	-	11	6	18	1000
SO16	F50-U20-60	Non-standard	Non-standard	20	complement	0.3-0.6	< 2	400	HRB>40	>1	11	6	16	1200
TR16	F50-U20-60 Treated	Non-standard	Non-standard	20	complement	< 1	< 2	400	HRB>75	-	11	6	16	1500

Other alloys on request.

Material Grades with solid lubricants

Designation	Max. speed (m/s)	Max. payload (daN/cm ²)	Payload x Speed (daN/cm ² x m/s)	Operating temperature (°C)	Payload at V=0 (daN/cm ²)	Shaft surface finish	
						Max. Ra	Min. HB
BP 25 + PTFE	1	100	3	-180 / +180	200	0.3	240
FP 20 + PTFE	1	225	3	-180 / +180	450	0.3	300
BP 25 + MoS2	0,1	100	1	-180 / +300	200	0.3	355
FP 20 + MoS2	0,1	225	1	-180 / +300	450	0.3	355
BG 10 with 5% graphite	0,1	60	1	-180 / +250	120	0.3	355

Under dry conditions, the BG10 grade can be used for a boundary lubrication regime (maximum speed < 0.1 m/s and maximum load < 60 daN/cm²) in order to cater for a working temperature range of -180°C to 250°C.

Liquid lubricants

Description	Type	Pour point °C	Flash point °C	Viscosity cSt		Operating temperature	
				at 40°C	at 100°C	°C	°C
T 100	Mineral	-24	250	100	11.7	-5	+90
PE 1116	Synthetic	-50	255	65	9.5	-40	+150
OM 460	High pressure	-12	276	460	30.4	0	+105
PE 1152	Food	-18	252	68	9	-18	+120

Other oils are available for special uses (contact us for details).

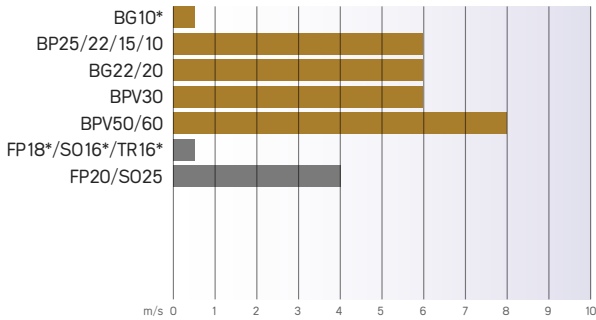
Grade Selection

Finding the right grade for your application with respect to:

1 - Shaft linear speed

$$V \text{ (m/s)} = \frac{N \text{ (rpm)} \times \varnothing \text{ (m)} \times \pi}{60}$$

The maximum permissible linear speed can be found on the graph below:

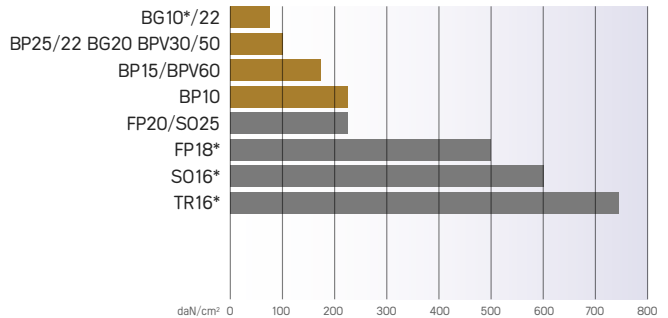


2 - Shaft load

$$P \text{ (daN/cm}^2\text{)} = \frac{\text{load (daN)}}{\text{projected area (cm}^2\text{)}}$$

$$P \text{ (daN/cm}^2\text{)} = \frac{F \text{ (daN)}}{\varnothing \text{ ins. (cm)} \times \text{length (cm)}}$$

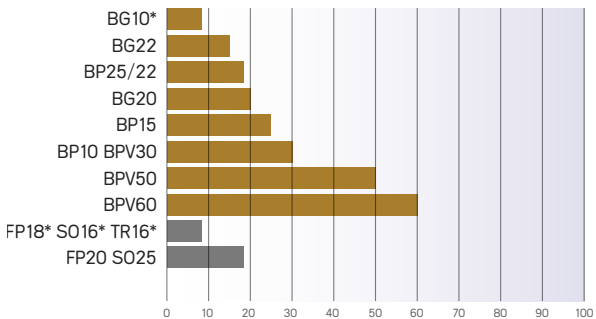
The maximum permissible dynamic load can be found on the graph below:



3 - Product load x speed

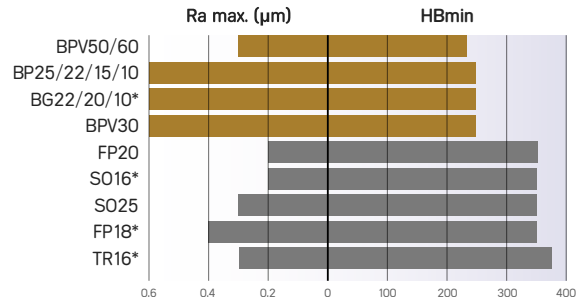
$$PV = P \text{ (daN/cm}^2\text{)} \times V \text{ (m/s)}$$

The maximum permissible product PV can be found on the graph below:



4 - Shaft characteristics

Roughness: Ra (µm) Hardness: HB



The maximum characteristic values are indicated for the lubricant-impregnated bearings below:

- › T100 oil for grades BP, BG 20/22, FP20 and BPV,
- › METADOP oil = OM 460 + MoS2 for grades SO16 and TR16,
- › OM 460 oil for grades BG10 and FP18.

Use of self-lubricating bearings with a maximum alternating frequency of 10 Hz.

The value of the product PV. is given for a hydrodynamic regime ($V > 0.5$ m/s) except for the grades marked with an asterisk (*) which can be used only in a boundary lubrication regime at the maximum speed indicated.

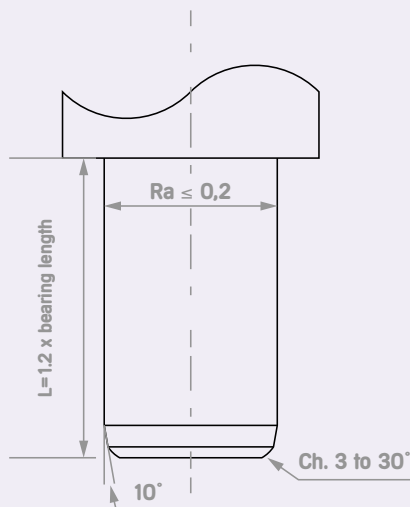
For a speed < 0.3 m/s, corresponding to a boundary lubrication regime, the maximum value of the PV. product is 9.

Under operating conditions with a mixed lubrication regime from 0.3 to 0.5 m/s, please consult our "Bearing design" catalogue in order to determine the maximum PV. value.

The values indicated for the physical characteristics are obtained from readings on test samples.

Poral cannot in any way be held responsible for these values and customers should always contact us before any use.

Assembly Instructions for Standard Self-Lubricating Bearings



Using a fitting mandrel

(Ground carbon steel, polished finish - surface hardness ≥ 60 HRC)

- Tolerances: **m6**

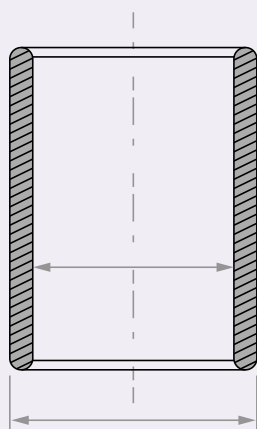
Fit the bearings with a press (shrink-fitting), using the correct diameter mandrel in order to ensure that:

- the bearing is inserted correctly and positioned perfectly,
- the final bearing bore tolerances are still correct after fitting.

Insertion force

Indicative values with **m6** mandrel and **H7** housing with $Ra \leq 3.2$ and considered to be rigid*: **100 daN/cm²** (contact area of outer diameter of bearing).

* Housing made of steel (or cast iron) with a minimum wall thickness equal to at least three times the thickness of the bearing.



Bearing before fitting

(See standard self-lubricating bearings catalogue)

\emptyset inner - $\emptyset 1$ cylindrical bearing: **F7**

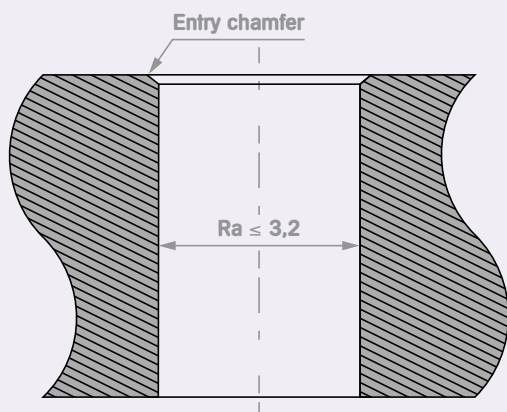
\emptyset inner - $\emptyset 1$ flanged bearing: **F8**

(F8 for $\emptyset 1 > 50$ mm)

\emptyset outer - $\emptyset 2$ cylindrical bearing: **s7**

\emptyset outer - $\emptyset 2$ flanged bearing: **s8**

(s8 for $\emptyset 2 > 50$ mm)



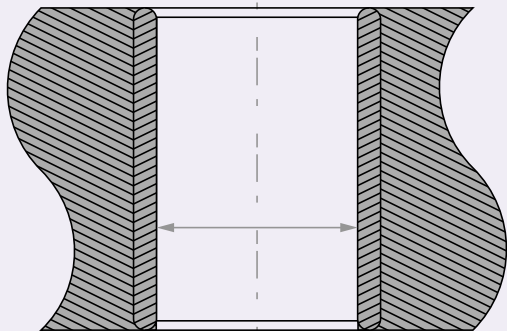
Steel housing (non-deformable)

- Tolerances: **H7**

The tightness between bearing and housing and the final bearing bore tolerances were determined for a rigid housing made of steel or, if need be, of cast iron.

For any other type of housing (not rigid or made of any other material), the tightening stresses will be different and practical tests should be carried out to confirm the bore tolerances (contact us).

Assembly Instructions for Standard Self-Lubricating Bearings

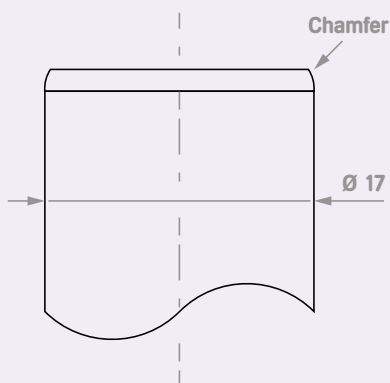


Bearing after press-fitting

Ø inner - Ø 1 cylindrical bearing: **H7**

Ø inner - Ø 1 flanged bearing: **H8**

(H8 for Ø 1 > 50 mm)



Shaft to be used

The mechanical properties of the steel depend on the bearing grade.

For a BP25 bearing

Steel with min. hardness 240 HB10
Ra ≤ 0.6

For an FP20 bearing

Steel with min. hardness 355 HB10
Ra ≤ 0.2

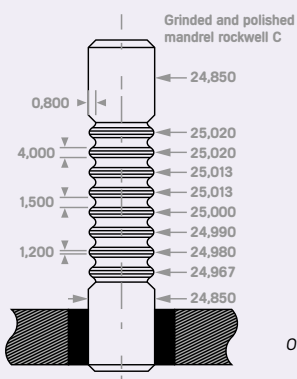
- Tolerances: **f7**

If the bearing is fitted without additional support (bonding or overmoulding), use a shaft with h7 rather than f7 tolerances.

Operating clearance

- It is important to follow the assembly instructions to ensure that the self-lubricating bearing functions correctly.
- Rotating assembly: **H7/f7** or **H8/f7**

Mechanical expansion

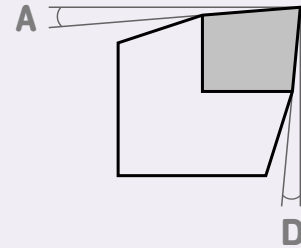
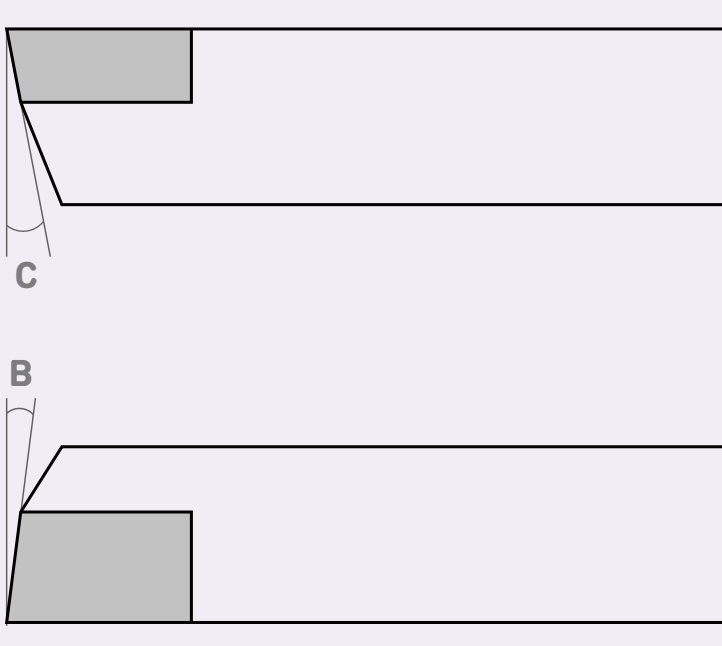


- If the bearing is to be fitted in a non-rigid housing, we recommend mechanical expansion with a stepped tube-expander.
- Example for a bearing with Ø less than: 25 mm

Obtains mechanical expansion of: $25^{+0.020}_0$

Machining Instructions for Self-Lubricating Blanks

Grades: BP25 – FP20 – S016



Sintered materials are machined in the same way as the corresponding solid metal. However, to ensure the integrity of friction surface porosity (bore – flange face), we recommend complying with the following particular machining conditions.

Cutting conditions

Bronze BP 25

Angle	Blank/Finished product		Blank	Finished product
A	0 – 3	Tool grade	K10/K20	K10/K20
B	5 – 7	Cutting speed (m/min)	120 – 200	140 – 200
C	5 – 7	Feed (mm/rev.)	0.1 – 0.2	0.1 max
D	5 – 7	Cutting depth (mm)	≤ 1	0.1 – 0.4

In degrees

Iron alloy FP20 and S016

Angle	Blank	Finished product		Blank	Finished product
A	3 – 7	7 – 10	Tool grade	K10/K20	K10 5015 (cermet*)
B	5	10	Cutting speed (m/min)	140	160 200 – 250
C	5 – 7	12 – 15	Feed (mm/rev.)	0.2 – 0.3	0.035 0.035 – 0.06
D	5 – 7	12 – 15	Cutting depth (mm)	1 – 5	0.3 – 0.5 0.3 – 0.5

** In case of increased productivity*

In degrees

Machining Instructions for Self-Lubricating Blanks

Turning

Clamping

To prevent any deformation, especially with respect to the thin walls, the bores must be machined by clamping the bearing with collets or soft jaws. For machining the outside diameter, blanks will be fitted to the mandrels in a cantilever set-up or placed between lugs (mandrel taper 0.01%).

Finalising the contact surfaces

After machining with a well-sharpened tool, it is recommended to provide an internal and external chamfer of the order of 0.5 mm at 45°.

Drilling

For through holes, the feed should be reduced as the drill exits.

- › **Bronze BP25:** no particular conditions.
- › **Iron FP20:** HSS drill bit with 5% cobalt, cutting speed: 25 to 30 m/min, feed 0.1 to 0.3 mm/min.

Tapping

- › **Bronze BP25:** no particular conditions.
- › **Iron FP20:** nitride-treated taps with 5% cobalt, cutting speed: 8 to 12 m/min.

Straightening

This operation must not be performed for finishing bores. This is because abrasive particles from the grinder may become embedded in the surface porosity, thereby leading to accelerated wear of the moving parts.

Cutting oil

When machining METAFRAM® blanks, the use of cutting oil is not necessary because of the penetrating oil present in the porosity of the sintered metal.

However, if additional cooling should become necessary, in particular when machining mass-produced parts, it is highly recommended to use of an oil having the same specification as that used for impregnation, or a jet of compressed air.

Any other cooling fluid must be avoided as there is a risk that it may be incompatible with the original impregnation oil.

Reimpregnation after machining

All standard METAFRAM® blanks are delivered impregnated with mineral oils having a viscosity index greater than 95. However, in order to compensate for oil losses due to machining and handling, reimpregnation is necessary according to the following procedure:

- › to eliminate any chips or dust remaining from machining operations, the part must be rapidly rinsed with a volatile solvent (heptane or Biosane ECO 60R), and then dried,
- › depending on its weight, immerse the part for one or two hours in an oil bath at a temperature of 80°C,
- › leave the part to cool down in this bath to ensure optimum oil saturation of the porosity. Preferably, the oil used for the bath should have the same reference as the original impregnation oil or, failing this, it may be replaced by SAE 30 type motor oil which is easy to procure.

Impregnation oils

- › For shaft rotation speeds greater than 0.3 m/s, use standard impregnation oil: Shell Turbo T100 oil – Viscosity index of 100.
- › For linear alternating or pendular movement speeds of less than 0.3 m/s, use a special impregnation oil supplied on request (extreme pressure oil with molybdenum disulphide additive, etc.). Contact us for details.

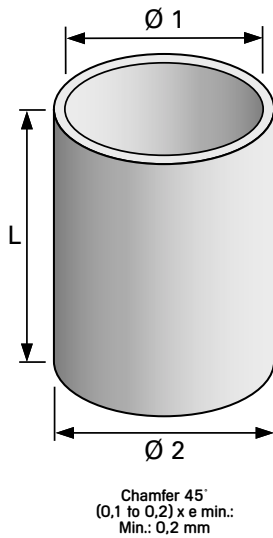
Checking surface porosity

It is assumed that, in practice, any machining work will result in a small decrease in surface porosity which will have little effect on the performance of self-lubricating materials on condition that the above machining recommendations are respected.

The residual porosity after machining will be checked in the following manner:

- › either by a comparative examination (preferably using a magnifying glass) of the machined and non-machined surfaces,
- › or by raising the temperature of the machined part by some thirty degrees (using a heating plate, radiator, naked flame). Given the significant difference between the expansion coefficients of the sintered metal and the impregnation oil, this temperature rise causes the oil to exude. A uniform surface film of oil is thus formed and the self-lubricating qualities of the material are preserved.

Self-Lubricating Cylindrical Bearings (SBC)



With BP 25 bronze base

Type	Bore diameter mm (Ø1)	Outside diameter mm (Ø2)	Overall bearing length mm (L)	Type	Bore diameter mm (Ø1)	Outside diameter mm (Ø2)	Overall bearing length mm (L)
SBC BP25 Ø2/5 L	2 ⁺¹⁶ / ₊₆	5 ⁺³¹ / ₊₁₉	2-3	SBC BP25 Ø20/28 L	20 ⁺⁴¹ / ₊₂₀	28 ⁺⁵⁶ / ₊₃₅	16-20-25-32
SBC BP25 Ø3/6 L	3 ⁺¹⁶ / ₊₆	6 ⁺³¹ / ₊₁₉	4-6-10	SBC BP25 Ø22/27 L	22 ⁺⁴¹ / ₊₂₀	27 ⁺⁵⁶ / ₊₃₅	18-22-28-36
SBC BP25 Ø4/7 L	4 ⁺²² / ₊₁₀	7 ⁺³⁸ / ₊₂₃	4-8-12	SBC BP25 Ø22/28 L	22 ⁺⁴¹ / ₊₂₀	28 ⁺⁵⁶ / ₊₃₅	18-22-28-36
SBC BP25 Ø4/8 L	4 ⁺²² / ₊₁₀	8 ⁺³⁸ / ₊₂₃	4-8-12	SBC BP25 Ø22/29 L	22 ⁺⁴¹ / ₊₂₀	29 ⁺⁵⁶ / ₊₃₅	18-22-28-36
SBC BP25 Ø5/8 L	5 ⁺²² / ₊₁₀	8 ⁺³⁸ / ₊₂₃	5-8-10-12-16	SBC BP25 Ø25/30 L	25 ⁺⁴¹ / ₊₂₀	30 ⁺⁵⁶ / ₊₃₅	20-25-32-40
SBC BP25 Ø5/9 L	5 ⁺²² / ₊₁₀	9 ⁺³⁸ / ₊₂₃	4-5-8	SBC BP25 Ø25/32 L	25 ⁺⁴¹ / ₊₂₀	32 ⁺⁶⁸ / ₊₄₃	20-25-32-40
SBC BP25 Ø6/9 L	6 ⁺²² / ₊₁₀	9 ⁺³⁸ / ₊₂₃	6-10-12-16	SBC BP25 Ø28/32 L	28 ⁺⁴¹ / ₊₂₀	32 ⁺⁶⁸ / ₊₄₃	22-28-36-45
SBC BP25 Ø6/10 L	6 ⁺²² / ₊₁₀	10 ⁺³⁸ / ₊₂₃	6-10-12-16	SBC BP25 Ø28/33 L	28 ⁺⁴¹ / ₊₂₀	33 ⁺⁶⁸ / ₊₄₃	22-28-36-45
SBC BP25 Ø6/12 L	6 ⁺²² / ₊₁₀	12 ⁺⁴⁶ / ₊₂₈	6-10-12-16	SBC BP25 Ø28/36 L	28 ⁺⁴¹ / ₊₂₀	36 ⁺⁶⁸ / ₊₄₃	22-28-36-45
SBC BP25 Ø7/10 L	7 ⁺²⁸ / ₊₁₃	10 ⁺³⁸ / ₊₂₃	5-8-10	SBC BP25 Ø30/38 L	30 ⁺⁴¹ / ₊₂₀	38 ⁺⁶⁸ / ₊₄₃	24-30-38
SBC BP25 Ø8/11 L	8 ⁺²⁸ / ₊₁₃	11 ⁺⁴⁶ / ₊₂₈	8-12-16-20	SBC BP25 Ø32/38 L	32 ⁺⁵⁰ / ₊₂₅	38 ⁺⁶⁸ / ₊₄₃	20-25-32-40-50
SBC BP25 Ø8/12 L	8 ⁺²⁸ / ₊₁₃	12 ⁺⁴⁶ / ₊₂₈	8-12-16-20	SBC BP25 Ø32/40 L	32 ⁺⁵⁰ / ₊₂₅	40 ⁺⁶⁸ / ₊₄₃	20-25-32-40-50
SBC BP25 Ø8/14 L	8 ⁺²⁸ / ₊₁₃	14 ⁺⁴⁶ / ₊₂₈	8-12-16-20	SBC BP25 Ø35/44 L	35 ⁺⁵⁰ / ₊₂₅	44 ⁺⁶⁸ / ₊₄₃	22-28-35
SBC BP25 Ø9/12 L	9 ⁺²⁸ / ₊₁₃	12 ⁺⁴⁶ / ₊₂₈	6-10-14	SBC BP25 Ø35/45 L	35 ⁺⁵⁰ / ₊₂₅	45 ⁺⁶⁸ / ₊₄₃	25-35-40-50
SBC BP25 Ø10/13 L	10 ⁺²⁸ / ₊₁₃	13 ⁺⁴⁶ / ₊₂₈	10-16-20-25	SBC BP25 Ø36/42 L	36 ⁺⁵⁰ / ₊₂₅	42 ⁺⁶⁸ / ₊₄₃	22-28-36-45
SBC BP25 Ø10/14 L	10 ⁺²⁸ / ₊₁₃	14 ⁺⁴⁶ / ₊₂₈	10-16-20-25	SBC BP25 Ø36/45 L	36 ⁺⁵⁰ / ₊₂₅	45 ⁺⁶⁸ / ₊₄₃	22-28-36-45
SBC BP25 Ø10/15 L	10 ⁺²⁸ / ₊₁₃	15 ⁺⁴⁶ / ₊₂₈	10-16-20-25	SBC BP25 Ø38/44 L	38 ⁺⁵⁰ / ₊₂₅	44 ⁺⁶⁸ / ₊₄₃	25-35-45
SBC BP25 Ø10/16 L	10 ⁺²⁸ / ₊₁₃	16 ⁺⁴⁶ / ₊₂₈	10-16-20-25	SBC BP25 Ø40/46 L	40 ⁺⁵⁰ / ₊₂₅	46 ⁺⁶⁸ / ₊₄₃	25-32-40-50
SBC BP25 Ø12/15 L	12 ⁺³⁴ / ₊₁₆	15 ⁺⁴⁶ / ₊₂₈	12-16-20-25	SBC BP25 Ø40/50 L	40 ⁺⁵⁰ / ₊₂₅	50 ⁺⁶⁸ / ₊₄₃	25-32-40-50
SBC BP25 Ø12/16 L	12 ⁺³⁴ / ₊₁₆	16 ⁺⁴⁶ / ₊₂₈	12-16-20-25	SBC BP25 Ø45/51 L	45 ⁺⁵⁰ / ₊₂₅	51 ⁺⁹⁹ / ₊₅₃	28-36-45-56
SBC BP25 Ø12/17 L	12 ⁺³⁴ / ₊₁₆	17 ⁺⁴⁶ / ₊₂₈	12-16-20-25	SBC BP25 Ø45/55 L	45 ⁺⁵⁰ / ₊₂₅	55 ⁺⁹⁹ / ₊₅₃	35-45-55-65
SBC BP25 Ø12/18 L	12 ⁺³⁴ / ₊₁₆	18 ⁺⁴⁶ / ₊₂₈	12-16-20-25	SBC BP25 Ø45/56 L	45 ⁺⁵⁰ / ₊₂₅	56 ⁺⁹⁹ / ₊₅₃	28-36-45-56
SBC BP25 Ø14/18 L	14 ⁺³⁴ / ₊₁₆	18 ⁺⁴⁶ / ₊₂₈	14-18-22-28	SBC BP25 Ø50/56 L	50 ⁺⁵⁰ / ₊₂₅	56 ⁺⁹⁹ / ₊₅₃	32-40-50-63
SBC BP25 Ø14/20 L	14 ⁺³⁴ / ₊₁₆	20 ⁺⁵⁶ / ₊₃₅	14-18-22-28	SBC BP25 Ø50/60 L	50 ⁺⁵⁰ / ₊₂₅	60 ⁺⁹⁹ / ₊₅₃	32-40-50-63
SBC BP25 Ø15/19 L	15 ⁺³⁴ / ₊₁₆	19 ⁺⁵⁶ / ₊₃₅	16-20-25-32	SBC BP25 Ø55/65 L	55 ⁺⁷⁶ / ₊₃₀	65 ⁺⁹⁹ / ₊₅₃	40-55-70
SBC BP25 Ø15/21 L	15 ⁺³⁴ / ₊₁₆	21 ⁺⁵⁶ / ₊₃₅	16-20-25-32	SBC BP25 Ø60/70 L	60 ⁺⁷⁶ / ₊₃₀	70 ⁺¹⁰⁵ / ₊₅₉	50-60-90-120
SBC BP25 Ø16/20 L	16 ⁺³⁴ / ₊₁₆	20 ⁺⁵⁶ / ₊₃₅	16-20-25-32	SBC BP25 Ø60/72 L	60 ⁺⁷⁶ / ₊₃₀	72 ⁺¹⁰⁵ / ₊₅₉	50-60-70
SBC BP25 Ø16/22 L	16 ⁺³⁴ / ₊₁₆	22 ⁺⁵⁶ / ₊₃₅	16-20-25-32	SBC BP25 Ø60/80 L	60 ⁺⁷⁶ / ₊₃₀	80 ⁺¹⁰⁵ / ₊₅₉	90-120
SBC BP25 Ø18/22 L	18 ⁺³⁴ / ₊₁₆	22 ⁺⁵⁶ / ₊₃₅	18-22-28-36	SBC BP25 Ø63/70 L	63 ⁺⁷⁶ / ₊₃₀	70 ⁺¹⁰⁵ / ₊₅₉	40-50
SBC BP25 Ø18/24 L	18 ⁺³⁴ / ₊₁₆	24 ⁺⁵⁶ / ₊₃₅	18-22-28-36	SBC BP25 Ø70/80 L	70 ⁺⁷⁶ / ₊₃₀	80 ⁺¹⁰⁵ / ₊₅₉	90-120
SBC BP25 Ø18/25 L	18 ⁺³⁴ / ₊₁₆	25 ⁺⁵⁶ / ₊₃₅	18-22-28-36	SBC BP25 Ø80/100 L	80 ⁺⁷⁶ / ₊₃₀	100 ⁺¹²⁵ / ₊₇₁	120
SBC BP25 Ø20/24 L	20 ⁺⁴¹ / ₊₂₀	24 ⁺⁵⁶ / ₊₃₅	16-20-25-32	SBC BP25 Ø100/120 L	100 ⁺⁹⁰ / ₊₃₆	120 ⁺¹³³ / ₊₇₉	120
SBC BP25 Ø20/25 L	20 ⁺⁴¹ / ₊₂₀	25 ⁺⁵⁶ / ₊₃₅	16-20-25-32	SBC BP25 Ø110/125 L	110 ⁺⁹⁰ / ₊₃₆	125 ⁺¹⁵⁵ / ₊₉₂	120
SBC BP25 Ø20/26 L	20 ⁺⁴¹ / ₊₂₀	26 ⁺⁵⁶ / ₊₃₅	16-20-25-32	SBC BP25 Ø125/150 L	125 ⁺¹⁰⁶ / ₊₄₃	150 ⁺¹⁶³ / ₊₁₀₀	120
SBC BP25 Ø20/27 L	20 ⁺⁴¹ / ₊₂₀	27 ⁺⁵⁶ / ₊₃₅	16-20-25-32				

Tolerances in microns

Tolerances

BEARING BEFORE ASSEMBLY:

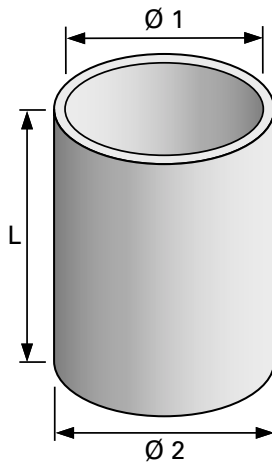
Bore diameter: Ø1	Tolerance: F7 (F8 for Ø1 > 50 mm)
Outside diameter: Ø2	Tolerance: s7 (s8 for Ø2 > 50 mm)
Overall length: L > 10	Tolerance: 1%
Overall length: L ≤ 10	Tolerance: 0,10 mm

CONCENTRICITY TOLERANCE Ø1 AND Ø2:

Difference between comparator Min./Max. readings for one complete rotation of the bearing fitted on a mandrel

Bore diameter ≤ 20	Tolerance: 50 µm
Bore diameter 20 < a ≤ 35	Tolerance: 70 µm
Bore diameter > 35	Tolerance: 100 µm

Self-Lubricating Cylindrical Bearings (SBC)



Chamfer 45°
(0,1 to 0,2) x e min.:
Min.: 0,2 mm

With FP 20 iron alloy base

Type	Bore diameter mm (Ø1)		Outside diameter mm (Ø2)		Overall bearing length mm (L)
SBC FP20 Ø3/6 L	3	+16 +6	6	+31 +19	4-10
SBC FP20 Ø4/8 L	4	+22 +10	8	+38 +23	8
SBC FP20 Ø6/9 L	6	+22 +10	9	+38 +23	6-10-12-16
SBC FP20 Ø6/10 L	6	+22 +10	10	+38 +23	6-10-16
SBC FP20 Ø6/12 L	6	+22 +10	12	+46 +28	6
SBC FP20 Ø8/11 L	8	+28 +13	11	+46 +28	8-12-16
SBC FP20 Ø8/12 L	8	+28 +13	12	+46 +28	8-12-16-20
SBC FP20 Ø10/13 L	10	+28 +13	13	+46 +28	10-20-25
SBC FP20 Ø10/14 L	10	+28 +13	14	+46 +28	10-16-20
SBC FP20 Ø10/15 L	10	+28 +13	15	+46 +28	10
SBC FP20 Ø12/15 L	12	+34 +16	15	+46 +28	12-16-20
SBC FP20 Ø12/16 L	12	+34 +16	16	+46 +28	12-16-20-25
SBC FP20 Ø12/17 L	12	+34 +16	17	+46 +28	12
SBC FP20 Ø14/18 L	14	+34 +16	18	+46 +28	14-18-22
SBC FP20 Ø14/20 L	14	+34 +16	20	+56 +35	14-28
SBC FP20 Ø15/19 L	15	+34 +16	19	+56 +35	16-20
SBC FP20 Ø16/20 L	16	+34 +16	20	+56 +35	16-20-25-32
SBC FP20 Ø16/22 L	16	+34 +16	22	+56 +35	16-20-25
SBC FP20 Ø18/22 L	18	+34 +16	22	+56 +35	18-22
SBC FP20 Ø18/24 L	18	+34 +16	24	+56 +35	22
SBC FP20 Ø20/24 L	20	+41 +20	24	+56 +35	16-20-25-32
SBC FP20 Ø20/26 L	20	+41 +20	26	+56 +35	16-20-25-32
SBC FP20 Ø22/27 L	22	+41 +20	27	+56 +35	18-22
SBC FP20 Ø25/30 L	25	+41 +20	30	+56 +35	20-25-32
SBC FP20 Ø25/32 L	25	+41 +20	32	+68 +43	20-25-32
SBC FP20 Ø30/38 L	30	+41 +20	38	+68 +43	24-30-38
SBC FP20 Ø32/38 L	32	+50 +25	38	+68 +43	32
SBC FP20 Ø35/44 L	35	+50 +25	44	+68 +43	22-28-35
SBC FP20 Ø36/42 L	36	+50 +25	42	+68 +43	22
SBC FP20 Ø40/46 L	40	+50 +25	46	+68 +43	25-32-40
SBC FP20 Ø40/50 L	40	+50 +25	50	+68 +43	25-32-40-50
SBC FP20 Ø45/51 L	45	+50 +25	51	+99 +53	28-45
SBC FP20 Ø45/55 L	45	+50 +25	55	+99 +53	35
SBC FP20 Ø45/56 L	45	+50 +25	56	+99 +53	36
SBC FP20 Ø50/56 L	50	+50 +25	56	+99 +53	32
SBC FP20 Ø50/60 L	50	+50 +25	60	+99 +53	50
SBC FP20 Ø60/70 L	60	+76 +30	70	+105 +59	60-90
SBC FP20 Ø70/80 L	70	+76 +30	80	+105 +59	120
SBC FP20 Ø80/100 L	80	+76 +30	100	+125 +71	120
SBC FP20 Ø100/120 L	100	+90 +36	120	+133 +79	120

Tolerances in microns

Tolerances

BEARING BEFORE ASSEMBLY:

Bore diameter: Ø1	Tolerance: F7 (F8 for Ø1 > 50 mm)
Outside diameter: Ø2	Tolerance: s7 (s8 for Ø2 > 50 mm)
Overall length: L > 10	Tolerance: 1%
Overall length: L ≤ 10	Tolerance: 0,10 mm

CONCENTRICITY TOLERANCE Ø1 AND Ø2:

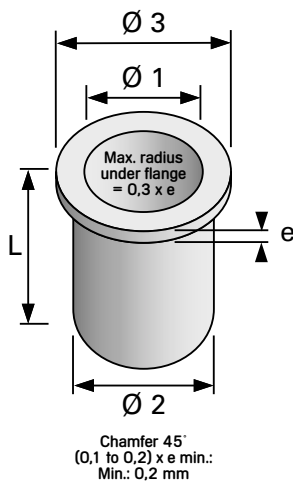
Difference between comparator
Min./Max. readings for one complete rotation of
the bearing fitted on a mandrel

Bore diameter ≤ 20	Tolerance: 50 µm
Bore diameter 20 < a ≤ 35	Tolerance: 70 µm
Bore diameter > 35	Tolerance: 100 µm

Self-Lubricating Flanged Bearings (SBF)



With BP 25 bronze base



Type	Bore diameter mm (Ø1)	Outside diameter mm (Ø2)	Flange		Overall bearing length mm (L)
			Outside diameter mm (Ø3)	Thickness mm (e)	
SBF BP25 Ø3/6 L	C3 ⁺²⁰ / ₊₆	6 ⁺³⁷ / ₊₁₉	9	1,5	4-6-10
SBF BP25 Ø4/8 L	C4 ⁺²⁸ / ₊₁₀	8 ⁺⁴⁵ / ₊₂₃	12	2	4-8-12
SBF BP25 Ø6/10 L	C6 ⁺²⁸ / ₊₁₀	10 ⁺⁴⁵ / ₊₂₃	14	2	6-10-16
SBF BP25 Ø8/12 L	C8 ⁺³⁵ / ₊₁₃	12 ⁺⁵⁵ / ₊₂₈	16	2	8-12-16
SBF BP25 Ø9/14 L	C9 ⁺³⁵ / ₊₁₃	14 ⁺⁵⁵ / ₊₂₈	19	2,5	6-10-14
SBF BP25 Ø10/13 L	C10 ⁺³⁵ / ₊₁₃	13 ⁺⁵⁵ / ₊₂₈	16	1,5	10-16-20
SBF BP25 Ø10/15 L	C10 ⁺³⁵ / ₊₁₃	15 ⁺⁵⁵ / ₊₂₈	20	2,5	10-16-20
SBF BP25 Ø10/16 L	C10 ⁺³⁵ / ₊₁₃	16 ⁺⁵⁵ / ₊₂₈	22	3	8-10-16
SBF BP25 Ø12/15 L	C12 ⁺⁴³ / ₊₁₆	15 ⁺⁵⁵ / ₊₂₈	18	1,5	12-16-20
SBF BP25 Ø12/17 L	C12 ⁺⁴³ / ₊₁₆	17 ⁺⁵⁵ / ₊₂₈	22	2,5	12-16-20-25
SBF BP25 Ø12/18 L	C12 ⁺⁴³ / ₊₁₆	18 ⁺⁵⁵ / ₊₂₈	24	3	8-12-20
SBF BP25 Ø14/18 L	C14 ⁺⁴³ / ₊₁₆	18 ⁺⁵⁵ / ₊₂₈	22	2	14-18-22
SBF BP25 Ø14/20 L	C14 ⁺⁴³ / ₊₁₆	20 ⁺⁶⁸ / ₊₃₅	26	3	14-18-22-28
SBF BP25 Ø15/19 L	C15 ⁺⁴³ / ₊₁₆	19 ⁺⁶⁸ / ₊₃₅	23	2	16-20-25
SBF BP25 Ø15/21 L	C15 ⁺⁴³ / ₊₁₆	21 ⁺⁶⁸ / ₊₃₅	27	3	16-20-25-32
SBF BP25 Ø16/20 L	C16 ⁺⁴³ / ₊₁₆	20 ⁺⁶⁸ / ₊₃₅	24	2	16-20-25
SBF BP25 Ø16/22 L	C16 ⁺⁴³ / ₊₁₆	22 ⁺⁶⁸ / ₊₃₅	28	3	16-20-25-32
SBF BP25 Ø18/22 L	C18 ⁺⁴³ / ₊₁₆	22 ⁺⁶⁸ / ₊₃₅	26	2	18-22-28
SBF BP25 Ø18/24 L	C18 ⁺⁴³ / ₊₁₆	24 ⁺⁶⁸ / ₊₃₅	30	3	18-22-28
SBF BP25 Ø20/24 L	C20 ⁺⁵³ / ₊₂₀	24 ⁺⁶⁸ / ₊₃₅	28	2	16-20-25
SBF BP25 Ø20/26 L	C20 ⁺⁵³ / ₊₂₀	26 ⁺⁶⁸ / ₊₃₅	32	3	16-20-25-32
SBF BP25 Ø22/27 L	C22 ⁺⁵³ / ₊₂₀	27 ⁺⁶⁸ / ₊₃₅	32	2,5	18-22-28
SBF BP25 Ø22/28 L	C22 ⁺⁵³ / ₊₂₀	28 ⁺⁶⁸ / ₊₃₅	34	3	15-20-25-30
SBF BP25 Ø22/29 L	C22 ⁺⁵³ / ₊₂₀	29 ⁺⁶⁸ / ₊₃₅	36	3,5	18-22-28-36
SBF BP25 Ø25/30 L	C25 ⁺⁵³ / ₊₂₀	30 ⁺⁶⁸ / ₊₃₅	35	2,5	20-25-32
SBF BP25 Ø25/32 L	C25 ⁺⁵³ / ₊₂₀	32 ⁺⁸² / ₊₄₃	39	3,5	20-25-32
SBF BP25 Ø28/33 L	C28 ⁺⁵³ / ₊₂₀	33 ⁺⁸² / ₊₄₃	38	2,5	22-28-36
SBF BP25 Ø28/36 L	C28 ⁺⁵³ / ₊₂₀	36 ⁺⁸² / ₊₄₃	44	4	22-28-36
SBF BP25 Ø30/38 L	C30 ⁺⁵³ / ₊₂₀	38 ⁺⁸² / ₊₄₃	46	4	20-25-30
SBF BP25 Ø32/38 L	C32 ⁺⁶⁴ / ₊₂₅	38 ⁺⁸² / ₊₄₃	44	3	20-25-32
SBF BP25 Ø32/40 L	C32 ⁺⁶⁴ / ₊₂₅	40 ⁺⁸² / ₊₄₃	48	4	20-25-30-32
SBF BP25 Ø36/42 L	C36 ⁺⁶⁴ / ₊₂₅	42 ⁺⁸² / ₊₄₃	48	3	22-28-36
SBF BP25 Ø36/45 L	C36 ⁺⁶⁴ / ₊₂₅	45 ⁺⁸² / ₊₄₃	54	4,5	22-28-36
SBF BP25 Ø40/46 L	C40 ⁺⁶⁴ / ₊₂₅	46 ⁺⁸² / ₊₄₃	52	3	25-32-40
SBF BP25 Ø40/50 L	C40 ⁺⁶⁴ / ₊₂₅	50 ⁺⁸² / ₊₄₃	60	5	25-32-40
SBF BP25 Ø45/51 L	C45 ⁺⁶⁴ / ₊₂₅	51 ⁺⁹⁹ / ₊₅₃	57	3	28-36-45
SBF BP25 Ø45/56 L	C45 ⁺⁶⁴ / ₊₂₅	56 ⁺⁹⁹ / ₊₅₃	67	5,5	28-36-45
SBF BP25 Ø50/56 L	C50 ⁺⁶⁴ / ₊₂₅	56 ⁺⁹⁹ / ₊₅₃	62	3	32-40-50
SBF BP25 Ø50/60 L	C50 ⁺⁶⁴ / ₊₂₅	60 ⁺⁹⁹ / ₊₅₃	70	5	32-40-50
SBF BP25 Ø60/70 L	C60 ⁺⁶⁴ / ₊₂₅	70 ⁺¹⁰⁵ / ₊₅₉	80	5	50-60

Tolerances

BEARING BEFORE ASSEMBLY:

Bore diameter: Ø1	Tolerance: F8
Outside diameter: Ø2	Tolerance: s8
Overall length: L > 10	Tolerance: 1%
Overall length: L ≤ 10	Tolerance: 0,10 mm
Flange: Outside diameter - Ø3	Tolerance: js13
Thickness: e	Tolerance: js14

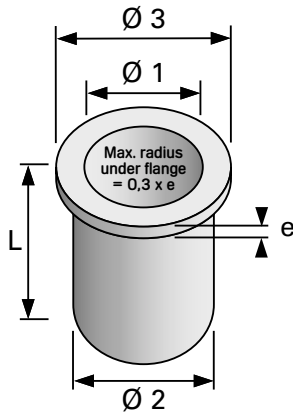
CONCENTRICITY TOLERANCE Ø1 AND Ø2:

Difference between comparator Min./Max. readings for one complete rotation of the bearing fitted on a mandrel

Bore diameter ≤ 20	Tolerance: 50 µm
Bore diameter 20 < a ≤ 35	Tolerance: 70 µm
Bore diameter > 35	Tolerance: 100 µm

Tolerances in microns

Self-Lubricating Flanged Bearings (SBF)



Chamfer 45°
(0,1 to 0,2) x e min.:
Min.: 0,2 mm
on I/D and O/D

With FP 20 iron alloy base

Type	Bore diameter mm (Ø1)	Outside diameter mm (Ø2)	Flange		Overall bearing length mm (L)
			Outside diameter mm (Ø3)	Thickness mm (e)	
SBF FP20 Ø3/6 L	C3 ⁺²⁰ / ₊₆	6 ⁺³⁷ / ₊₁₉	9	1,5	4
SBF FP20 Ø6/10 L	C6 ⁺²⁸ / ₊₁₀	10 ⁺⁴⁵ / ₊₂₃	14	2	6-10-16
SBF FP20 Ø8/12 L	C8 ⁺³⁵ / ₊₁₃	12 ⁺⁵⁵ / ₊₂₈	16	2	8-12-16
SBF FP20 Ø10/13 L	C10 ⁺³⁵ / ₊₁₃	13 ⁺⁵⁵ / ₊₂₈	16	1,5	10-16
SBF FP20 Ø10/15 L	C10 ⁺³⁵ / ₊₁₃	15 ⁺⁵⁵ / ₊₂₈	20	2,5	10-16-20
SBF FP20 Ø12/15 L	C12 ⁺⁴³ / ₊₁₆	15 ⁺⁵⁵ / ₊₂₈	18	1,5	12-16-20
SBF FP20 Ø12/17 L	C12 ⁺⁴³ / ₊₁₆	17 ⁺⁵⁵ / ₊₂₈	22	2,5	12-16
SBF FP20 Ø14/18 L	C14 ⁺⁴³ / ₊₁₆	18 ⁺⁵⁵ / ₊₂₈	22	2	14-18-22
SBF FP20 Ø16/20 L	C16 ⁺⁴³ / ₊₁₆	20 ⁺⁶⁸ / ₊₃₅	24	2	16-20
SBF FP20 Ø16/22 L	C16 ⁺⁴³ / ₊₁₆	22 ⁺⁶⁸ / ₊₃₅	28	3	16-20-25
SBF FP20 Ø18/24 L	C18 ⁺⁴³ / ₊₁₆	24 ⁺⁶⁸ / ₊₃₅	30	3	18-22
SBF FP20 Ø20/24 L	C20 ⁺⁵³ / ₊₂₀	24 ⁺⁶⁸ / ₊₃₅	28	2	16-20-25
SBF FP20 Ø20/26 L	C20 ⁺⁵³ / ₊₂₀	26 ⁺⁶⁸ / ₊₃₅	32	3	16-20-25
SBF FP20 Ø22/29 L	C22 ⁺⁵³ / ₊₂₀	29 ⁺⁶⁸ / ₊₃₅	36	3,5	18-22-28-36
SBF FP20 Ø25/30 L	C25 ⁺⁵³ / ₊₂₀	30 ⁺⁶⁸ / ₊₃₅	35	2,5	20-32
SBF FP20 Ø25/32 L	C25 ⁺⁵³ / ₊₂₀	32 ⁺⁸² / ₊₄₃	39	3,5	25-32
SBF FP20 Ø30/38 L	C30 ⁺⁵³ / ₊₂₀	38 ⁺⁸² / ₊₄₃	46	4	30
SBF FP20 Ø32/40 L	C32 ⁺⁶⁴ / ₊₂₅	40 ⁺⁸² / ₊₄₃	48	v4	20-32
SBF FP20 Ø36/45 L	C36 ⁺⁶⁴ / ₊₂₅	45 ⁺⁸² / ₊₄₃	51	4,5	22-36
SBF FP20 Ø40/50 L	C40 ⁺⁶⁴ / ₊₂₅	50 ⁺⁸² / ₊₄₃	60	5	25-32-40
SBF FP20 Ø50/60 L	C50 ⁺⁶⁴ / ₊₂₅	60 ⁺⁹⁹ / ₊₅₃	70	5	50
SBF FP20 Ø60/70 L	C60 ⁺⁷⁶ / ₊₃₀	70 ⁺¹⁰⁵ / ₊₅₉	80	5	50-60

Tolerances in microns

Tolerances

BEARING BEFORE ASSEMBLY:

Bore diameter: Ø1	Tolerance: F8
Outside diameter: Ø2	Tolerance: s8
Overall length: L > 10	Tolerance: 1%
Overall length: L ≤ 10	Tolerance: 0,10 mm
Flange: Outside diameter - Ø3	Tolerance: js13
Thickness: e	Tolerance: js14

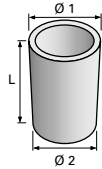
CONCENTRICITY TOLERANCE Ø1 AND Ø2:

Difference between comparator Min./Max. readings for one complete rotation of the bearing fitted on a mandrel

Bore diameter ≤ 20	Tolerance: 50 µm
Bore diameter 20 < a ≤ 35	Tolerance: 70 µm
Bore diameter > 35	Tolerance: 100 µm

Self-Lubricating Hollow Blanks (SRH)

With SO 16



Type	Ø1	Ø2	L
SRH SO16 Ø38/70 L120	38 ^{+0,8} _{-0,8}	70 ^{+1,5} _{-1,5}	120 ⁺⁴ ₋₀
SRH SO16 Ø45/105 L120	45 ^{+0,8} _{-0,8}	105 ^{+1,5} _{-1,5}	120 ⁺⁴ ₋₀
SRH SO16 Ø80/145 L120	80 ^{+0,8} _{-0,8}	145 ⁺² ₋₂	120 ⁺⁴ ₋₀
SRH SO16 Ø80/175 L120	80 ^{+0,8} _{-0,8}	175 ⁺² ₋₂	120 ⁺⁴ ₋₀
SRH SO16 Ø85/105 L120	85 ^{+1,5} _{-1,5}	105 ⁺² ₋₂	120 ⁺⁴ ₋₀

With BP 25
bronze base



Type	Ø1	Ø2	L
SRH BP25 Ø38/70 L120	38 ^{+0,8} _{-0,8}	70 ^{+1,5} _{-1,5}	120 ⁺⁴ ₋₀
SRH BP25 Ø45/105 L120	45 ^{+0,8} _{-0,8}	105 ^{+1,5} _{-1,5}	120 ⁺⁴ ₋₀
SRH BP25 Ø80/145 L120	80 ^{+0,8} _{-0,8}	145 ⁺² ₋₂	120 ⁺⁴ ₋₀
SRH BP25 Ø80/175 L120	80 ^{+0,8} _{-0,8}	175 ⁺² ₋₂	120 ⁺⁴ ₋₀
SRH BP25 Ø85/105 L120	85 ^{+1,5} _{-1,5}	105 ⁺² ₋₂	120 ⁺⁴ ₋₀

With FP 20
iron alloy base

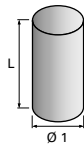


Type	Ø1	Ø2	L
SRH FP20 Ø38/70 L120	38 ^{+0,8} _{-0,8}	70 ^{+1,5} _{-1,5}	120 ⁺⁴ ₋₀
SRH FP20 Ø45/105 L120	45 ^{+0,8} _{-0,8}	105 ^{+1,5} _{-1,5}	120 ⁺⁴ ₋₀
SRH FP20 Ø80/145 L120	80 ^{+0,8} _{-0,8}	145 ⁺² ₋₂	120 ⁺⁴ ₋₀
SRH FP20 Ø80/175 L120	80 ^{+0,8} _{-0,8}	175 ⁺² ₋₂	120 ⁺⁴ ₋₀
SRH FP20 Ø85/105 L120	85 ^{+1,5} _{-1,5}	105 ⁺² ₋₂	120 ⁺⁴ ₋₀

Dimensions and tolerances in mm

Self-Lubricating Solid Blanks (SRS)

With SO 16



Type	Ø1	L
SRS SO16 Ø20 L40	20 ^{+0,8} _{-0,8}	40 ⁺⁴ ₋₀
SRS SO16 Ø30 L50	30 ^{+0,8} _{-0,8}	50 ⁺⁴ ₋₀
SRS SO16 Ø45 L90	45 ^{+0,8} _{-0,8}	90 ⁺⁴ ₋₀
SRS SO16 Ø54 L110	54 ^{+0,8} _{-0,8}	110 ⁺⁴ ₋₀
SRS SO16 Ø70 L120	70 ^{+0,8} _{-0,8}	120 ⁺⁴ ₋₀
SRS SO16 Ø105 L120	105 ^{+0,8} _{-0,8}	120 ⁺⁴ ₋₀
SRS SO16 Ø145 L120	145 ^{+1,5} _{-1,5}	120 ⁺⁴ ₋₀

With BP 25
bronze base



Type	Ø1	L
SRS BP25 Ø20 L40	20 ^{+0,8} _{-0,8}	40 ⁺⁴ ₋₀
SRS BP25 Ø30 L50	30 ^{+0,8} _{-0,8}	50 ⁺⁴ ₋₀
SRS BP25 Ø45 L90	45 ^{+0,8} _{-0,8}	90 ⁺⁴ ₋₀
SRS BP25 Ø54 L110	54 ^{+0,8} _{-0,8}	110 ⁺⁴ ₋₀
SRS BP25 Ø70 L120	70 ^{+0,8} _{-0,8}	120 ⁺⁴ ₋₀
SRS BP25 Ø105 L120	105 ^{+0,8} _{-0,8}	120 ⁺⁴ ₋₀
SRS BP25 Ø145 L120	145 ^{+1,5} _{-1,5}	120 ⁺⁴ ₋₀

With FP 20
iron alloy base

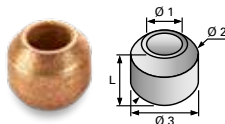


Type	Ø1	L
SRS FP20 Ø20 L40	20 ^{+0,8} _{-0,8}	40 ⁺⁴ ₋₀
SRS FP20 Ø30 L50	30 ^{+0,8} _{-0,8}	50 ⁺⁴ ₋₀
SRS FP20 Ø45 L90	45 ^{+0,8} _{-0,8}	90 ⁺⁴ ₋₀
SRS FP20 Ø54 L110	54 ^{+0,8} _{-0,8}	110 ⁺⁴ ₋₀
SRS FP20 Ø70 L120	70 ^{+0,8} _{-0,8}	120 ⁺⁴ ₋₀
SRS FP20 Ø105 L120	105 ^{+0,8} _{-0,8}	120 ⁺⁴ ₋₀
SRS FP20 Ø145 L120	145 ^{+1,5} _{-1,5}	120 ⁺⁴ ₋₀

Dimensions and tolerances in mm

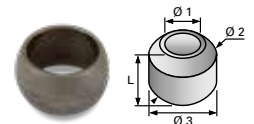
Self-Lubricating Spherical Bearings (SBS) - on request only

With BP 25
bronze base



Bore diameter (Ø1)	Sphere diameter (Ø2)	Outside diameter (Ø3)	Overall length (L)
Tolerance: ^{+0,012} ₊₀	Tolerance: ^{+0,050} _{-0,050}	Tolerance: ^{+0,200} _{-0,200}	Tolerance: ^{+0,100} _{-0,100}
4	10	9,5	8
5	13	12,5	10
6	13	12,6	8
6	15	14,5	12
6	16	15,5	12,5
7	17	16,5	14
8	16	15,5	12,5

With FP 20
iron alloy base



Bore diameter (Ø1)	Sphere diameter (Ø2)	Outside diameter (Ø3)	Overall length (L)
Tolerance: ^{+0,012} ₊₀	Tolerance: ^{+0,050} _{-0,050}	Tolerance: ^{+0,200} _{-0,200}	Tolerance: ^{+0,100} _{-0,100}
4	10	9,5	8
5	13	12,5	10
6	13	12,6	8
6	15	14,5	12
6	16	15,5	12,5
7	17	16,5	14
8	16	15,5	12,5

Dimensions and tolerances in mm

Parts with no Standard Sizes and Specific Lubricants

- For small quantities, our partners can provide machined parts from our blanks in accordance with **METAFRAM®** guidelines and your drawings.
- For large quantities or repetitive series, we can design customized tooling (contact us for details).
- To optimize your equipment, we can design bearings with specific shapes to fit your special applications (contact us for details).

High payload, low speed (rolling mill, press, lifting gear, heavy duty vehicles). Standard blanks with SO 16 and TR 16 material grades (see the material grades brochure).

High or low temperature

In situations where the operating temperature lies outside the -5/+90°C range, we can change the impregnation lubricant used.

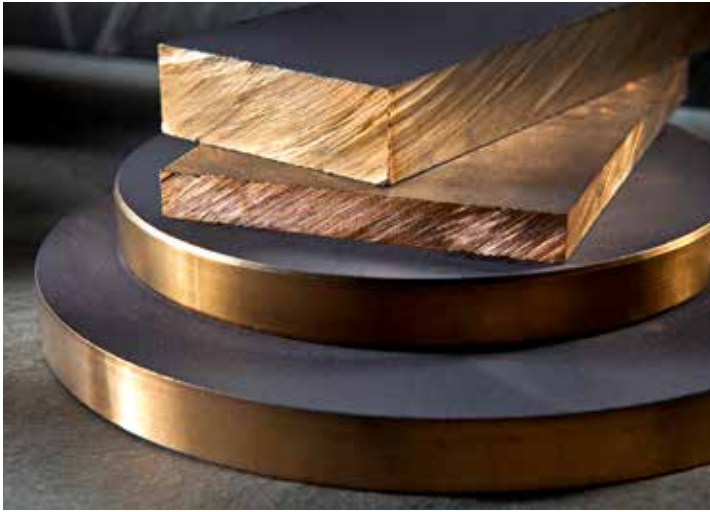
Immersion, corrosive fluid splashing

Refer to the paragraph "material grade with solid lubricant".

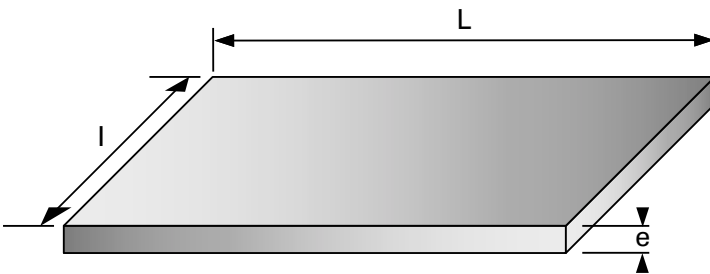
Impregnation with oil suitable for contact with foodstuffs (FDA standard)

Self-lubricating Friction Plates (SFP)

Metagliss



Type	Length mm (L)	Width mm (l)	Thickness mm (e)
SFP 375x375 E.4	375,0	375,0	4,0
SFP 375x375 E.6	375,0	375,0	6,0
SFP 375x375 E.8	375,0	375,0	8,0
SFP 375x375 E.10	375,0	375,0	10,0
SFP 375x375 E.12	375,0	375,0	12,0
SFP 375x375 E.14	375,0	375,0	14,0
SFP 375x375 E.15	375,0	375,0	15,0
SFP 375x375 E.18	375,0	375,0	18,0
SFP 375x375 E.20	375,0	375,0	20,0



Material properties

AFNOR equivalent	DIN 30910 Equivalent	Cu	Sn	Cg	Other elements	Density mini	Hadness HB mini	A mini	Coefficient of expansion	Apparent porosity mini	Mechanical resistance
FU-E10-64	Sint-B51	balance	9 - 11	/	< 2	6,8	50 HB	1,50%	17 (10-6/°C)	20%	130 Mpa

Impregnation oil properties

	Units	M90	M60	M10
		Hydrodynamic conditions	Viscous conditions	Static Friction
Lubricant description	-	Turbo T 100	OM460	MoS2
Coefficient of static friction	-	0,18 - 0,22	0,18 - 0,22	0,18 - 0,22
Coefficient of dynamic friction	-	0,04 - 0,08	0,10 - 0,15	0,15 - 0,20
Max Pressure at Speed = 0	daN/cm ²	300	300	300
Speed	m/s	0,5 to 4,0	0 to 0,3	0 to 0,1
PV value max	daN/cm x m/s	5	9	1
Hardness of opposite piece	HB	> 200	> 200	> 200
Roughness of opposite piece Ra (µm)	-	< 0,8	< 0,8	< 0,8

For information only. Poral S.A.S. reserves the right to change them without notice.

PORAL

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MECHANICAL PARTS



POROUS FILTERS



SELF-LUBRICATING BEARINGS

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