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/mm²	Brinell hardness HB	A %	Expansion 10^{-6}/°C	Min. specific density	Min. open porosity %	Static load daN/cm²
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

Iron-based grades

Grades	AFNOR or ISO description	AFNOR or ISO standard	DIN 30910 standard equivalent	Cu %	Fe %	C %	Total other elements %	K N/mm²	Brinell hardness HB	A %	Expansion 10^{-6}/°C	Min. specific density	Min. open porosity %	Static load daN/cm²
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
SO25	F10-U25-58	Non-standard	SINT A20	25	complement	‹0.25	‹2	220	40	1	11	5.8	20	500
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

Grades with antifriction coating

Description	Max speed m/s	Max load daN/cm²	Load x speed daN/cm².m/s	Operating temperature °C	Static load daN/cm²	Shaft surface finish	
						Ra max	HB min
BP25 + PFTE	1	100	3	-180/+180	200	0.3	240
FP20 + PTFE	1	225	3	-180/+180	450	0.3	300
BP25 + MoS2	0.1	100	1	-180/+300	200	0.3	355
FP20 + MoS2	0.1	225	1	-180/+300	450	0.3	355

Under dry conditions, the BG10 grade can be used for a boundary lubrification 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.

Impregnation 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).

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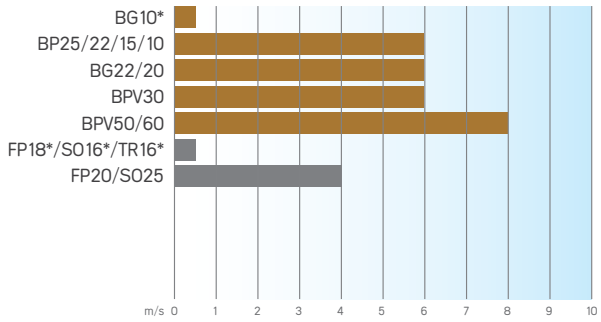
Self-lubricating bearings

Finding the right grade for your application with respect to:

1 - Shaft linear speed

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

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

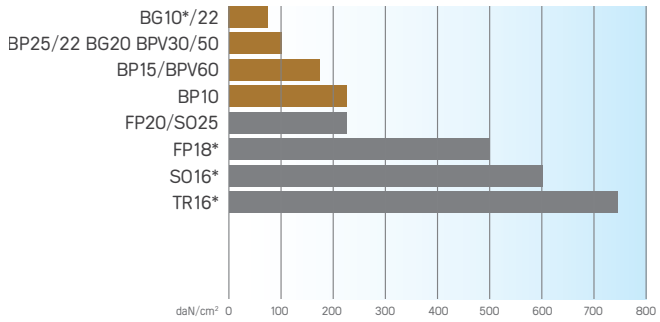


2 - Shaft load

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

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

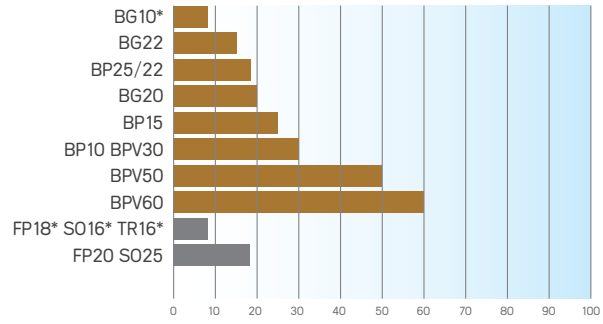
The maximum permissible dynamic load can be found on the graph below.



3 - Product load x speed

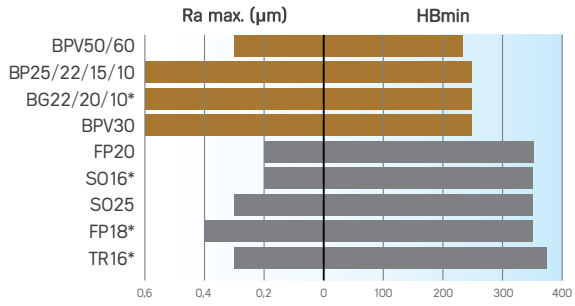
$$PV = P\ (daN/cm^2) \times V\ (m/s)$$

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 P.V. 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 lubrification regime at the maximum speed indicated.

For a speed ‹0.3 m/s, corresponding to an boundary lubrification regime, the maximum value of the P.V. 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 P.V. value.

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

Sintertech cannot in any way be held responsible for these values and clients should always contact us prior to any use.

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