

2. BEARING MATERIAL AND OPERATING TEMPERATURE

2.1 BEARING MATERIAL

The performance of a rolling bearing is highly influenced by the material used. For FBJ Pillow Block either vacuum degassed High Carbon Chromium Bearing Steel or Stainless Steel use as the material for bearing insert and Gray Cast Iron, Sheet Steel or Thermo Plastic for the housing.

Materials used for FBJ High Carbon Chromium Bearing Steel bearing insert and Cast Iron Housing Bearing Units

Table 2.1.1

Component	MATERIALS USED	JIS	
		SYMBOL	NUMBER
Ball, Inner Ring and Outer Ring	High Carbon Chromium Bearing Steel	SUJ 2	G 4805
Cage and shield	Cold rolled steel sheets or strips	SPCC	G 3141
Seal	Nitrile rubber	-	-
Set Screw	Nickel Chromium Molybdenum Steel	SCM 435	G 4105
Sleeve and Nut (For Adapter)	Mild Steel	S 25 C	G 4051
Washer (For Adapter)	Cold rolled steel sheets or strips	SPCC	G 3141
Grease Nipple	Free Cutting Brass Bar	C 3604	H 3250
Housing	Gray Cast Iron	FC 200	G 5501

Materials used for FBJ Stainless Steel Bearings bearing insert and Thermo Plastic Housing Bearing Units

Table 2.1.2

Component	MATERIALS USED	JIS SYMBOL
Ball, Inner Ring and Outer Ring	Stainless Steel	SUS440C
Cage and shield	Stainless Steel	SUS304
Seal	Nitrile rubber	-
Set Screw	Stainless Steel	SUS410
Grease Nipple	Stainless Steel	SUS304
Housing and Cover	Thermo Plastic	VALOX420

2.2 CHEMICAL COMPOSITION OF HIGH CARBON CHROMIUM BEARING STEEL BEARING INSERT MATERIALS

Table 2.2.1

SYMBOL	Component	CHEMICAL COMPOSITION %							Hardness HRC
		C	Si	Mn	P	S	Cr	Mo	
SUJ2	Ball, Inner Ring and Outer Ring	0.9~1.10	0.15~0.35	≤ 0.50	≤ 0.025	≤ 0.025	1.30~1.60	0.08	58~65
SPCC	Cage and Shield	≤ 0.12	-	≤ 0.50	≤ 0.040	≤ 0.045	-	-	-

2.3 CHEMICAL COMPOSITION OF STAINLESS STEEL BEARING INSERT MATERIALS

Table 2.3.1

JIS Symbol	Component	CHEMICAL COMPOSITION %							Hardness HRC
		C	Si	Mn	P	S	Cr	Mo	
SUS440C	Ball, Inner Ring and Outer Ring	0.9~1.20	≤ 1.00	≤ 1.00	≤ 0.040	≤ 0.030	16.0~18.0	0.75	58~65

Table 2.3.2

JIS Symbol	Component	CHEMICAL COMPOSITION %			Hardness HB
		C	Cr	Ni	
SUS410	Set Screw	0.16~0.17	11.5~13.5	0.70~0.80	380~400

Table 2.3.3

JIS Symbol	Component	CHEMICAL COMPOSITION %				Hardness HRC
		C	Cr	Ni	N	
SUS304	Cage	0.075~0.085	18.0~20.0	8.0~10.0	≤ 0.1	25~39

2.4 Operating temperature range for FBJ Pillow Block bearings.

FBJ Pillow Block Bearing Inserts with Cast Iron Housings, Pillow Block Bearing Inserts with Pressed Steel Housings and Stainless Steel Bearing Inserts can withstand the operating temperatures from -15°C to 120°C.

FBJ Pillow Block bearings with Thermo Plastic Housing and Stainless Steel Bearing Inserts can withstand the operating temperatures from -15°C to 60°C

Operating environments of higher than 120°C or lower than -15°C of operating temperatures, please contact FBJ sales or engineering department.