

7. Bearing Material

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The quality of bearings is influenced, to a large measure, by the properties of the material they are made of.

Rings and rolling elements are fabricated predominantly of through-hardening carbon chromium bearing steel of high cleanliness. On delivery to the plant, all the purchased steel is tested for compliance with the basic technical specifications such as the chemical composition, contamination with non-metallic inclusions, metal structure. The examination is conducted at the plant's specialized laboratories equipped with up-to date apparatus and instruments and manned with highly qualified specialists.

The entire work on heat treatment and machining of the rings and rolling elements is carried out with the use of non-destructive testing facilities, which permits to assure high stability of the technological process.

The plant performs systematic tests of the principal types of the manufactured bearings for fatigue life and, in so doing, checks the basic dynamic load-carrying ratings found in this Catalogue and the quality of the steel used.

7.1 Rings and Balls

Standard material for Rings and Balls is vacuum degassed high carbon chromium bearing steel (SUJ2*) allowing for high efficiency, low torque, low noise level and long bearing life. Bearings require anti-corrosion properties, used stainless steel.

7.2 Cage

Cold rolled steel sheets or strips used for pressed cages and High tensile brass castings or machined steel is used for Machined cages. Polyamide material is used in moulded cages. Bearings require anti-corrosion properties used stainless steel cages.

7.3 Shield

Cold rolled steel sheets or strips is used for standard shields and bearings and require anti-corrosion properties used stainless steel.

7.4 Seal

All FBJ seals are made of molded synthetic nitrile rubber which can withstand the temperatures from -45°C to 125°C.

7.5 Stainless Steel

For bearings requiring anti-corrosion or heat resistance properties, rings and balls are made of martensitic stainless steel (SUS440C)** and this martensitic stainless steel is magnetic type. SUS 304 is used in FBJ Stainless steel Cage and Stainless steel Shield.

Table 7 Chemical Composition of Bearing Materials

MATERIAL	SYMBOL	CHEMICAL COMPOSITION %							Hardness HRC
		C	Si	Mn	P	S	Cr	Mo	
HIGH CARBON CHROMIUM STEEL	SUJ2* or SAE52100 or 100Cr6	0.9~1.10	0.15~0.35	≤ 0.50	≤ 0.025	≤ 0.025	1.30~1.60	0.08	58~65
COLD ROLLED STEEL	SPCC	≤ 0.12	--	≤ 0.50	≤ 0.040	≤ 0.045	--	--	--
STAINLESS STEEL	SUS440C** or AISI440C or X102CrMn17	0.9~1.20	--	--	--	--	16.0~18.0	0.75	58~65