

## I. MATERIALS

**RINGS & BALLS**---PEAK uses SAE52100 vacuum degassed, high carbon, chromium bearing steel as its standard material for precision bearing rings and balls. In applications where a corrosive environment may be present, we recommend the use of AISI440C martensitic stainless steel.

Table 1 below shows the chemical compositions of chromium bearing steel:

**TABLE 1**

Country	Standard	Symbol	Chemical compositions (%)						
			C	Si	Mn	P	S	Cr	Mo
China	GB/T18254	GCr15	0.95-1.05	0.15-0.35	0.25-0.45	≤ 0.025	≤ 0.025	1.40-1.65	≤ 0.10
Japan	JISG4805	SUJ2	0.95-1.10	0.15-0.35	≤ 0.50	≤ 0.025	≤ 0.025	1.30-1.60	≤ 0.08
USA	ASTMA295	52100	0.98-1.10	0.15-0.35	0.25-0.45	≤ 0.025	≤ 0.025	1.30-1.60	≤ 0.10
GERMANY	DIN	100Cr6	0.95-1.05	0.15-0.35	0.25-0.45	≤ 0.025	≤ 0.025	1.40-1.65	≤ 0.10
SWEDEN	D33	SKF3	0.95-1.10	0.15-0.35	0.25-0.45	≤ 0.025	≤ 0.015	1.35-1.65	≤ 0.10
KOREA	KSD3525	STB2	0.95-1.10	0.15-0.35	≤ 0.50	≤ 0.025	≤ 0.025	1.30-1.60	≤ 0.08

**RETAINERS**---PEAK standard bearing retainers are made from cold rolled carbon steel. However, in case of corrosive environment, misalignment, or high speed operation, stainless steel, nylons, or phenolic resins can be used upon request.

**SEALS & SHIELDS**---PEAK shields also employ carbon steel as standard, and the option of AISI300 stainless steel is available when needed. PEAK uses a variety of sealing materials to meet the requirements of high temperature operation and compatibility with greases. Nitrile rubber is the standard material used, while fluorocarbon, silicon, and Teflon seals are commonly specified for high temperature running.

**LUBRICANTS**---PEAK standard greases are listed below in TABLE 2 and are supplied with shield or sealed bearings as standard. Many different types of oil lubricants can also be supplied upon request, and are supplied as standard for open bearings.

**TABLE 2**

Manufacturers	Lubricants	Operating temperature		USA specification
		C	F	
<b>GREASES</b>				
SHELL	ALVANIA RS#2	-25 / +120	-13 / +248	
EXXON(ESSO)	BEACON 325	-55 / +120	-67 / +248	MIL-G-3278A
	ANDOK C	-25 / +120	-13 / +248	
	ANDOK B	-30 / +110	-22 / +230	MIL-G-18709A
MOBIL	GREASE 28	-60 / +175	-76 / +347	MIL-G-81322A
CHEVRON	CHEVRON SRI#2	-30 / +175	-22 / +347	
DOW CORNING	DC 33	-70 / +180	-94 / +356	MIL-G-46886
DUPONT	KRYTOX 240AB	-40 / +227	-40 / +440	MIL-G-38220
KYODO YUSHI	MULTEMP SRL	-40 / +150	-40 / +302	
KYODO YUSHI	MULTEMP PS2	-54 / +130	-65 / +266	
CHINA	HANGU GREASE	-20 / + 120	-04 / +248	

**II. BEARING ACCURACY**

The bearing accuracy includes dimensional accuracy and running accuracy, which has corresponding domestic and international standard, but the domestic standards of all countries accord with the international standard. TABLE 3 shows the radial ball bearing accuracy grade.

**TABLE 3**

COUNTRY	STANDARD	ACCURACY GRADE				
CHINA	GB/T307.1	PO	P6	P5	P4	P2
USA	ANSI/AFBMA STD.20	ABEC-1	ABEC-3	ABEC-5	ABEC-7	ABEC-9
JAPAN	JIS B 1514	0	6	5	4	2
GERMANY	DIN 620	P0	P6	P5	P4	P2
INTERNATIONAL	ISO 492	CLASS 0	CLASS 6	CLASS 5	CLASS 4	CLASS 2

**III. BEARING INTERNAL TOLERANCE**

The internal clearance of bearings refers to the value of displacement of the unfixed ring when it moves against the fixed ring in radial or axial direction, it can be classified into radial clearance and axial clearance. Generally, the radial clearance is controlled for deep groove ball bearings, while the axial clearance is controlled for double row angular contact ball bearings. TABLE 4 shows the clearance for radial deep groove ball bearings.

**TABLE 4**

Bore (d)		C2		C0		C3		C4		C5	
>	≤	min	max	min	max	min	max	min	max	min	max
2.5	10	0	7	2	13	8	23	14	29	20	37
10	18	0	9	3	18	11	25	18	33	25	45
18	24	0	10	5	20	13	28	20	36	28	48
24	30	1	11	5	20	13	28	23	41	30	53
30	40	1	11	6	20	15	33	28	46	40	64
40	50	1	11	6	23	18	36	30	51	45	73
50	65	1	15	8	28	23	43	38	61	55	90
65	80	1	15	10	30	25	51	46	71	65	105
80	100	1	18	12	36	30	58	53	84	75	120

**IV. BEARING PACKAGING**

PEAK bearings have been cleaned, rust-prevented and packaged before delivery to customers. Under normal storage conditions, the bearings will not get rusted within one year after delivery.

PEAK bearing packaging consists of interior package and outer package. Interior package is oilpaper or plastic tube, outer package is carton lined with plastic sheet. The package for ocean transportation is wooden pallet or iron pallet wrapped with plastic sheet and packed with metal strips. Individual box packaging or other modes are also available upon request.

**V. WARRANTY**

PEAK bearings are warranted to be free from defects in materials and workmanship. The obligation of PEAK under this warranty is limited to replacing any bearing which is proven to be defective within 180 days from date of purchase, under the following provisions.

1. The application of the product was approved by PEAK.
2. Analysis by PEAK verified that the product was properly handled, mounted, lubricated and not subjected to abuse.