



1) Materials for KBS Bearing's Outerring, Inner ring & Rolling Elements

The most common through-hardening steel used for rolling bearing of KBS used is a carbon chromium steel containing approximately 1% carbon and 1.5% chromium. Below table 1.1 which shown G Cr15--the main material that KBS used for producing our ball bearings and its interchangeable material in other nations.

Table 1.1

Name	Standard	Chemical Composition (%)					
		C	Mn	Si	Cr	S ≤	P ≤
G Cr15	KBS	0,95~1,05	0,20~0,40	0,15~0,35	1,30~1,65	0,020	0,027
SUJ 2	JIS G 4805	0,95~1,10	0,50 ≤	0,15~0,35	1,30~1,60	0,025	0,025
100Cr6	DIN	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -
E52100	AISI	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -
ISO	683/XVII	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -
SKF	-	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -

Note: KBS supplies all general bearings with material of G Cr15 as normal products, unless otherwise specified by customer for special usage before ordering. i.e. Pure carbon or Stainless Steel etc.

2) Material for Bearing Retainers

The retainer is demanded to bear hitting load and have the lowest friction with the rolling elements when KBS bearing is working. So, low carbon steel is adopted.

(Please refer to Table 2.1)

Table 2.1

Name	Standard	Chemical Composition (%)				
		C	Mn	Si	S ≤	P ≤
10F	Chinese GB	0,05~0,11	0,25~0,50	0,07 ≤	0,035	0,035
SPCC	JIS G 3141	0,12 ≤	0,50 ≤	-	0,045	0,040

Note: KBS supply bearings with retainer material of 10F as normal products, unless otherwise specified by customers for special usage before ordering. i.e. Corrosion proof, poor agricultural requirement and water resistant etc.

3) Material for KBS Bearing Seals/Shields

3.1) The KBS seals are made of two parts, NBR rubber seal with steel frame, called "2RS"

3.2) The KBS Shields are made with material of SPCC, called "ZZ".



4) Precision Class for the bearings

4.1) The accuracy of a bearing are both dimensional and running accuracy of the bearing It has been standardised internationally. Here we give out a interchangeable precision class standard table which is equal to **KBS** (Table 4,1 refers) for your reference.

Table 4.1

Selection	Classification standard				
	P0	P6	P5	P4	P2
ISO	Class 6X	Class 6	Class 5	Class 4	Class 2
Japan Industrial	Class 0	Class 6	Class 5	Class 4	Class 2
German	P0	P6	P5	P4	P2
United States	ABEC-1	ABEC-3	ABEC-5	ABEC-7	ABEC-9

4.2) Relatively, as specified value of accuracy, KBS gives out the normal tolerances for radial bearings exceptional for taper roller bearings. (Tables 4,2 and 4,3 refers)

Table 4.2 Normal Tolerances for Radial Bearings Inner ring
(Unit: μm)

Nominal bore dimension d(mm)		Deviation of the mean bore diameter from the nominal Δdmp										Deviation of the bore diameter Vdp Diameter series 9				
		P0		P6		P5		P4		P2		P0	P6	P5	P4	P2
over	incl.	high	low	high	low	high	low	high	low	high	low	max.				
0,6	2,5	0	-8	0	-7	0	-5	0	-4	0	-2,5	10	9	5	4	2,5
2,5	10	0	-8	0	-7	0	-5	0	-4	0	-2,5	10	9	5	4	2,5
10	18	0	-8	0	-7	0	-5	0	-4	0	-2,5	10	9	5	4	2,5
18	30	0	-10	0	-8	0	-6	0	-5	0	-2,5	13	10	6	5	2,5
30	50	0	-12	0	-10	0	-8	0	-6	0	-2,5	15	13	8	6	2,5
50	80	0	-15	0	-12	0	-9	0	-7	0	-4,0	19	15	9	7	4,0
80	120	0	-20	0	-15	0	-10	0	-8	0	-5,0	25	19	10	8	5,0
120	150	0	-25	0	-18	0	-13	0	-10	0	-7,0	31	23	13	10	7,0
150	180	0	-25	0	-18	0	-13	0	-10	0	-7,0	31	23	13	10	7,0
180	250	0	-30	0	-22	0	-15	0	-12	0	-8,0	38	28	15	12	8,0
250	315	1	-35	0	-25	0	-18	—	—	—	—	44	31	18	—	—
315	400	0	-40	0	-30	0	-23	—	—	—	—	50	38	23	—	—



Deviation of the bore diameter										Mean deviation of the bore diameter					Radial run out				
Vdp										Vdmp					Kia				
Diameter series 0, 1					Diameter series 2, 3, 4														
P0	P6	P5	P4	P2	P0	P6	P5	P4	P2	P0	P6	P5	P4	P2	P0	P6	P5	P4	P2
max.					max.					max.					max.				
8	7	4	3	2,5	6	5	4	3	2,5	6	5	3	2,0	1,5	10	5	4	2,5	1,5
8	7	4	3	2,5	6	5	4	3	2,5	6	5	3	2,0	1,5	10	6	4	2,5	1,5
8	7	4	3	2,5	6	5	4	3	2,5	6	5	3	2,0	1,5	10	7	4	2,5	1,5
10	8	5	4	2,5	8	6	5	4	2,5	8	6	3	2,5	1,5	13	8	4	3,0	2,5
12	10	6	5	2,5	9	8	6	5	2,5	9	8	4	3,0	1,5	15	10	5	4,0	2,5
19	15	7	6	4,0	11	9	7	6	4,0	11	9	5	3,5	2,0	20	10	5	4,0	2,5
25	19	8	6	5,0	15	11	8	6	5,0	15	11	5	4,0	2,5	25	13	6	5,0	2,5
31	23	10	8	7,0	19	14	10	8	7,0	19	14	7	5,0	3,5	30	18	8	6,0	2,5
31	23	10	8	7,0	19	14	10	8	7,0	19	14	7	5,0	3,5	30	18	8	6,0	5,0
38	28	12	9	8,0	23	17	12	9	8,0	23	17	8	6,0	4,0	40	20	10	8,0	5,0
44	31	14	—	—	26	19	14	—	—	26	19	9	—	—	50	25	13	—	—
50	38	18	—	—	30	23	18	—	—	30	23	12	—	—	60	30	15	—	—

Side run out			Axial run out			Deviation of the width										Parallel deviation				
Sd			Sia			ΔBs										between end surfaces				
						For single bearing					For pair bearing					VBs				
P5	P4	P2	P5	P4	P2	P0,	P6	P5,	P4	P2	P0,	P6	P5,	P4	P0	P6	P5	P4	P2	
max.			max.			high	low	high	low	high	low	high	low	high	low	max.				
7	3	1,5	7	3	1,5	0	-40	0	-40	0	-40	—	—	0	-7	12	12	5	2,5	1,5
7	3	1,5	7	3	1,5	0	-120	0	-40	0	-40	0	-8	0	-7	15	15	5	2,5	1,5
7	3	1,5	7	3	1,5	0	-120	0	-80	0	-80	0	-8	0	-7	20	20	5	2,5	1,5
8	4	1,5	8	4	2,5	0	-120	0	-120	0	-120	0	-10	0	-8	20	20	5	2,5	1,5
8	4	1,5	8	4	2,5	0	-120	0	-120	0	-120	0	-12	0	-10	20	20	5	3,0	1,5
8	5	1,5	8	5	2,5	0	-150	0	-150	0	-150	0	-15	0	-12	25	25	5	4,0	1,5
9	5	2,5	9	5	2,5	0	-200	0	-200	0	-200	0	-20	0	-15	25	25	7	4,0	2,5
10	6	2,5	10	7	2,5	0	-250	0	-250	0	-250	0	-25	0	-18	30	30	8	5,0	2,5
10	6	4,0	10	7	5,0	0	-250	0	-250	0	-300	0	-25	0	-18	30	30	8	5,0	4,0
11	7	5,0	13	8	5,0	0	-300	0	-300	0	-350	0	-30	0	-22	30	30	10	6,0	5,0
13	—	—	15	—	—	0	-350	0	-350	—	—	1	-35	0	-25	35	35	13	—	—
15	—	—	20	—	—	0	-400	0	-400	—	—	0	-40	0	-30	40	40	15	—	—

Note: Values for larger sizes on request Table 4,3 Normal Tolerances for Radial Bearings



Out ring (Unit: μm)

Nominal bore dimension D(mm)		Deviation of the mean bore diameter from the nominal ΔDmp					Deviation of the outer ring diameter (Open type) VDp Diameter series 9										
over	incl.	P0		P6		P5		P4		P2		P0	P6	P5	P4	P2	
		high	low	high	low	high	low	high	low	high	low	max.					
2,5	6	0	-8	0	-7	0	-5	0	-4	0	-2,5	10	9	5	4	2,5	
6	18	0	-8	0	-7	0	-5	0	-4	0	-2,5	10	9	5	4	2,5	
18	30	0	-9	0	-8	0	-6	0	-5	0	-4,0	12	10	6	5	4,0	
30	50	0	-11	0	-7	0	-6	0	-6	0	-4,0	14	11	7	6	4,0	
50	80	0	-13	0	-9	0	-7	0	-7	0	-4,0	16	14	9	7	4,0	
80	120	0	-15	0	-10	0	-8	0	-8	0	-5,0	19	16	10	8	5,0	
120	150	0	-18	0	-15	0	-11	0	-9	0	-5,0	23	19	11	9	5,0	
150	180	0	-25	0	-18	0	-13	0	-10	0	-7,0	31	23	13	10	7,0	
180	250	0	-30	0	-20	0	-15	0	-11	0	-8,0	38	25	15	11	8,0	
250	315	0	-35	0	-25	0	-18	0	-13	0	-8,0	44	31	18	13	8,0	
315	400	1	-40	0	-28	0	-20	0	-15	0	-10,0	50	35	20	15	10,0	
400	500	0	-45	0	-33	0	-23	—	—	—	—	56	41	23	—	—	

Deviation of the bore diameter VDp Diameter series 0, 1					Deviation of the outer ring diameter (with seals & shields)VDp 2, 3, 4					Mean deviation of the out ring diameter VDmp							
P0	P6	P5	P4	P2	Diameter series 2, 3, 4					0, 1, 2, 3, 4		P0	P6	P5	P4	P2	
max.					max.					max.		max.					
8	7	4	3	2,5	6	5	4	3	2,5	10	9	6	5	3	2,0	1,5	
8	7	4	3	2,5	6	5	4	3	2,5	10	9	6	5	3	2,0	1,5	
9	8	5	4	4,0	7	6	5	4	4,0	12	10	7	6	3	2,5	2,0	
11	9	5	5	4,0	8	7	5	5	4,0	16	13	8	7	4	3,0	2,0	
13	11	7	5	4,0	10	8	7	5	4,0	20	16	10	8	5	3,5	2,0	
19	16	8	6	5,0	11	10	8	6	5,0	26	20	11	10	5	4,0	2,5	
23	19	8	7	5,0	14	11	8	7	5,0	30	25	14	11	6	5,0	2,5	
31	23	10	8	7,0	19	14	10	8	7,0	38	30	19	14	7	5,0	3,5	
38	25	11	8	8,0	23	15	11	8	8,0	—	—	23	15	8	6,0	4,0	
44	31	14	10	8,0	26	19	14	10	8,0	—	—	26	19	9	7,0	4,0	
50	35	15	11	10,0	30	21	15	11	10,0	—	—	30	21	10	8,0	5,0	
56	41	17	—	—	34	25	17	—	—	—	—	34	25	12	—	—	



Radial run out Kea					Side run out SD			Axial run out Sea			Deviation of the width ΔCs For all class	Parallel deviation between end surfaces Vcs				
P0	P6	P5	P4	P2	P5	P4	P2	P5	P4	P2		P0	P6	P5	P4	P2
max.					max.			max.			max.					
15	8	5	3	1,5	8	4	1,5	8	5	1,5	With "d" of the same model bearing, and refer to relative value of ΔBs	With "d" of the same model bearing, and refer to relative value of Vcs	5	2,5	1,5	
15	8	5	3	1,5	8	4	1,5	8	5	1,5			5	2,5	1,5	
15	9	6	4	2,5	8	4	1,5	8	5	2,5			5	2,5	1,5	
20	10	7	5	2,5	8	4	1,5	8	5	2,5			5	2,5	1,5	
25	13	8	5	4,0	8	4	1,5	10	5	4,0			6	3,0	1,5	
35	18	10	6	5,0	9	5	2,5	11	6	5,0			8	4,0	2,5	
40	20	11	7	5,0	10	5	2,5	13	7	5,0			8	5,0	2,5	
45	23	13	8	5,0	10	5	2,5	14	8	5,0			8	5,0	2,5	
50	25	15	10	7,0	11	7	4,0	15	10	7,0			10	7,0	4,0	
60	30	18	11	7,0	13	8	5,0	18	10	7,0			11	7,0	5,0	
70	35	20	13	8,0	13	10	7,0	20	13	8,0			13	8,0	7,0	
80	40	23	—	—	15	—	—	23	—	—			15	—	—	

5) Internal Clearance

5.1) Radial clearance of **KBS** deep groove ball bearings
(Please refer to Table 5.1)



Table 5.1 Radial Clearance

Nominal bore diameter d (mm)		Radial Clearance									
		C2		CN		C3		C4		C5	
over	incl.	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
100	120	2	20	15	41	36	66	61	97	90	140
120	140	2	23	8	48	41	81	71	114	105	160
140	160	2	23	18	53	46	91	81	130	120	180
160	180	2	25	20	61	53	102	91	147	135	200
180	200	2	30	25	71	63	117	107	163	150	230
200	225	4	32	28	82	73	132	120	187	175	255
225	250	4	36	31	92	87	152	140	217	205	290
250	280	4	39	36	97	97	162	152	237	255	320
280	315	8	45	42	110	110	180	175	260	260	360
315	355	8	50	50	120	120	200	200	290	290	405
355	400	8	60	60	140	140	230	230	330	330	460

Note: Values for larger sizes, subject on request.

6) Lubrication (Greaseadopted)

6.1) KBS supplies bearings when filled with grease, Shell Alvania No.2 as normal standard. (Please refer to Table 6.1)

Table 6.1 Specification for General Purpose Greases.

Manufacturer	Brand	Viscosity	Baseoil	Drop point	Consistency	Operating Temperature range	Selecting Criterion	Code
Shell	Alvania NO.2	(Lithium)	(Mineral)	182	272	-25~+120	Normal temperature grease	LY83
Shell	Alvania NO.3	(Lithium)	(Mineral)	183	233	-20~+135	Normal temperature grease	LY84
Shell	Aero Shell RLQ2	(Lithium)	(Mineral)	195	266	-50~+150	Low noise high speed grease	



6.2 The optional lubrication grease for selection
(Please refer to Table 6.2)

Manufacturer	Brand	Viscosity	Baseoil	Drop point	Consistency	Temperature range	Selecting Criterion	Code
Exxon	Beacon 325	(Lithium)	(Diester)	193	290	-60~+120	low-temperature grease	LG 20
Exxon	AC 205	(Nathium)	(Mineral)			-25~+120	normal temperature grease	
Exxon	Andok B	(Nathium)	(Mineral)	260	280	-40~+120	normal temperature grease	LG 38
Exxon	Andok 260	(Nathium)	(Mineral)	200	250	-30~+150	normal temperature grease	LG 71
Exxon	Arapen Rb300	(Lithium)	(Mineral)	200	250	-30~+100	normal temperature grease	
Exxon	Polyrex EM	(Diurea)	(Mineral)	260	288	-40~+180	high temperature low noise	
Exxon	Polyrex Ep2	(Urea)	(Mineral)	280	280	-40~+180	high temperature low noise	
Exxon	UNIREX N2	(Lithium comples)	(Mineral)	250	280	-40~+180	high temperature low noise	
Exxon	UNIREX N3	(Lithium comples)	(Mineral)	250	235	-40~+180	high temperature low noise	
Kyodo Yushi	Multemp PS2	(Lithium)	(Diester)	189	280	-50~+110	low-temperature grease	LY 72
Kyodo Yushi	Multemp SRL	(Lithium)	(Ester)	191	245	-40~+150	low noise grease normal	LY 121
Kyodo Yushi	Multemp SC-A	(Urea)		≥	280	0~+160	normal temperature grease	
Kyodo Yushi	Multemp ET150	(Urea)	(Mineral)	≥	280	-10~+160	normal temperature grease	
Kyodo Yushi	Oneluba	(Lithium)	(Diester Mineral)	198	270	-10~+110	normal temperature grease	
Kyodo Yushi	Adrex	(Lithium)	(Mineral)	198	300	-10~+120	normal temperature grease	
Kyodo Yushi	Parmax		(Mineral)	180	300	-10~+120	normal temperature grease	
Kyodo Yushi	Emalube I130	(Urea)	(Mineral)	≥	300	-10~+130	normal temperature grease	
Kyodo Yushi	Unilube DLI	(Lithium)	(Mineral)	185	332	-10~+110	normal temperature grease	
Kyodo Yushi	Alumix HDI		(Mineral)	247	335	0~+120	normal temperature grease	
Kyodo Yushi	Multemp LTS	(Lithium)	(Ester)	250	201	-60~+130	low-temperature grease	



Manufac-Turer	Brand	Viscosity	Baseoil	Drop point	Consis-tency	Temperature range	Selecting Criterion	Code
Kyodo Yushi	Multemp SRH	(Lithium)	(Ester)	250	201	-40~+150	low-temperature grease	
Kyodo Yushi	Multemp SB-M	(Diurea)	(Synthetic oil)	220	260	-40~+200	high temperture high speed grease	
Kyodo Yushi	Multemp SC-C	(Diurea)	(Synthetic oil)	280	300	-40~+200	high temperture pump-water grease	
Kyodo Yushi	ET-K	(Diurea)	(Synthetic oil/Ester)	260	300	-40~+200	high temperture high speed alternators grease	
Kiuber	Staburage NBU12	(Barium)	(Mineral)	220	270	-35~+150	normal temperature grease	
Kiuber	Isoflod NBU15	(Barium)	(Diester Mineral)	220	280	-30~+130	normal temperature grease	
Kiuber	Asonic GLY32	(Lithium)	(Synthetic)	190	265-295	-50~+140	low-temperature grease	
Kiuber	Asonic GHY72	Polyha-mstoff	(Ester Mineral)	250	250-280	-40~+180	high temperature low noise	
Kiuber	Isoflex SuperLds18	(Lithium)	(Diester)	190	280	-60~+130	low-temperature grease	LY218
Kiuber	Isoflex Super TEL	(Lithium)	(Ester Mineral)			-65~+70	low-temperature grease	
Kiuber	Isofix LDS18 Special A	(Lithium)	(Diester)	190	280	-60~+130	low-temperature grease	
Kiuber	Isofix PDB38 CX 100	(Lithium)	(Ester)			-70~+120	low-temperature grease	
Kiuber	Isofix Topas NB52	(Barium)	(Synthetic hydrocarbon)	204	280	-60~170	high-low tempera-ture grease	
Kiuber	Barrierta L55/2	(PTFE)	(Fluorinated)		280	-35~+260	high-low tempera-ture grease	
Kiuber	Barrierta EL	(PTFE)	(Fluorinated)		280	-50~+180	high-low tempera-ture grease	
Kiuber	Barrierta IMI/V	(PTFE)	(Fluorinated)		280	-50~+220	high-low tempera-ture grease	
Kiuber	Barrierta TK44N2	Na-Komplex	(Silicone)			-60~+230	high-low tempera-ture grease	
Kiuber	Isoflex NCA15	(Spec. Ca)	(Ester Mineral oil)	180	265-295	-40~+130	high speed grease	
Kiuber	Asonic HQ72-102	(Urea)	(Ester)	240	250-280	-40~+180	high-low temperture and low noise grease	
Kiuber	Petamo GHY133	(Urea)	(Synthetic Mineral oil)	240	250-280	-25~+150	normal temperature grease	
Kiuber	Petamo GHY433	(Urea)	(Ester)	250	250-280	-20~+180	high temperature longevity grease	



Manufac-Turer	Brand	Viscosity	Baseoil	Drop point	Consis-tency	Temperature range	Selecting Criterion	Code
Dow Corning	Molykote 33M	(Lithium)	(Silicone)	210	260	-70~+180	high-low tempera-ture grease	
Dow Corning	Molykote 44M	(Lithium)	(Silicone)	204	260	-40~+200	high-low tempera-ture grease	
Dow Corning	Molykote 55M	(Lithium)	(Silicone)			-55~+165	low- temperature grease	
Dow Corning	Molykete Br2 plus	(Lithium)	(Mineral)		280	-30~+150	high speed grease	
Dow Corning	Molykete FS1292	(PTFE)	(Phlorosilicon)	≥232	310	-40~+200	high speed grease	LY 59
Dow Corning	Molykete FS345 I	(PTFE)	(Phlorosilicon)	≥260	285	-40~+230	Chemisorl high and solvent resistant grease	
Dow Corning	Molykete EM50L	(Lithium)	(Synthetic oil)	195	325	-40~+150	low noise grease	
Dow Corning	Molykete BG20	(Lithium)	(Synthetic oil)	230	265-295	-50~+180	high temperature high speed grease	
Shell	Alvania NO.2	(Lithium)	(Mineral)	182	272	-25~+120	normal temperature grease	LY 83
Shell	Alvania NO.3	(Lithium)	(Mineral)	183	233	-20~+135	normal temperature grease	LY 84
Shell	Alvania RA	(Lithium)	(Mineral)	183	252	-25~+120	normal temperature grease	LY 18
Shell	Alvania Ep2	(Lithium)	(Mineral)	185	276	-10~+100	normal temperature grease	
Shell	Sunlight 2	(Lithium)	(Mineral)	196	273	-20~+120	normal temperature grease	
Shell	Dolium R		(Mineral)	238	281	-20~+140	normal temperature grease	LY 119
Shell	Aero Shell NO.5	Microgel	(Mineral)	≥260	282	-10~+130	normal temperature grease	LG 35
Shell	Aero Shell NO.7	Microgel	(Mineral)	≥260	288	-70~+150	low- temperature grease	LG 49
Shell	Aero Shell NO.15A	(PTFE)	(Mineral)	≥260	280	-70~+260	high-low tempera-ture grease	
Shell	Aero Shell RLQ2	(Lithium)	(Mineral)	195	266	-50~+150	low noise high speed grease	
Mobil Oil	Mobilux 2	(Lithium)	(Mineral)	190	280	-20~+120	normal temperature grease	
Mobil Oil	Mobil 22	(Lithium)	(Dester Mineral)	192	274	-50~+140	low- temperature grease	
Mobil Oil	Mobil 28	(Bentonite)	(Synthetic hydrocarbon)	≥260	280	-60~+180	high-low tempera-ture grease	LY 48



Manufac-Turer	Brand	Viscosity	Baseoil	Drop point	Consis-tency	Temperature range	Selecting Criterion	Code
Mobil Oil	Mobilplex 47		(Mineral)	≥260	280	-20~+120	normal temper-ature grease	
Mobil Oil	Mobilth SHC100	(Lithium)	(Synthetic oil)	250	265-295	-40~+170	high speed grease	
Mobil Oil	Mobilth SHC220	(Lithium)	(Synthetic oil)	250	265-295	-40~+170	multiple use grease	
Mobil Oil	Mobiltemp SHC22	(glueearth)	(Synthetic oil)	250	265-295	-50~+180	high speed high temperature grease	
Mobil Oil	Mobiltemp SHC100	(glueearth)	(Synthetic oil)	250	265-295	-40~+200	high speed high temperature grease	
Du Pont	Krytox 204AC	(PTFE)	(Fluorinated)		282	-35~+280	high tempera-ture grease	
Du Pont	Krytox 283AC	(PTFE)	(Fluorina- ted)		229	-35~+280	high tempera-ture grease	LY101
Du Pont	Krytox 143AC	(PTFE)	(Fluorina- ted)			-35~+280	high tempera-ture grease	
Du Pont	Krytox GPL205	(PTFE)	(Fluorina- ted)			-36~+204	high tempera-ture grease	
Du Pont	Krytox GPL223	(PTFE)	(Fluorina- ted)			-36~+204	high temperature alternator fan clutch bearing grease	
Du Pont	Krytox GPL224	(PTFE)	(Fluorina- ted)			-51~+179	high temperature alternator fan clutch bearing grease	
Du Pont	Krytox GPL225	(PTFE)	(Fluorina- ted)			-60~+154	air pump bearing grease	
Du Pont	Krytox GPL226	(PTFE)	(Fluorinated)			-36~+260	CV joint	
Toray Silicone	SH44M	(Lithium)	(Phlorosilicon)	210	260	-40~+180	high temperature grease	LY115
Toray Silicone	SH33L	(Lithium)	(Phlorosilicon)	210	300	-70~+140	low temperature grease	
Toray Silicone	SH41	(Lithium)			280	-10~+200	high temperature grease	
Caltex	Chevron SRI-2	(Urea)	(Mineral)		293	-30~+175	high temperature grease	LY 75
General Electric	Anderol L-793A	(Lithium)	(Diester)			-60~+150	low- temperature grease	
General Electric	Versilube G-300	(Lithium)	(Silicone)			-70~+230	high-low tempera-ture grease	
General Electric	Versilube F-50		(Silicone)			-70~+230	high-low tempera-ture grease	
Lubcon	Turmogrease N2	(Polyurea)	(PAO/Ester)	≥250	280	-40~+160	currency bearing	LY 15



Manufac-Turer	Brand	Viscosity	Baseoil	Drop point	Consis-tency	Temperature range	Selecting Criterion	Code
Lubcon	Turmogrease BQg	(Lithium)	(Mineral)	250	280	-35~+150	low temperature high speed grease	LY 5
Lubcon	Turmogre-ase SHL 182	(Lithium)	(PAO/Ester)	250	280	-70~+130	low temperature high speed grease	
Lubcon	Turmogre-ase SHL 252	(Lithium)	(PAO/Ester)	220	280	-40~+120	high speed grease	
Lubcon	Turmogrease TML 15	(Lithium)	(Ester)	290	280	-35~+160 (180)	low noise	
Lubcon	Turmogrease Cx112K	(Lithium)	(mineral oil /Synthetico)	190	265-295	-35~+140 (160)	low noise	
Lubcon	Turmogrease NB1300	(Polyurea)	(Synthetic oil)	250	280	-40~+180	low temperature high load grease	



7.1) Vibration and noise value

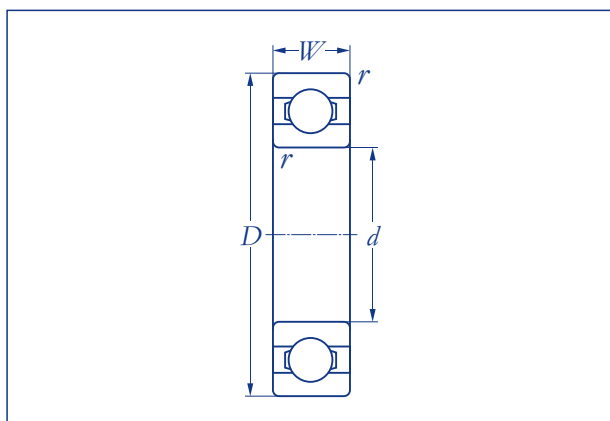
KBS also supplies bearings for air conditioner, cloth washer, electric motor. As a rule, the vibration or noise level of these bearings should be carefully controlled and checked. To be a part of our quality control system, **KBS** well equipped with two types of testing instrument S0910-I and BVTI-IA. Relatively, here it gives out both vibration and noise standard of these bearings for your reference.

Table 7.1) Specifications of vibration and noise

The vibration and noise of bearings are classified in three classes as Z1, Z2 and Z3, it is measured by the instruments of S09 10-I, For special requirement, it is measured by BVT-I A and the bearings are also classified in three classes as V1, V2 and V3. Details please find in the following table:

Bore (mm)	S0910-I (dB)			BVT-I (um/s)								
	Z1 ≤	Z2 ≤	Z3 ≤	V1 ≤			V2 ≤			V3 ≤		
				Low	Medium	High	L	M	H	L	M	H
4	34	32	28	90	60	50	58	36	30	35	21	18
5	36	34	30	90	60	50	58	36	30	35	21	18
6	36	34	30	90	60	50	58	36	30	35	21	18
7	37	34	32	110	80	65	72	48	40	44	28	24
8	38	35	33	110	80	65	72	48	40	44	28	24
9	40	36	34	110	80	65	72	48	40	44	28	24
10	41	38	35	140	100	85	90	60	50	55	35	30
12	43	39	35	140	100	85	90	60	50	55	35	30
15	44	40	35	180	130	100	110	78	60	65	46	35
17	45	41	36	180	130	100	110	78	60	65	46	35
20	46	42	37	220	160	125	130	100	75	80	60	45
25	47	43	40	220	160	125	130	100	75	80	60	45
30	48	44	41	250	200	160	150	120	100	90	75	60
35	49	45	43	250	200	160	150	120	100	90	75	60
40	51	46	44	300	250	220	180	150	130	110	90	80
45	53	48	45	300	250	220	180	150	130	110	90	80
50	54	50	47	350	270	270	210	160	160	125	100	100
55	56	52	49	350	300	300	210	180	180	125	110	110
60	58	54	51	400	300	370	240	180	220	145	110	130

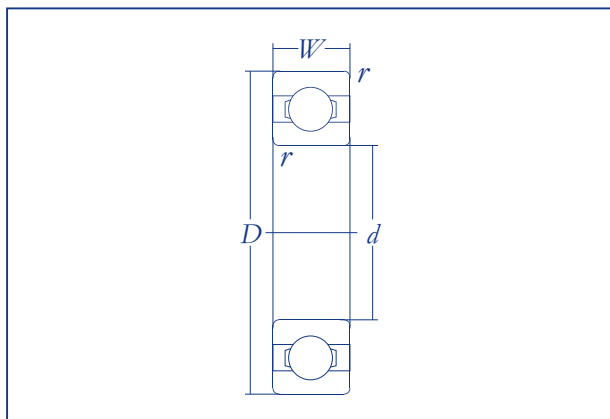
Deep groove ball bearings
Series **160**



160..

Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r perm} (N)	F _{or perm} (N)
16000	22	10	28	8	0,3	3.600	1.500	19.600	23.800
16001	23	12	30	8	0,3	4.000	1.800	18.200	22.400
16002	25	15	32	8	0,3	4.400	2.200	15.400	19.600
16003	32	17	35	8	0,3	4.800	2.600	13.300	16.800
16004	50	20	42	8	0,3	5.500	3.200	11.900	14.000
16005	60	25	47	8	0,3	6.000	3.800	9.800	11.900
16006	85	30	55	9	0,3	8.900	5.800	8.400	10.500
16007	110	35	62	9	0,3	9.900	6.500	7.000	9.100
16008	130	40	68	9	0,3	10.600	7.300	600	8.400
16009	170	45	75	10	0,6	12.400	8.600	6.300	7.700
16010	180	50	80	10	0,6	13.000	9.100	5.900	7.000
16011	260	55	90	11	0,6	15.600	11.200	5.200	6.300
16012	280	60	95	11	0,6	15.900	12.000	4.600	5.600
16013	300	65	100	11	0,6	16.900	13.200	4.400	5.200
16014	430	70	110	13	0,6	22.400	20.000	4.200	4.900
16015	460	75	115	13	0,6	22.800	21.600	3.900	4.600
16016	600	80	125	14	0,6	26.500	25.200	3.700	4.400
16017	630	85	130	14	0,6	27.000	21.440	3.500	4.200
16018	850	90	140	16	1,0	33.200	24.960	3.300	3.900
16019	890	95	145	16	1,0	33.800	26.560	3.100	3.700
16020	910	100	150	16	1,0	35.300	28.160	3.000	3.500
16021	1.200	105	160	18	1,0	41.600	32.640	2.800	3.300
16022	1.450	110	170	19	1,0	45.700	36.480	2.600	3.100
16024	1.600	120	180	19	1,0	48.400	40.960	2.300	2.800
16026	2.350	130	200	22	1,0	63.400	52.160	2.200	2.600
16028	2.500	140	210	22	1,0	64.400	55.360	2.100	2.500

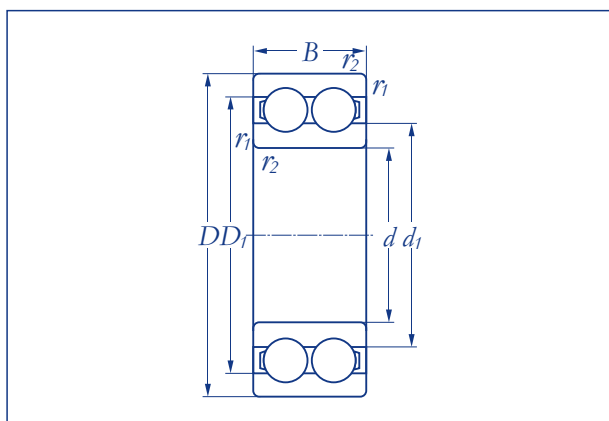
Deep groove ball bearings
Series **160**



160..

Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r Perm} (N)	F _{or perm} (N)
16030	3.150	150	225	24	1,0	73.800	62.720	1.800	2.200
16032	3.700	160	240	25	1,5	79.600	69.120	1.600	2.100
16034	5.000	170	260	28	1,5	95.200	82.560	1.500	1.900
16036	6.600	180	280	31	2,0	110.400	93.440	1.400	1.800
16038	7.900	190	290	31	2,0	94.720	106.240	1.400	1.800
16040	8.850	200	310	34	2,0	107.520	121.600	1.300	1.600
16044	11.500	220	340	37	2,0	111.360	130.560	1.200	1.500
16048	14.500	240	360	37	2,0	113.920	140.800	1.100	1.400
16052	21.500	260	400	44	2,5	152.320	198.400	1.000	1.200
16056	23.000	280	420	44	2,5	193.900	268.000	900	1.100
16060	32.000	300	460	50	3,0	228.800	324.000	800	1.000

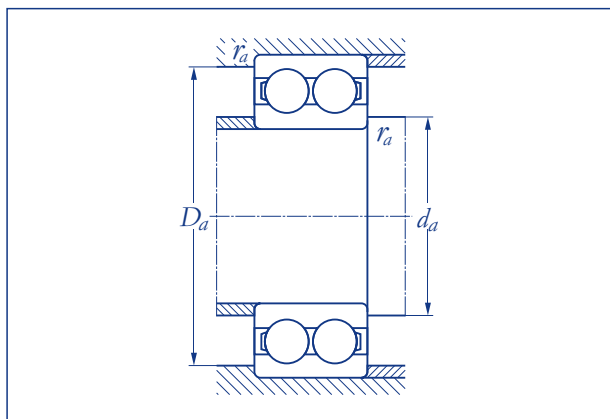
Deep groove ball bearings
Series **42**



42..

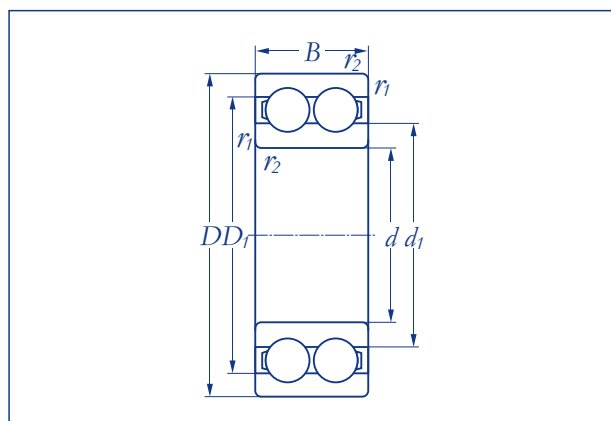
Designation	Weight (g)	Dimensions (mm)			Load ratings			
		d	D	B	C _w (N)	C _{ow} (N)	F _{r perm} (N)	F _{or perm} (N)
4200 A	49	10	30	14	7.300	4.100	12.600	15.400
4201 A	53	12	32	14	8.400	4.900	11.900	14.000
4202 A	59	15	35	14	9.500	6.000	9.800	11.900
4203 A	90	17	40	16	11.800	7.600	8.400	10.500
4204 A	140	20	47	18	14.200	10.000	7.000	9.100
4205 A	160	25	52	18	15.200	11.600	6.300	7.700
4206 A	260	30	62	20	20.800	16.600	5.600	6.600
4207 A	400	35	72	23	28.000	22.800	4.600	5.600
4208 A	500	40	80	23	29.600	26.000	4.200	4.900
4209 A	540	45	95	23	31.200	28.800	3.900	4.600
4210 A	580	50	90	23	32.800	32.000	3.500	4.200
4211 A	800	55	100	25	35.900	35.200	3.300	3.900
4212 A	1.100	60	110	28	45.700	44.000	3.100	3.700
4213 A	1.450	65	120	31	54.000	53.600	2.800	3.300

Deep groove ball bearings
Series 42



Designation	Dimensions(mm)					
	d_1 ≈	D_1 ≈	$r_{1,2}$ min	d_a min	D_a max	r_a max
4200 A	16,7	23,3	0,6	14,0	26,0	0,6
4201 A	18,3	25,7	0,6	16,0	28,0	0,6
4202 A	21,5	29,0	0,6	19,0	31,0	0,6
4203 A	24,3	32,7	0,6	21,0	36,0	0,6
4204 A	29,7	38,3	1,0	25,0	42,0	1,0
4205 A	34,2	42,8	1,0	30,0	47,0	1,0
4206 A	40,9	51,1	1,0	35,0	57,0	1,0
4207 A	47,5	59,5	1,1	41,5	65,5	1,0
4208 A	54,0	66,0	1,1	46,5	73,5	1,0
4209 A	59,5	71,5	1,1	51,5	78,5	1,0
4210 A	65,5	77,5	1,1	56,5	83,5	1,0
4211 A	71,2	83,8	1,5	63,0	92,0	1,5
4212 A	75,6	90,4	1,5	68,0	102,0	1,5
4213 A	82,9	99,1	1,5	73,0	112,0	1,5

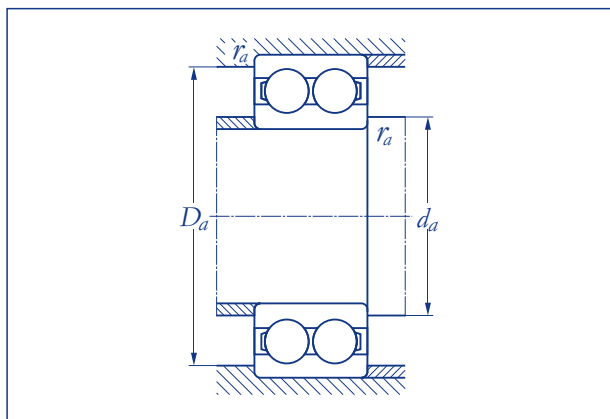
Deep groove ball bearings
Series 43



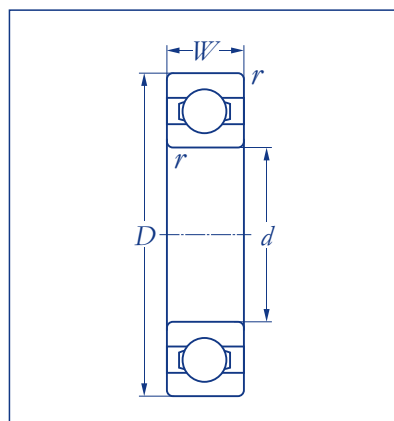
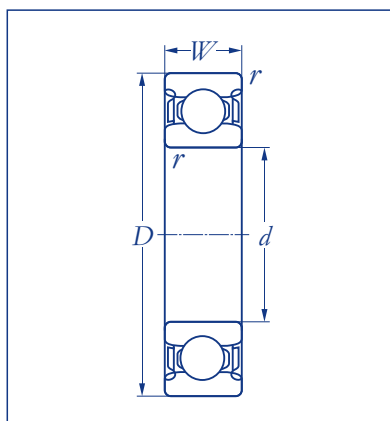
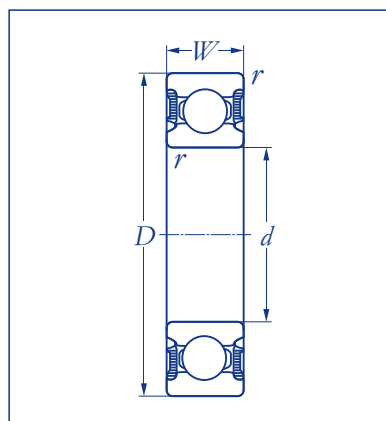
43..

Designation	Weight (g)	Dimensions (mm)			Load ratings			
		d	D	B	C _w (N)	C _{ow} (N)	F _{r perm} (N)	F _{or perm} (N)
4301 A	92	12	37	17	10.400	6.200	10.500	12.600
4302 A	120	15	42	17	11.800	7.600	8.400	10.500
4303 A	160	17	47	19	15.600	10.500	7.000	9.100
4304 A	210	20	52	21	18.700	12.800	6.600	8.400
4305 A	340	25	62	24	25.500	17.900	5.900	7.000
4306 A	500	30	72	27	32.800	24.000	4.900	5.900
4307 A	690	35	80	31	40.500	30.400	4.400	5.200
4308 A	950	40	90	33	44.700	36.000	3.900	4.600
4309 A	1.250	45	100	36	55.100	44.800	3.500	4.200
4310 A	1.700	50	110	40	65.500	55.600	3.100	3.700
4311 A	2.150	55	120	43	78.000	66.400	3.000	3.500
4312 A	2.650	60	130	46	89.600	78.400	2.600	3.100
4313 A	3.250	65	140	48	96.800	84.800	2.500	3.000

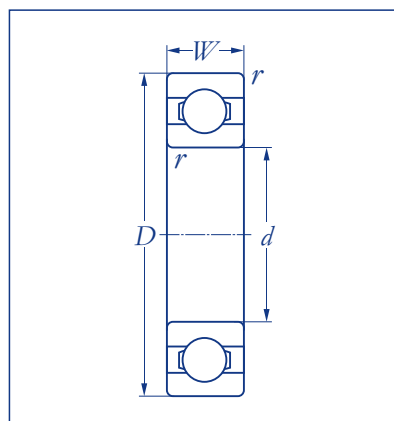
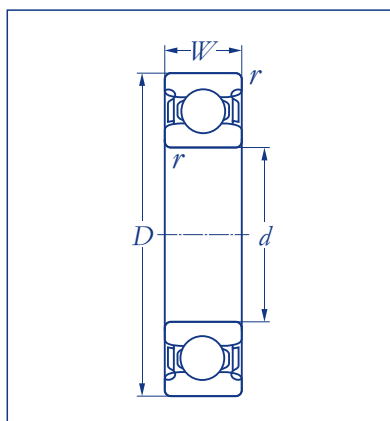
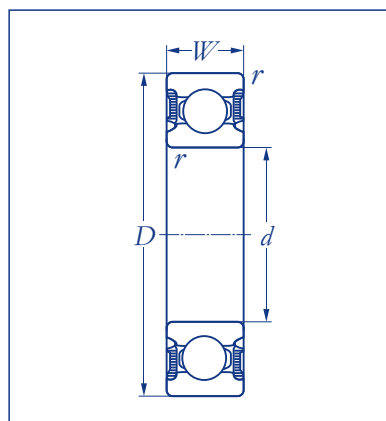
Deep groove ball bearings
Series 43



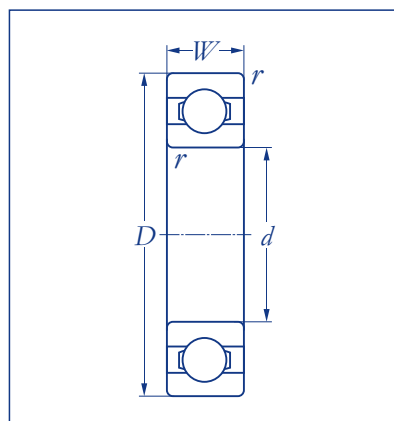
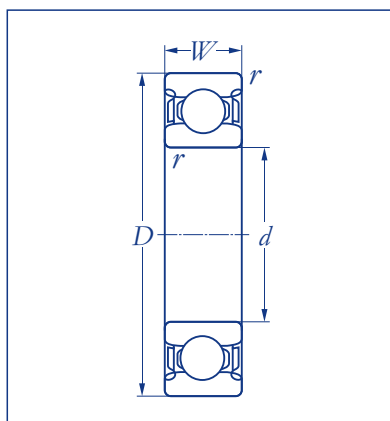
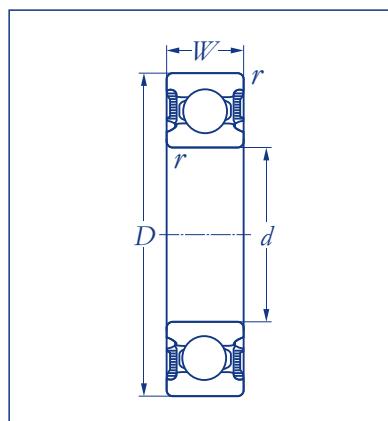
Designation	Dimensions(mm)					
	d_1 ≈	D_1 ≈	$r_{1.2}$ min	d_a min	D_a max	r_a max
4301 A	20,5	28,5	1,0	17,0	32,0	1,0
4302 A	24,5	32,5	1,0	20,0	37,0	1,0
4303 A	28,7	38,3	1,0	22,0	42,0	1,0
4304 A	31,8	42,2	1,1	26,5	45,5	1,0
4305 A	37,3	49,7	1,1	31,5	55,5	1,0
4306 A	43,9	58,1	1,1	36,5	65,5	1,0
4307 A	49,5	65,4	1,5	43,0	72,0	1,5
4308 A	56,9	73,1	1,5	48,0	82,0	1,5
4309 A	63,5	81,5	1,5	53,0	92,0	1,5
4310 A	70,0	90,0	2,0	59,0	101,0	2,0
4311 A	76,5	98,5	2,0	64,0	111,0	2,0
4312 A	83,1	107,0	2,1	71,0	119,0	2,0
4313 A	89,6	115,0	2,1	76,0	129,0	2,0

Deep groove ball bearings
 Series **60**

60..

60..ZZ

60..2RS

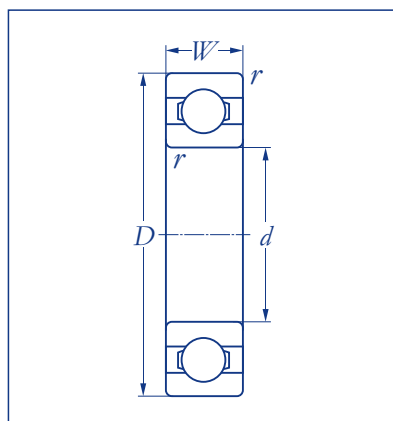
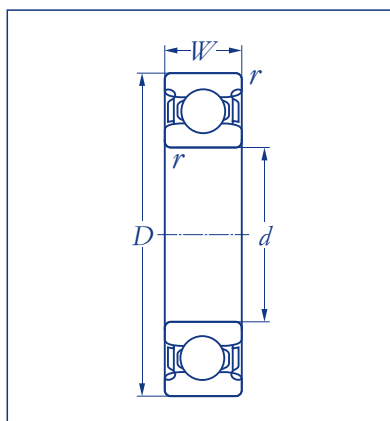
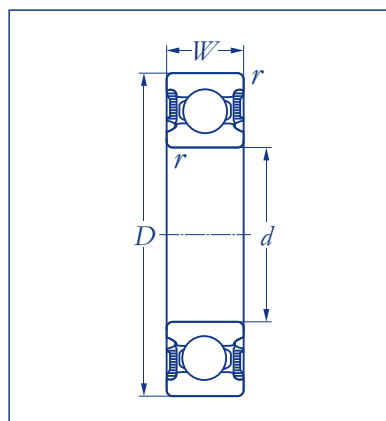
Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r perm} (N)	F _{or perm} (N)
604	2,2	4	12	4	0,2	600	200	37.100	44.100
607 607 ZZ 607 2RS	7,5	7	19	6	0,3	1.300	400	26.600	31.500
608 608 ZZ 608 2RS	12	8	22	7	0,3	2.600	1.000	25.200	30.100
609 609 ZZ 609 2RS	14	9	24	7	0,3	2.900	1.300	22.400	26.600
6000 6000 ZZ 6000 2RS	19	10	26	8	0,3	3.600	1.500	21.000	25.200
6001 6001 ZZ 6001 2RS	22	12	28	8	0,3	4.000	1.800	18.200	22.400
6002 6002 ZZ 6002 2RS	30	15	32	9	0,3	4.400	2.200	15.400	19.600
6003 6003 ZZ 6003 2RS	39	17	35	10	0,3	4.800	2.600	13.300	16.800
6004 6004 ZZ 6004 2RS	69	20	42	12	0,6	7.400	4.000	11.900	14.000
6005 6005 ZZ 6005 2RS	80	25	47	12	0,6	8.900	5.200	10.500	12.600
6006 6006 ZZ 6006 2RS	160	30	55	13	1,0	10.600	6.600	8.400	10.500
6007 6007 ZZ 6007 2RS	190	35	62	14	1,0	12.700	8.100	7.000	9.100
6008 6008 ZZ 6008 2RS	250	40	68	15	1,0	13.400	9.200	6.650	8.400
6009 6009 ZZ 6009 2RS	260	45	75	16	1,0	16.600	11.600	6.300	7.700
6010 6010 ZZ 6010 2RS	390	50	80	16	1,0	17.200	12.800	5.950	7.000
6011 6011 ZZ 6011 2RS	440	55	90	18	1,1	22.400	16.900	5.250	6.300
6012 6012 ZZ 6012 2RS	600	60	95	18	1,1	23.600	18.500	4.690	5.600
6013 6013 ZZ 6013 2RS	640	65	100	18	1,1	24.500	20.000	4.410	5.250
6014 6014 ZZ 6014 2RS	850	70	110	20	1,1	30.100	24.800	4.200	4.900
6015 6015 ZZ 6015 2RS	890	75	115	20	1,1	31.700	26.800	3.920	4.600
6016 6016 ZZ 6016 2RS	1.150	80	125	22	1,1	38.000	32.000	3.710	4.400
6017 6017 ZZ 6017 2RS	1.200	85	130	22	1,1	39.500	34.400	3.500	4.200
6018 6018 ZZ 6018 2RS	1.250	90	140	24	1,5	46.800	40.000	3.360	3.900
6019 6019 ZZ 6019 2RS	1.600	95	145	24	1,5	48.400	43.200	3.150	3.700
6020 6020 ZZ 6020 2RS		100	150	24	1,5	48.400	43.200	3010	3.500
6021 6021 ZZ 6021 2RS		105	160	26	2,0	58.200	52.400	2.800	3.300

Deep groove ball bearings
 Series **60**

60..

60..ZZ

60..2RS

Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r Perm} (N)	F _{or perm} (N)
6022 6022 ZZ 6022 2RS	1.950	110	170	28	2,0	65.500	58.800	2.660	3.100
6024 6024 ZZ 6024 2RS	3.150	120	180	28	2,0	68.100	64.000	2.380	2.800
6026 6026 ZZ 6026 2RS	3.350	130	200	33	2,0	84.800	80.000	2.240	2.600
6028 6028 ZZ 6028 2RS	4.800	140	210	33	2,0	88.800	86.400	2.100	2.500
6030 6030 ZZ 6030 2RS	5.900	150	225	35	2,1	100.000	100.000	1.820	2.200
6032 6032 ZZ 6032 2RS	7.900	160	240	38	2,1	114.400	114.400	1.680	2.100
6034	10.500	170	260	42	2,1	134.400	138.400	1.540	1.900
6036	11.000	180	280	46	2,1	152.000	160.000	1.400	1.800
6038	14.000	190	290	46	2,1	156.000	172.800	1.400	1.800
6040	18.500	200	310	51	2,0	216.000	245.000	1.900	2.400
6044	19.500	220	340	56	2,5	247.000	290.000	1.800	2.200
6048	29.500	240	360	56	2,5	255.000	315.000	1.700	2.000
6052	31.000	260	400	65	3,0	291.000	375.000	1.500	1.800
6056	44.000	280	420	65	3,0	302.000	405.000	1.400	1.700
6060	.	300	460	74	3,0	358.000	500.000	1.200	1.500

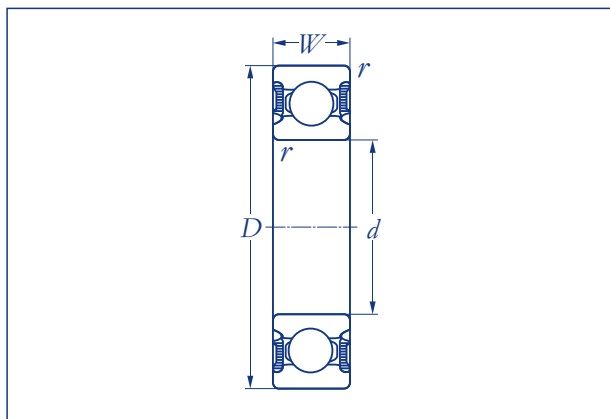
Deep groove ball bearings
 Series **62**

62..

62..ZZ

62..2RS

Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r perm} (N)	F _{or perm} (N)
623 623 ZZ	1	3	10	4	0,1	300	100	42.000	49.000
624 624 ZZ	3	4	13	5	0,2	700	200	33.600	39.200
625 625 ZZ	5	5	16	5	0,3	800	300	30.100	35.000
626 626 ZZ 626 2RS	84	6	19	6	0,3	1.300	400	25.200	30.100
627 627 ZZ 627 2RS	13	7	22	7	0,3	2.600	1.000	22.400	26.600
629 629 ZZ 629 2RS	20	9	26	8	0,3	3.600	1.500	19.600	23.800
6200 6200 ZZ 6200 2RS	30	10	30	9	0,6	4.000	1.800	16.800	21.000
6201 6201 ZZ 6201 2RS	37	12	32	10	0,6	5.500	2.400	15.400	19.600
6202 6202 ZZ 6202 2RS	46	15	35	11	0,6	6.200	3.000	13.300	16.800
6203 6203 ZZ 6203 2RS	65	17	40	12	1,0	7.600	3.800	11.900	14.000
6204 6204 ZZ 6204 2RS	107	20	47	14	1,0	10.100	5.200	10.500	12.600
6205 6205 ZZ 6205 2RS	125	25	52	15	1,0	11.200	6.200	8.400	11.200
6206 6206 ZZ 6206 2RS	205	30	62	16	1,0	15.600	8.900	7.000	9.100
6207 6207 ZZ 6207 2RS	290	35	72	17	1,0	20.400	12.200	6.300	7.700
6208 6208 ZZ 6208 2RS	370	40	80	18	1,0	24.500	15.200	5.900	7.000
6209 6209 ZZ 6209 2RS	410	45	85	19	1,0	26.500	17.200	5.200	6.300
6210 6210 ZZ 6210 2RS	460	50	90	20	1,5	28.000	18.500	4.900	5.900
6211 6211 ZZ 6211 2RS	610	55	100	21	1,5	34.800	23.200	4.400	5.200
6212 6212 ZZ 6212 2RS	780	60	110	22	1,5	38.000	26.000	4.200	4.900
6213 6213 ZZ 6213 2RS	990	65	120	23	1,5	44.700	32.400	3.700	4.400
6214 6214 ZZ 6214 2RS	1.050	70	125	24	1,5	48.400	36.000	3.500	4.200
6215 6215 ZZ 6215 2RS	1.200	75	130	25	2,0	53.000	39.200	3.300	3.900
6216 6216 ZZ 6216 2RS	1.400	80	140	26	2,0	56.100	44.000	3.100	3.700
6217 6217 ZZ 6217 2RS	1.800	85	150	28	2,0	66.500	51.200	3.000	3.500
6218 6218 ZZ 6218 2RS	2.150	90	160	30	2,0	76.400	58.800	2.600	3.100
6219 6219 ZZ 6219 2RS	2.600	95	170	32		86.400	65.200	2.500	3.000

Deep groove ball bearings
 Series **62**

62..

62..ZZ

62..2RS

Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r Perm} (N)	F _{or perm} (N)
6220 6220 ZZ 6220 2RS	3.150	100	180	34	2,0	99.200	74.400	2.300	2.800
6221 6221 ZZ 6221 2RS	3.700	105	190	36	2,0	106.400	83.200	2.200	2.600
6222 6222 ZZ 6222 2RS	4.350	110	200	38	2,0	114.400	94.400	2.100	2.500
6224 6224 ZZ 6224 2RS	5.150	120	215	40	2,0	116.800	94.400	1.900	2.300
6226 6226 ZZ	5.800	130	230	40	2,5	124.800	105.600	1.800	2.200
6228	7.450	140	250	42	2,5	132.000	120.000	1.600	2.100
6230	9.400	150	270	45	2,5	139.200	132.800	1.400	1.800
6232	14.500	160	290	48	2,5	148.800	148.800	1.300	1.600
6234	17.500	170	310	52	3,0	1.696.000	179.200	1.300	1.600
6236 6236 ZZ 6236 2RS	18.500	180	320	52	3,0	183.200	192.000	1.200	1.500
6238 6238 ZZ 6238 2RS	23.000	190	340	55	3,0	204.000	224.000	1.100	1.400
6240 6240 ZZ 6240 2RS	28.000	200	360	58	3,0	216.000	248.000	1.100	1.400
6244 6244 ZZ 6244 2RS	37.000	220	400	65	3,0	236.800	292.000	1.000	1.200
6248 6248 ZZ 6248 2RS	51.000	240	440	72	3,0	286.400	380.000	0.900	1.100
6252 6252 ZZ 6252 2RS	65.500	260	480	80	4,0	312.000	424.000	0.700	0.900
6256 6256 ZZ 6256 2RS	71.000	280	500	80	4,0	338.400	480.000	0.700	0.900

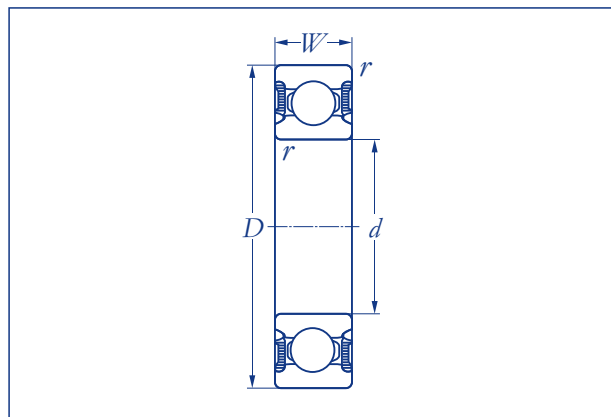
Deep groove ball bearings
Series **622**



622..2RS

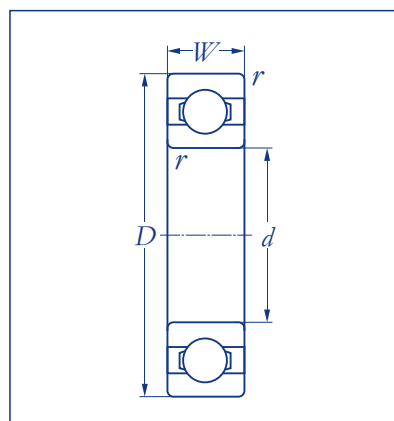
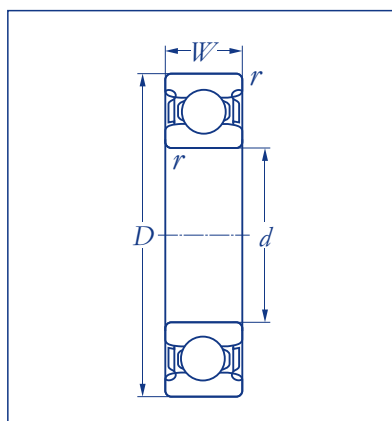
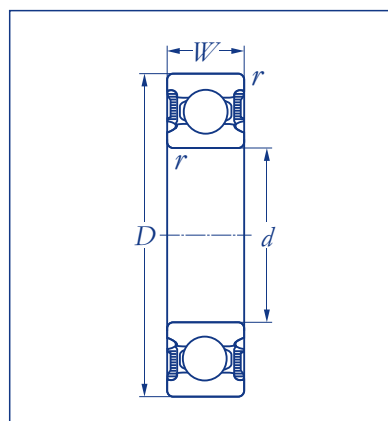
Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r perm} (N)	F _{or perm} (N)
62200 2RS	40	10	30	14	0,6	4.000	1.800	11.900	
62201 2RS	45	12	32	14	0,6	5.500	2.400	10.500	
62202 2RS	54	15	35	14	0,6	6.200	3.000	9.100	
62203 2RS	83	17	40	16	0,6	7.600	3.800	8.400	
62204 2RS	130	20	47	18	1,0	10.100	5.200	7.000	
62205 2RS	150	25	52	18	1,0	11.200	6.200	5.900	
62206 2RS	240	30	62	20	1,0	15.600	8.900	5.200	
62207 2RS	370	35	72	23	1,0	20.400	12.200	4.400	
62208 2RS	440	40	80	23	1,0	24.500	15.200	3.900	
62209 2RS	480	45	85	23	1,0	26.500	17.200	3.500	
62210 2RS	520	50	90	23	1,0	28.000	18.500	3.300	
62211 2RS	700	55	100	25	1,5	34.800	23.200	3.000	
62212 2RS	970	60	110	28	1,5	38.000	26.000	2.800	
62213 2RS	1.250	65	120	31	1,5	44.700	32.400	2.500	
62214 2RS	1.300	70	125	31	1,5	48.400	36.000	2.300	

Deep groove ball bearings
Series **623**



623..2RS

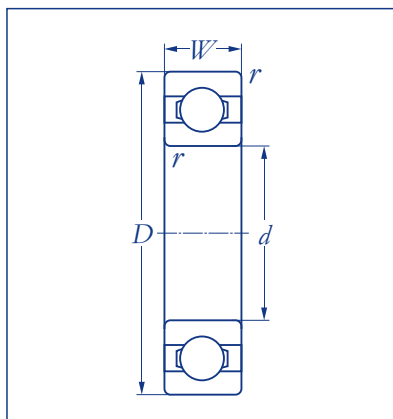
Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r perm} (N)	F _{or perm} (N)
62300 2RS	60	10	35	17	0,6	6.400	2.700	10.500	
62301 2RS	70	12	37	17	1,0	7.800	3.300	9.800	
62302 2RS	110	15	42	17	1,0	9.100	4.300	8.400	
62303 2RS	150	17	47	19	1,0	10.800	5.200	7.700	
62304 2RS	200	20	52	21	1,0	12.700	6.200	6.600	
62305 2RS	320	25	62	24	1,0	18.000	9.200	5.200	
62306 2RS	480	30	72	27	1,0	22.400	12.800	4.400	
62307 2RS	660	35	80	31	1,5	26.500	15.200	4.200	
62308 2RS	890	40	90	33	1,5	32.800	19.200	3.500	
62309 2RS	1.150	45	100	36	1,5	42.100	25.200	3.100	
62310 2RS	1.550	50	110	40	2,0	49.400	30.400	3.000	
62311 2RS	1.950	55	120	43	2,0	57.200	36.000	2.600	
62312 2RS	2.500	60	130	46	2,0	65.500	41.600	2.300	
62313 2RS	3.000	65	140	48	2,0	73.800	48.000	2.200	
62314 2RS	3.550	70	150	51	2,0	83.200	54.400	2.100	

Deep groove ball bearings
 Series **63**

63..

63..ZZ

63..2RS

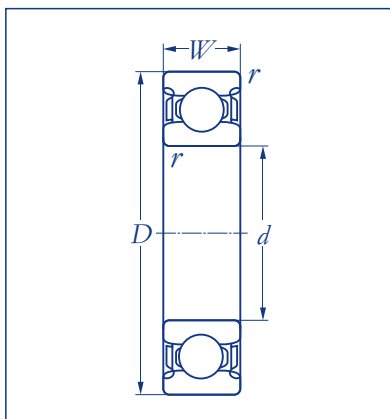
Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r perm} (N)	F _{or perm} (N)
6300 6300 ZZ 6300 2RS	53	10	35	11	0,6	6.400	2.700	10.500	16.800
6301 6301 ZZ 6301 2RS	59	12	37	12	1,0	7.700	3.300	9.800	15.400
6302 6302 ZZ 6302 2RS	82	15	42	13	1,0	9.100	4.300	8.400	14.000
6303 6303 ZZ 6303 2RS	120	17	47	14	1,0	10.800	5.200	7.700	13.300
6304 6304 ZZ 6304 2RS	142	20	52	15	1,1	12.700	6.200	6.600	11.200
6305 6305 ZZ 6305 2RS	230	25	62	17	1,1	18.000	9.200	5.200	9.800
6306 6306 ZZ 6306 2RS	350	30	72	19	1,0	22.400	12.800	4.400	7.700
6307 6307 ZZ 6307 2RS	460	35	80	21	1,5	26.500	15.200	4.200	7.000
6308 6308 ZZ 6308 2RS	630	40	90	23	1,5	32.800	19.200	3.500	6.300
6309 6309 ZZ 6309 2RS	830	45	100	25	1,5	42.100	25.200	3.100	5.600
6310 6310 ZZ 6310 2RS	1.050	50	110	27	2,0	49.400	30.400	3.000	5.200
6311 6311 ZZ 6311 2RS	1.350	55	120	29	2,0	57.200	36.000	2.600	4.600
6312 6312 ZZ 6312 2RS	1.700	60	130	31	2,0	65.500	41.600	2.300	4.200
6313 6313 ZZ 6313 2RS	2.100	65	140	33	2,0	73.800	48.000	3.300	3.900
6314 6314 ZZ 6314 2RS	2.500	70	150	35	2,0	83.200	54.400	3.100	3.700
6315 6315 ZZ 6315 2RS	3.000	75	160	37	2,0	91.200	61.200	3.000	3.500
6316 6316 ZZ 6316 2RS	3.600	80	170	39	2,0	99.200	69.200	2.600	3.100
6317 6317 ZZ 6317 2RS	4.250	85	180	41	2,5	106.400	77.200	2.500	3.000
6318 6318 ZZ 6318 2RS	4.900	90	190	43	2,5	114.400	86.400	2.300	2.800
6319 6319 ZZ	5.650	95	200	45	2,5	122.400	94.400	2.200	2.600
6320 6320 ZZ	7.000	100	215	47	2,5	139.200	112.000	2.100	2.500
6321 6321 ZZ	8.250	105	225	49	2,5	145.600	122.400	1.900	2.300
6322	9.550	110	240	50	2,5	162.400	144.000	1.800	2.200
6324	14.500	120	260	55	2,5	166.400	148.800	1.600	2.100
6326	18.000	130	280	58	3,0	183.200	172.800	1.500	1.900
6328	22.000	140	300	62	3,0	200.800	196.000	1.400	1.800



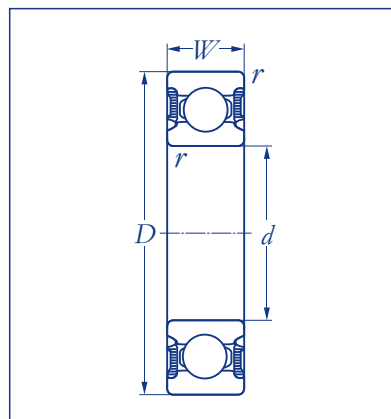
Deep groove ball bearings
Series **63**



63..



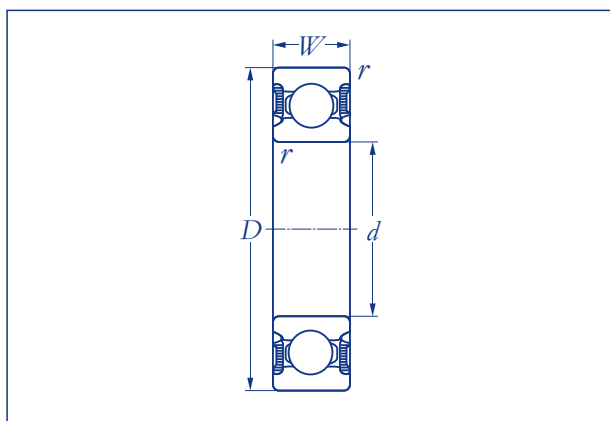
63..ZZ



63..2RS

Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r Perm} (N)	F _{or perm} (N)
6330	26.000	150	320	65	3,0	220.800	228.000	1.300	1.600
6332	29.000	160	340	68	3,0	220.800	228.000	1.200	1.500
6334	34.500	170	360	72	3,0	249.600	272.000	1.100	1.400
6336	42.500	180	380	75	3,0	280.800	324.000	1.100	1.400
6338	49.000	190	400	78	4,0	296.800	344.000	1.100	1.300
6340	55.500	200	420	80	4,0	301.600	372.000	1.000	1.200
6344	72.500	220	460	88	4,0	328.000	416.000	0.900	1.100

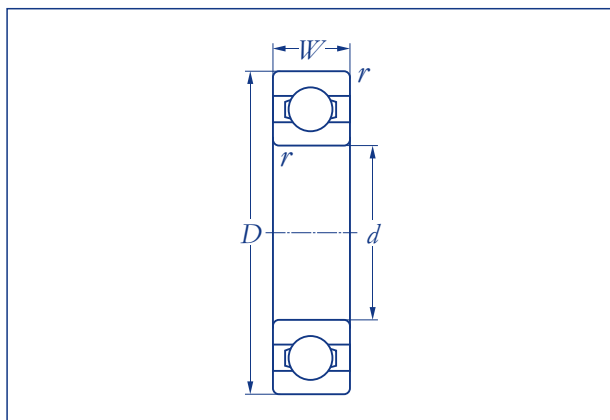
Deep groove ball bearings
Series **630**



630..2RS

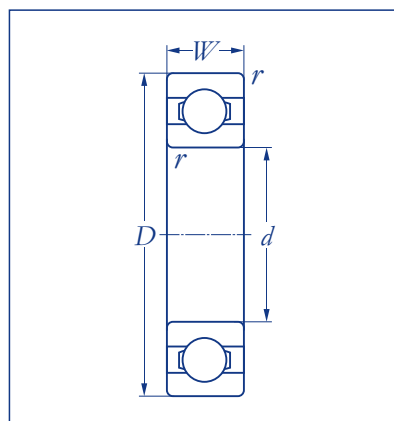
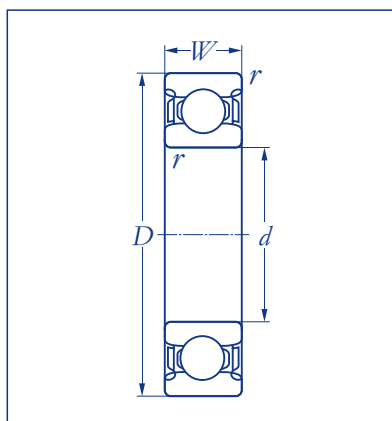
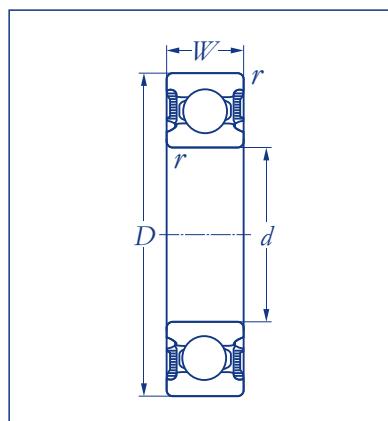
Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r perm} (N)	F _{or perm} (N)
63000 2RS	25	10	26	12	0,3	3.600	1.500	13.300	
63001 2RS	29	12	28	12	0,3	4.000	1.800	11.900	
63002 2RS	39	15	32	13	0,3	4.400	2.200	9.800	
63003 2RS	52	17	35	14	0,3	4.800	2.600	9.100	
63004 2RS	86	20	42	16	0,6	7.400	4.000	7.700	
63005 2RS	100	25	47	16	0,6	8.900	5.200	6.600	
63006 2RS	160	30	55	19	1,0	10.600	6.600	5.600	
63007 2RS	210	35	62	20	1,0	12.700	8.100	4.900	
63008 2RS	260	40	68	21	1,0	13.400	9.200	4.400	
63009 2RS	340	45	75	23	1,0	16.600	11.600	3.900	
63010 2RS	370	50	80	23	1,0	17.200	12.800	3.500	

Deep groove ball bearings
Series **64**



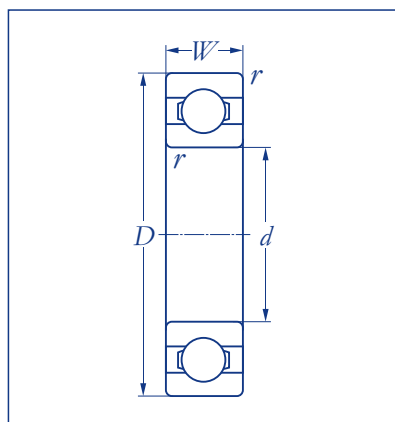
64..

Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r perm} (N)	F _{or perm} (N)
6403	27	17	62	17	1,0	18.300	8.600	8.400	10.500
6404	40	20	72	19	1,0	24.500	12.000	7.000	9.100
6405	53	25	80	21	1,5	28.600	15.400	6.300	7.700
6406	74	30	90	23	1,5	34.800	18.800	5.900	7.000
6407	95	35	100	25	1,5	44.200	24.800	4.900	2.900
6408	1.250	40	110	27	2,0	50.900	29.200	4.600	5.600
6409	1.550	45	120	29	2,0	60.800	36.000	4.200	4.900
6410	1.900	50	130	31	2,0	69.600	41.600	3.700	4.400
6411	2.300	55	140	33	2,0	79.600	49.600	3.500	4.200
6412	2.750	60	150	35	2,0	86.400	55.600	3.300	3.900
6413	3.300	65	160	37	2,0	95.200	62.400	3.100	3.700
6414	4.850	70	180	42	2,5	114.400	8.300	2.600	3.100
6415	6.800	75	190	45	2,5	122.400	91.200	2.500	3.000
6416	8.000	80	200	48	2,5	130.400	100.000	2.300	2.800
6417	9.500	85	210	52	3,0	139.200	109.600	2.200	2.600
6418	11.500	90	225	54	3,0	148.800	120.000	2.100	2.500

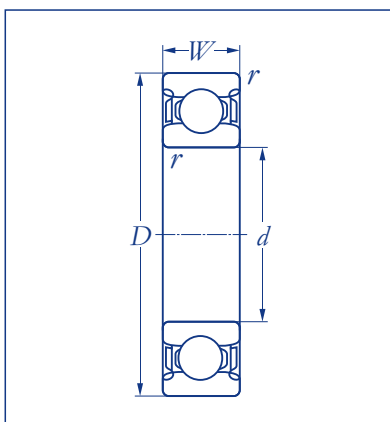
Deep groove ball bearings
 Series **68**

68..

68..ZZ

68..2RS

Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r perm} (N)	F _{or perm} (N)
6800 6800 ZZ 6800 2RS	5,5	10	19	5	0,3	1.100	400	25.200	30.100
6801 6801 ZZ 6801 2RS	6,3	12	21	5	0,3	1.100	500	22.400	26.600
6802 6802 ZZ 6802 2RS	7,4	15	24	5	0,3	1.200	600	19.600	23.800
6803 6803 ZZ 6803 2RS	8,2	17	26	5	0,3	1.300	700	16.800	21.000
6804 6804 ZZ 6804 2RS	18	20	32	7	0,3	2.100	1.200	13.300	16.800
6805 6805 ZZ 6805 2RS	22	25	37	7	0,3	3.400	2.000	11.900	14.000
6806 6806 ZZ 6806 2RS	27	30	42	7	0,3	3.500	2.300	10.500	12.600
6807 6807 ZZ 6807 2RS	30	35	47	7	0,3	3.800	2.500	9.100	11.200
6808 6808 ZZ 6808 2RS	34	40	52	7	0,3	3.900	2.700	7.700	9.800
6809 6809 ZZ 6809 2RS	40	45	58	7	0,3	4.800	3.400	6.600	8.400
6810 6810 ZZ 6810 2RS	52	50	65	7	0,3	4.900	3.800	6.300	7.700
6811 6811 ZZ 6811 2RS	83	55	72	9	0,3	6.600	4.900	5.900	7.000
6812 6812 ZZ 6812 2RS	110	60	78	10	0,3	6.900	5.300	5.200	6.300
6813 6813 ZZ 6813 2RS	130	65	85	10	0,6	9.300	7.300	4.900	5.900
6814 6814 ZZ 6814 2RS	140	70	90	10	0,6	9.600	8.000	4.600	5.600
6815 6815 ZZ 6815 2RS	150	75	95	10	0,6	10.000	8.600	4.400	5.200
6816 6816 ZZ 6816 2RS	150	80	100	10	0,6	9.900	8.600	4.200	4.900
6817 6817 ZZ 6817 2RS	270	85	110	13	1,0	15.600	13.200	3.700	4.400
6818 6818 ZZ 6818 2RS	280	90	115	13	1,0	15.600	13.600	3.700	4.400
6819 6819 ZZ 6819 2RS	300	95	120	13	1,0	15.900	14.000	3.500	4.200
6820 6820 ZZ 6820 2RS	310	100	125	13	1,0	15.900	14.600	3.300	3.900
6821 6821 ZZ 6821 2RS	320	105	130	13	1,0	16.600	15.600	3.100	3.700
6822 6822 ZZ 6822 2RS	600	110	140	16	1,0	22.400	20.800	3.000	3.500
6824 6824 ZZ 6824 2RS	650	120	150	16	1,0	23.200	22.400	2.600	3.100
6826 6826 ZZ 6826 2RS	930	130	165	18	1,0	30.100	34.400	2.500	3.000
6828 6828 ZZ 6828 2RS	990	140	175	18	1,0	31.200	37.200	2.300	2.800

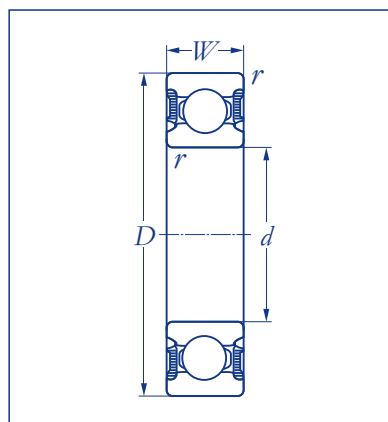
Deep groove ball bearings
Series **68**



68..

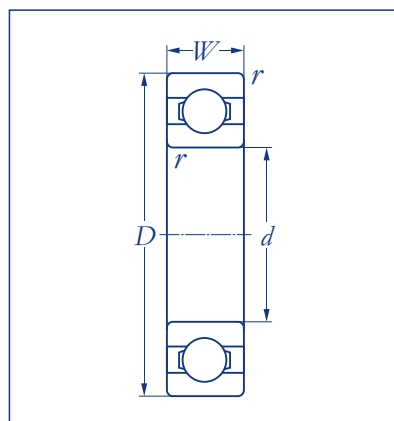
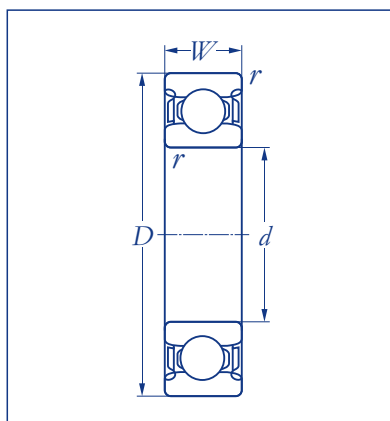
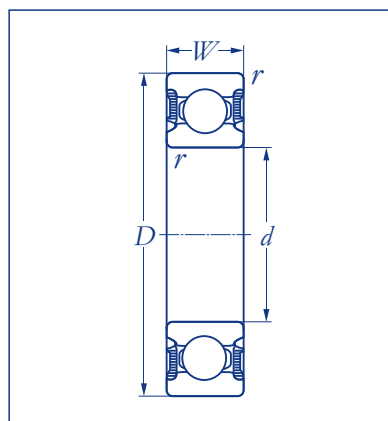


68..ZZ

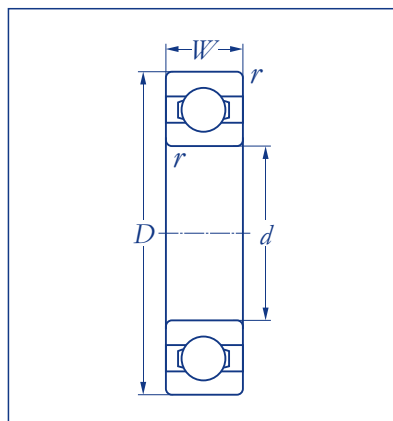
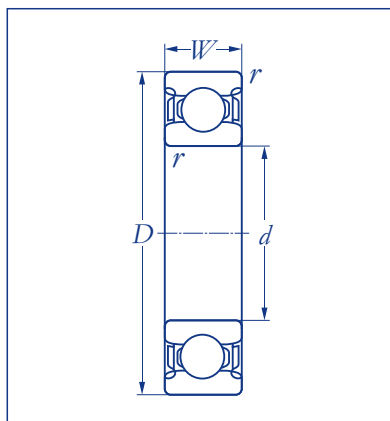
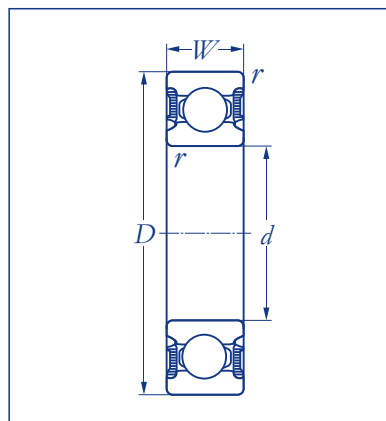


68..2RS

Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r Perm} (N)	F _{or perm} (N)
6830	1.400	150	190	20	1,0	39.000	48.800	2.100	2.500
6832	1.450	160	200	20	1,0	39.500	51.200	1.900	2.300
6834	1.900	170	215	22	1,0	49.400	62.400	1.800	2.200
6836	2.000	180	225	22	1,0	49.900	65.200	1.600	2.100
6838	2.600	190	240	24	1,5	60.800	78.400	1.500	1.900
6840	2.700	200	250	24	1,5	60.800	81.600	1.500	1.900
6844	3.000	220	270	24	1,5	62.400	88.000	1.300	1.600
6848	4.500	240	300	28	2,0	86.400	120.000	1.200	1.500
6852	4.800	260	320	28	2,0	88.800	130.400	1.100	1.400
6856	7.400	280	350	33	2,0	110.400	160.000	1.100	1.300
6860	10.500	300	380	38	2,0	137.600	196.000	900	1.100

Deep groove ball bearings
 Series **69**

69..

69..ZZ

69..2RS

Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r perm} (N)	F _{or perm} (N)
6900 6900 ZZ 6900 2RS	10	10	22	6	0,3	1.500	600	23.800	28.000
6901 6901 ZZ 6901 2RS	11	12	24	6	0,3	1.800	700	21.000	25.200
6902 6902 ZZ 6902 2RS	16	15	28	7	0,3	3.200	1.600	16.800	21.000
6903 6903 ZZ 6903 2RS	18	17	30	7	0,3	3.400	1.800	15.400	19.600
6904 6904 ZZ 6904 2RS	38	20	37	9	0,3	5.000	2.900	12.600	15.400
6905 6905 ZZ 6905 2RS	45	25	42	9	0,3	5.300	3.200	11.200	13.300
6906 6906 ZZ 6906 2RS	51	30	47	9	0,3	5.800	3.600	9.800	11.900
6907 6907 ZZ 6907 2RS	80	35	55	10	0,6	7.600	4.900	7.700	9.800
6908 6908 ZZ 6908 2RS	120	40	62	12	0,6	11.000	7.400	7.000	9.100
6909 6909 ZZ 6909 2RS	140	45	68	12	0,6	8.000	5.300	6.300	7.700
6910 6910 ZZ 6910 2RS	140	50	72	12	0,6	11.600	8.300	5.900	7.000
6911 6911 ZZ 6911 2RS	190	55	80	13	1,0	12.700	9.100	5.600	6.600
6912 6912 ZZ 6912 2RS	200	60	85	13	1,0	13.200	9.600	5.200	6.300
6913 6913 ZZ 6913 2RS	220	65	90	13	1,0	13.900	10.700	4.600	5.600
6914 6914 ZZ 6914 2RS	350	70	100	16	1,0	19.000	14.600	4.400	5.200
6915 6915 ZZ 6915 2RS	370	75	105	16	1,0	19.300	15.400	4.200	4.900
6916 6916 ZZ 6916 2RS	400	80	110	16	1,0	20.000	16.300	3.900	4.600
6917	550	85	120	18	1,0	25.500	24.000	3.700	4.400
6918	590	90	125	18	1,0	26.500	25.200	3.500	4.200
6919	610	95	130	18	1,0	27.000	26.800	3.300	3.900
6920	830	100	140	20	1,0	33.800	33.200	3.100	3.700
6921	870	105	145	20	1,0	35.300	35.200	3.000	3.500
6922	900	110	150	20	1,0	34.800	36.000	2.800	3.300
6924	1.200	120	165	22	1,0	44.200	45.600	2.500	3.000
6926	1.600	130	180	24	1,5	52.000	53.600	2.300	2.800
6928	1.700	140	190	24	1,5	53.000	57.600	2.200	2.600

Deep groove ball bearings
 Series **69**

69..

69..ZZ

69..2RS

Designation	Weight (g)	Dimensions (mm)				Load ratings			
		d	D	W	r min	C _w (N)	C _{ow} (N)	F _{r Perm} (N)	F _{or perm} (N)
6930	3.050	150	210	28	2,0	70.700	74.400	1.900	2.300
6932	3.250	160	220	28	2,0	73.800	78.400	1.800	2.200
6934	3.400	170	230	28	2,0	74.800	84.800	1.600	2.100
6936	5.050	180	250	33	2,0	9.500	107.200	1.500	1.900
6938	5.250	190	260	33	2,0	9.300	107.200	1.500	1.900
6940	7.400	200	280	38	2,0	11.800	132.800	1.400	1.800
6944	8.000	220	300	38	2,0	120.800	144.000	1.300	1.600
6948	8.600	240	320	38	2,0	127.200	160.000	1.200	1.500



1. Materials for SLB cylindrical roller bearing's Outer ring, Inner ring & Rolling Elements

The most common through-hardening steel used for rolling bearing of **SLB** used is a carbon chromium steel containing approximately 1% carbon and 1.5% chromium. Below table 1.1 which shown G Cr15--the main material that **SLB** used for producing our ball bearings and its interchangeable material in other nations.

Table 1.1

Name	Standard	Chemical Composition (%)					
		C	Mn	Si	Cr	S ≤	P ≤
G Cr15	SLB	0.95~1.05	0.20~0.40	0.15~0.35	1.30~1.65	0.020	0.027
SUJ 2	JIS G 4805	0.95~1.10	0.50 ≤	0.15~0.35	1.30~1.60	0.025	0.025
100Cr6	DIN	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -
E52100	AISI	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -
ISO	683/XVII	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -
SKF	-	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -

Note: **SLB** supplies all general bearings with material of G Cr15 as normal products, unless otherwise specified by customer for special usage before ordering. i.e. Pure carbon or Stainless Steel etc.

2. Material for Bearing Retainers

The retainer is demanded to bear hitting load and have the lowest friction with the rolling elements when **SLB** bearing is working. So, low carbon steel is adopted. (Please refer to Table 2.1)

Table 2.1

Name	Standard	Chemical Composition (%)				
		C	Mn	Si	S ≤	P ≤
10F	Chinese GB	0.05~0.11	0.25~0.50	0.07 ≤	0.035	0.035
SPCC	JIS G 3141	0.12 ≤	0.50 ≤	-	0.045	0.040

Note: **SLB** supply bearings with retainer material of 10F as normal products, unless otherwise specified by customers for special usage before ordering. i.e. Corrosion proof, poor agricultural requirement and water resistant etc.

3. Material for SLB Bearing Seals/Shields

3.1) The **SLB** seals are made of two parts, NBR rubber seal with steel frame, called "2RS"

3.2) The **SLB** Shields are made with material of SPCC, called "ZZ"

4. Precision Class for the bearings

4.1) The accuracy of a bearing are both dimensional and running accuracy of the bearing It has been standardised internationally. Here we give out a interchangeable precision class standard table which is equal to **SLB** (Table 4,1 refers) for your reference.



Table 4.1

Selection	Classification standard				
	P0	P6	P5	P4	P2
ISO	Class 6X	Class 6	Class 5	Class 4	Class 2
Japan Industrial	Class 0	Class 6	Class 5	Class 4	Class 2
German	P0	P6	P5	P4	P2
United States	ABEC-1	ABEC-3	ABEC-5	ABEC-7	ABEC-9

4.2) Relatively, as specified value of accuracy, **SLB** gives out the normal tolerances for radial bearings exceptional for taper roller bearings. (Tables 4,2 and 4,3 refers)

Table 4.2 Normal Tolerances for Radial Bearings

Inner ring (Unit:μm)

Nominal bore dimension d(mm)		Deviation of the mean bore diameter from the nominal Δdmp										Deviation of the bore diameter Vdp Diameter series 9				
		P0		P6		P5		P4		P2		P0	P6	P5	P4	P2
over	incl.	high	low	high	low	high	low	high	low	high	low	max.				
0.6	2.5	0	-8	0	-7	0	-5	0	-4	0	-2.5	10	9	5	4	2.5
2.5	10	0	-8	0	-7	0	-5	0	-4	0	-2.5	10	9	5	4	2.5
10	18	0	-8	0	-7	0	-5	0	-4	0	-2.5	10	9	5	4	2.5
18	30	0	-10	0	-8	0	-6	0	-5	0	-2.5	13	10	6	5	2.5
30	50	0	-12	0	-10	0	-8	0	-6	0	-2.5	15	13	8	6	2.5
50	80	0	-15	0	-12	0	-9	0	-7	0	-4.0	19	15	9	7	4.0
80	120	0	-20	0	-15	0	-10	0	-8	0	-5.0	25	19	10	8	5.0
120	150	0	-25	0	-18	0	-13	0	-10	0	-7.0	31	23	13	10	7.0
150	180	0	-25	0	-18	0	-13	0	-10	0	-7.0	31	23	13	10	7.0
180	250	0	-30	0	-22	0	-15	0	-12	0	-8.0	38	28	15	12	8.0
250	315	1	-35	0	-25	0	-18	—	—	—	—	44	31	18	—	—
315	400	0	-40	0	-30	0	-23	—	—	—	—	50	38	23	—	—



Deviation of the bore diameter										Mean deviation of the bore diameter					Radial run out				
Vdp					Vdmp					Kia									
Diameter series 0, 1					Diameter series 2, 3, 4														
P0	P6	P5	P4	P2	P0	P6	P5	P4	P2	P0	P6	P5	P4	P2	P0	P6	P5	P4	P2
max.					max.					max.									
8	7	4	3	2.5	6	5	4	3	2.5	6	5	3	2.0	1.5	10	5	4	2.5	1.5
8	7	4	3	2.5	6	5	4	3	2.5	6	5	3	2.0	1.5	10	6	4	2.5	1.5
8	7	4	3	2.5	6	5	4	3	2.5	6	5	3	2.0	1.5	10	7	4	2.5	1.5
10	8	5	4	2.5	8	6	5	4	2.5	8	6	3	2.5	1.5	13	8	4	3.0	2.5
12	10	6	5	2.5	9	8	6	5	2.5	9	8	4	3.0	1.5	15	10	5	4.0	2.5
19	15	7	6	4.0	11	9	7	6	4.0	11	9	5	3.5	2.0	20	10	5	4.0	2.5
25	19	8	6	5.0	15	11	8	6	5.0	15	11	5	4.0	2.5	25	13	6	5.0	2.5
31	23	10	8	7.0	19	14	10	8	7.0	19	14	7	5.0	3.5	30	18	8	6.0	2.5
31	23	10	8	7.0	19	14	10	8	7.0	19	14	7	5.0	3.5	30	18	8	6.0	5.0
38	28	12	9	8.0	23	17	12	9	8.0	23	17	8	6.0	4.0	40	20	10	8.0	5.0
44	31	14	—	—	26	19	14	—	—	26	19	9	—	—	50	25	13	—	—
50	38	18	—	—	30	23	18	—	—	30	23	12	—	—	60	30	15	—	—

Side run out			Axial run out			Deviation of the width										Parallel deviation between end surfaces				
Sd			Sia			ΔBs										VBs				
						For single bearing					For pair bearing									
P5	P4	P2	P5	P4	P2	P0,	P6	P5,	P4	P2	P0,	P6	P5,	P4	P0	P6	P5	P4	P2	
max.			max.			high	low	high	low	high	low	high	low	high	low	max.				
7	3	1.5	7	3	1.5	0	-40	0	-40	0	-40	—	—	0	-7	12	12	5	2.5	1.5
7	3	1.5	7	3	1.5	0	-120	0	-40	0	-40	0	-8	0	-7	15	15	5	2.5	1.5
7	3	1.5	7	3	1.5	0	-120	0	-80	0	-80	0	-8	0	-7	20	20	5	2.5	1.5
8	4	1.5	8	4	2.5	0	-120	0	-120	0	-120	0	-10	0	-8	20	20	5	2.5	1.5
8	4	1.5	8	4	2.5	0	-120	0	-120	0	-120	0	-12	0	-10	20	20	5	3.0	1.5
8	5	1.5	8	5	2.5	0	-150	0	-150	0	-150	0	-15	0	-12	25	25	5	4.0	1.5
9	5	2.5	9	5	2.5	0	-200	0	-200	0	-200	0	-20	0	-15	25	25	7	4.0	2.5
10	6	2.5	10	7	2.5	0	-250	0	-250	0	-250	0	-25	0	-18	30	30	8	5.0	2.5
10	6	4.0	10	7	5.0	0	-250	0	-250	0	-300	0	-25	0	-18	30	30	8	5.0	4.0
11	7	5.0	13	8	5.0	0	-300	0	-300	0	-350	0	-30	0	-22	30	30	10	6.0	5.0
13	—	—	15	—	—	0	-350	0	-350	—	—	1	-35	0	-25	35	35	13	—	—
15	—	—	20	—	—	0	-400	0	-400	—	—	0	-40	0	-30	40	40	15	—	—

Note: Values for larger sizes on request Table 4,3 Normal Tolerances for Radial Bearings



Out ring (Unit: μm)

Nominal bore dimension D(mm)		Deviation of the mean bore diameter from the nominal ΔDmp										Deviation of the outer ring diameter (Open type) VDp				
over	incl.	P0		P6		P5		P4		P2		P0	P6	P5	P4	P2
		high	low	high	low	high	low	high	low	high	low					
		Diameter series 9 max.														
2.5	6	0	-8	0	-7	0	-5	0	-4	0	-2.5	10	9	5	4	2.5
6	18	0	-8	0	-7	0	-5	0	-4	0	-2.5	10	9	5	4	2.5
18	30	0	-9	0	-8	0	-6	0	-5	0	-4.0	12	10	6	5	4.0
30	50	0	-11	0	-7	0	-6	0	-6	0	-4.0	14	11	7	6	4.0
50	80	0	-13	0	-9	0	-7	0	-7	0	-4.0	16	14	9	7	4.0
80	120	0	-15	0	-10	0	-8	0	-8	0	-5.0	19	16	10	8	5.0
120	150	0	-18	0	-15	0	-11	0	-9	0	-5.0	23	19	11	9	5.0
150	180	0	-25	0	-18	0	-13	0	-10	0	-7.0	31	23	13	10	7.0
180	250	0	-30	0	-20	0	-15	0	-11	0	-8.0	38	25	15	11	8.0
250	315	0	-35	0	-25	0	-18	0	-13	0	-8.0	44	31	18	13	8.0
315	400	1	-40	0	-28	0	-20	0	-15	0	-10.0	50	35	20	15	10.0
400	500	0	-45	0	-33	0	-23	—	—	—	—	56	41	23	—	—

Deviation of the bore diameter										Deviation of the outer ring diameter (with seals & shields)VDp		Mean deviation of the out ring diameter VDmp				
Diameter series 0, 1					Diameter series 2, 3, 4					2, 3, 4	0, 1, 2, 3, 4	P0	P6	P5	P4	P2
P0	P6	P5	P4	P2	P0	P6	P5	P4	P2	P0	P6	max.				
										max.		max.				
8	7	4	3	2.5	6	5	4	3	2.5	10	9	6	5	3	2.0	1.5
8	7	4	3	2.5	6	5	4	3	2.5	10	9	6	5	3	2.0	1.5
9	8	5	4	4.0	7	6	5	4	4.0	12	10	7	6	3	2.5	2.0
11	9	5	5	4.0	8	7	5	5	4.0	16	13	8	7	4	3.0	2.0
13	11	7	5	4.0	10	8	7	5	4.0	20	16	10	8	5	3.5	2.0
19	16	8	6	5.0	11	10	8	6	5.0	26	20	11	10	5	4.0	2.5
23	19	8	7	5.0	14	11	8	7	5.0	30	25	14	11	6	5.0	2.5
31	23	10	8	7.0	19	14	10	8	7.0	38	30	19	14	7	5.0	3.5
38	25	11	8	8.0	23	15	11	8	8.0	—	—	23	15	8	6.0	4.0
44	31	14	10	8.0	26	19	14	10	8.0	—	—	26	19	9	7.0	4.0
50	35	15	11	10.0	30	21	15	11	10.0	—	—	30	21	10	8.0	5.0
56	41	17	—	—	34	25	17	—	—	—	—	34	25	12	—	—



Radial run out Kea					Side run out SD			Axial run out Sea			Deviation of the width ΔCs	Parallel deviation between end surfaces Vcs					
P0	P6	P5	P4	P2	P5	P4	P2	P5	P4	P2	For all class	P0	P6	P5	P4	P2	
max.					max.			max.				max.					
15	8	5	3	1.5	8	4	1.5	8	5	1.5	With "d" of the same model bearing, and refer to relative value of ΔBs	With "d" of the same model bearing, and refer to relative value of Vcs	5	2.5	1.5		
15	8	5	3	1.5	8	4	1.5	8	5	1.5			5	2.5	1.5		
15	9	6	4	2.5	8	4	1.5	8	5	2.5			5	2.5	1.5		
20	10	7	5	2.5	8	4	1.5	8	5	2.5			5	2.5	1.5		
25	13	8	5	4.0	8	4	1.5	10	5	4.0			6	3.0	1.5		
35	18	10	6	5.0	9	5	2.5	11	6	5.0			8	4.0	2.5		
40	20	11	7	5.0	10	5	2.5	13	7	5.0			8	5.0	2.5		
45	23	13	8	5.0	10	5	2.5	14	8	5.0			8	5.0	2.5		
50	25	15	10	7.0	11	7	4.0	15	10	7.0			10	7.0	4.0		
60	30	18	11	7.0	13	8	5.0	18	10	7.0			11	7.0	5.0		
70	35	20	13	8.0	13	10	7.0	20	13	8.0			13	8.0	7.0		
80	40	23	—	—	15	—	—	23	—	—			15	—	—		



5. Internal Clearance

5.1) Radial clearance of SLB deep groove ball bearings (Please refer to Table 5.1)

Table 5.1 Radial Clearance

Nominal bore diameter d (mm)		Radial Clearance									
		C2		CN		C3		C4		C5	
over	incl.	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
100	120	2	20	15	41	36	66	61	97	90	140
120	140	2	23	18	48	41	81	71	114	105	160
140	160	2	23	18	53	46	91	81	130	120	180
160	180	2	25	20	61	53	102	91	147	135	200
180	200	2	30	25	71	63	117	107	163	150	230
200	225	4	32	28	82	73	132	120	187	175	255
225	250	4	36	31	92	87	152	140	217	205	290
250	280	4	39	36	97	97	162	152	237	255	320
280	315	8	45	42	110	110	180	175	260	260	360
315	355	8	50	50	120	120	200	200	290	290	405
355	400	8	60	60	140	140	230	230	330	330	460

Note: Values for larger sizes, subject on request.

6. Lubrication (Grease adopted)

6.1) SLB supplies bearings when filled with grease, Shell Alvania No.2 as normal standard.
(Please refer to Table 6.1)

Table 6.1 Specification for General Purpose Greases.

Manufacturer	Brand	Viscosity	Baseoil	Drop point °C	Consistency	Operating Temperature range °C	Selecting Criterion	Code
Shell	Alvania NO.2	(Lithium)	(Mineral)	182	272	-25~+120	Normal temperature grease	LY83
Shell	Alvania NO.3	(Lithium)	(Mineral)	183	233	-20~+135	Normal temperature grease	LY84
Shell	Aero Shell RLQ2	(Lithium)	(Mineral)	195	266	-50~+150	Low noise high speed grease	



6.2 The optional lubrication grease for selection (Please refer to Table 6.2)

Manufacturer	Brand	Viscosity	Baseoil	Drop point °C	Consistency	Operating Temperature range °C	Selecting Criterion	Code
Exxon	Beacon 325	(Lithium)	(Diester)	193	290	-60~+120	low-temperature grease	LG 20
Exxon	AC 205	(Nathium)	(Mineral)			-25~+120	normal temperature grease	
Exxon	Andok B	(Nathium)	(Mineral)	260	280	-40~+120	normal temperature grease	LG 38
Exxon	Andok 260	(Nathium)	(Mineral)	200	250	-30~+150	normal temperature grease	LG 71
Exxon	Arapen RB300	(Lithium)	(Mineral)	200	250	-30~+100	normal temperature grease	
Exxon	Polyrex EM	(Diurea)	(Mineral)	260	288	-40~+180	high temperature low noise	
Exxon	Polyrex Ep2	(Urea)	(Mineral)	280	280	-40~+180	high temperature low noise	
Exxon	UNIREX N2	(Lithium comples)	(Mineral)	250	280	-40~+180	high temperature low noise	
Exxon	UNIREX N3	(Lithium comples)	(Mineral)	250	235	-40~+180	high temperature low noise	
Kyodo Yushi	Multemp Ps2	(Lithium)	(Diester)	189	280	-50~+110	low-temperature grease	LY 72
Kyodo Yushi	Multemp SRL	(Lithium)	(Ester)	191	245	-40~+150	low noise grease normal	LY 121
Kyodo Yushi	Multemp SC-A	(Urea)		≥	280	0~+160	normal temperature grease	
Kyodo Yushi	Multemp Et150	(Urea)	(Mineral)	≥	280	-10~+160	normal temperature grease	
Kyodo Yushi	Oneluba	(Lithium)	(Diester Mineral)	198	270	-10~+110	normal temperature grease	
Kyodo Yushi	Adrex	(Lithium)	(Mineral)	198	300	-10~+120	normal temperature grease	
Kyodo Yushi	Parmax		(Mineral)	180	300	-10~+120	normal temperature grease	
Kyodo Yushi	Emalube 1130	(Urea)	(Mineral)	≥	300	-10~+130	normal temperature grease	
Kyodo Yushi	Unilube DL1	(Lithium)	(Mineral)	185	332	-10~+110	normal temperature grease	
Kyodo Yushi	Alumix HD1		(Mineral)	247	335	0~+120	normal temperature grease	
Kyodo Yushi	Multemp LTS	(Lithium)	(Ester)	250	201	-60~+130	low-temperature grease	
Kyodo Yushi	Multemp SRH	(Lithium)	(Ester)	250	201	-40~+150	low-temperature grease	
Kyodo Yushi	Multemp SB-M	(Diurea)	(Synthetic oil)	220	260	-40~+200	high temperture high speed grease	
Kyodo Yushi	Multemp SC-C	(Diurea)	(Synthetic oil)	280	300	-40~+200	high temperture pump-water grease	



Manufacturer	Brand	Viscosity	Baseoil	Drop point °C	Consistency	Operating Temperature range °C	Selecting Criterion	Code
Kyodo Yushi	ET-K	(Diurea)	(Synthetic oil/Ester)	260	300	-40~+200	high temperture high speed alternators grease	
Kiuber	Staburage NBU12	(Barium)	(Mineral)	220	270	-35~+150	normal temperature grease	
Kiuber	Isofled NBU15	(Barium)	(Diester Mineral)	220	280	-30~+130	normal temperature grease	
Kiuber	Asonic GLY32	(Lithium)	(Synthetic)	190	265-295	-50~+140	low-temperature grease	
Kiuber	Asonic GHY72	Polyhamstoff	(Ester Mineral)	250	250-280	-40~+180	high temperature low noise	
Kiuber	Isoflex Super Lds18	(Lithium)	(Diester)	190	280	-60~+130	low-temperature grease	LY218
Kiuber	Isoflex Super TEL	(Lithium)	(Ester Mineral)			-65~+70	low-temperature grease	
Kiuber	Isofiex LDS18 Special A	(Lithium)	(Diester)	190	280	-60~+130	low-temperature grease	
Kiuber	Isofiex PDB38 CX 100	(Lithium)	(Ester)			-70~+120	low-temperature grease	
Kiuber	Isofiex Topas NB52	(Barium)	(Synthetic hydrocarbon)	204	280	-60~170	high-low temperature grease	
Kiuber	Barrierta L55/2	(PTFE)	(Fluorinated)		280	-35~+260	high-low temperature grease	
Kiuber	Barrierta EL	(PTFE)	(Fluorinated)		280	-50~+180	high-low temperature grease	
Kiuber	Barrierta IMI/V	(PTFE)	(Fluorinated)		280	-50~+220	high-low temperature grease	
Kiuber	Barrierta TK44N2	Na-Komplex	(Silicone)			-60~+230	high-low temperature grease	
Kiuber	Isoflex NCA15	(Spec. Ca)	(Ester Mineral oil)	180	265-295	-40~+130	high speed grease	
Kiuber	Asonic HQ72-102	(Urea)	(Ester)	240	250-280	-40~+180	high-low temperature and low noise grease	
Kiuber	Petamo GHY133	(Urea)	(Synthetic Mineral oil)	240	250-280	-25~+150	normal temperature grease	
Kiuber	Petamo GHY433	(Urea)	(Ester)	250	250-280	-20~+180	high temperature longevity grease	
Dow Corning	Molykote 33M	(Lithium)	(Silicone)	210	260	-70~+180	high-low temperature grease	
Dow Corning	Molykote 44M	(Lithium)	(Silicone)	204	260	-40~+200	high-low temperature grease	
Dow Corning	Molykote 55M	(Lithium)	(Silicone)			-55~+165	low- temperature grease	
Dow Corning	Molykete Br2 plus	(Lithium)	(Mineral)		280	-30~+150	high speed grease	
Dow Corning	Molykete FS1292	(PTFE)	(Phlorosilicon)	≥232	310	-40~+200	high speed grease	LY 59
Dow Corning	Molykete FS3451	(PTFE)	(Phlorosilicon)	≥260	285	-40~+230	Chemisor high ahdb solnentsresistant grease	



Manufacturer	Brand	Viscosity	Baseoil	Drop point °C	Consistency	Operating Temperature range °C	Selecting Criterion	Code
Dow Corning	Molykete EM50L	(Lithium)	(Synthetic oil)	195	325	-40~+150	low noise grease	
Dow Corning	Molykete BG20	(Lithium)	(Synthetic oil)	230	265-295	-50~+180	high temperature high speed grease	
Shell	Alvania NO.2	(Lithium)	(Mineral)	182	272	-25~+120	normal temperature grease	LY 83
Shell	Alvania NO.3	(Lithium)	(Mineral)	183	233	-20~+135	normal temperature grease	LY 84
Shell	Alvania RA	(Lithium)	(Mineral)	183	252	-25~+120	normal temperature grease	LY 18
Shell	Alvania Ep2	(Lithium)	(Mineral)	185	276	-10~+100	normal temperature grease	
Shell	Sunlight 2	(Lithium)	(Mineral)	196	273	-20~+120	normal temperature grease	
Shell	Dolium R		(Mineral)	238	281	-20~+140	normal temperature grease	LY 119
Shell	Aero Shell NO.5	Microgel	(Mineral)	≥260	282	-10~+130	normal temperature grease	LG 35
Shell	Aero Shell NO.7	Microgel	(Mineral)	≥260	288	-70~+150	low- temperature grease	LG 49
Shell	Aero Shell NO.15A	(PTFE)	(Mineral)	≥260	280	-70~+260	high-low temperature grease	
Shell	Aero Shell RLQ2	(Lithium)	(Mineral)	195	266	-50~+150	low noise high speed grease	
Mobil Oil	Mobilux 2	(Lithium)	(Mineral)	190	280	-20~+120	normal temperature grease	
Mobil Oil	Mobil 22	(Lithium)	(Dester Mineral)	192	274	-50~+140	low- temperature grease	
Mobil Oil	Mobil 28	(Bentonite)	(Synthetic hydrocarbon)	≥260	280	-60~+180	high-low temperature grease	LY 48
Mobil Oil	Mobilplex 47		(Mineral)	≥260	280	-20~+120	normal temperature grease	
Mobil Oil	Mobilth SHC100	(Lithium)	(Synthetic oil)	250	265-295	-40~+170	high speed grease	
Mobil Oil	Mobilth SHC220	(Lithium)	(Synthetic oil)	250	265-295	-40~+170	multiple use grease	
Mobil Oil	Mobiltemp SHC22	(glueearth)	(Synthetic oil)	250	265-295	-50~+180	high speed high temperature grease	
Mobil Oil	Mobiltemp SHC100	(glueearth)	(Synthetic oil)	250	265-295	-40~+200	high speed high temperature grease	
Du Pont	Krytox 204AC	(PTFE)	(Fluorinated)		282	-35~+280	high temperature grease	
Du Pont	Krytox 283AC	(PTFE)	(Fluorinated)		229	-35~+280	high temperature grease	LY101
Du Pont	Krytox 143AC	(PTFE)	(Fluorinated)			-35~+280	high temperature grease	
Du Pont	Krytox GPL205	(PTFE)	(Fluorinated)			-36~+204	high temperature grease	



Manufacturer	Brand	Viscosity	Baseoil	Drop point °C	Consistency	Operating Temperature range °C	Selecting Criterion	Code
Du Pont	Krytox GPL223	(PTFE)	(Fluorinated)			-36~+204	high temperature alternator fan clutch bearing grease	
Du Pont	Krytox GPL224	(PTFE)	(Fluorinated)			-51~+179	high temperature alternator fan clutch bearing grease	
Du Pont	Krytox GPL225	(PTFE)	(Fluorinated)			-60~+154	air pump bearing grease	
Du Pont	Krytox GPL226	(PTFE)	(Fluorinated)			-36~+260	CV joint	
Toray Silicone	SH44M	(Lithium)	(Phlorosilicon)	210	260	-40~+180	high temperature grease	LY 115
Toray Silicone	SH33L	(Lithium)	(Phlorosilicon)	210	300	-70~+140	low temperature grease	
Toray Silicone	SH41	(Lithium)			280	-10~+200	high temperature grease	
Caltex	Chevron SRI-2	(Urea)	(Mineral)		293	-30~+175	high temperature grease	LY 75
General Electric	Anderol L-793A	(Lithium)	(Diester)			-60~+150	low- temperature grease	
General Electric	Versilube G-300	(Lithium)	(Silicone)			-70~+230	high-low temperature grease	
General Electric	Versilube F-50		(Silicone)			-70~+230	high-low temperature grease	
Lubcon	Turmogrease N2	(Polyurea)	(PAO/Ester)	≥250	280	-40~+160	currency bearing	LY 15
Lubcon	Turmogrease BQg	(Lithium)	(Mineral)	250	280	-35~+150	low noise	LY 5
Lubcon	Turmogrease SHL182	(Lithium)	(PAO/Ester)	250	280	-70~+130	low temperature high speed grease	
Lubcon	Turmogrease SHL 252	(Lithium)	(PAO/Ester)	220	280	-40~+120	high speed grease	
Lubcon	Turmogrease TML15	(Lithium)	(Ester)	290	280	-35~+160 (180)	low temperature high speed grease	
Lubcon	Turmogrease Cx112K	(Lithium)	(mineral oil /Synthetico)	190	265-295	-35~+140 (160)	low noise	
Lubcon	Turmogrease NB 1300	(Polyurea)	(Synthetic oil)	250	280	-40~+180	low temperature high load grease	

7.1. Vibration and noise value

SLB also supplies bearings for air conditioner, cloth washer, electric motor. As a rule, the vibration or noise level of these bearings should be carefully controlled and checked. To be a part of our quality control system, SLB well equipped with two types of testing instrument S0910-1 and BVT1-1A. Relatively, here it gives out both vibration and noise standard of these bearings for your reference.

Table 7.1) Specifications of vibration and noise The vibration and noise of bearings are classified in three classes as Z1, Z2 and Z3, it is measured by the instruments of S09 10-1, For special requirement, it is measured by BVT-1 A and the bearings are also classified in three classes as V1, V2 and V3. Details please find in the following table:



Bore (mm)	S0910-1(dB)			BVT-1 (um/s)								
	Z1≤	Z2≤	Z3≤	V1≤			V2≤			V3≤		
				Low	Medium	High	L	M	H	L	M	H
4	34	32	28	90	60	50	58	36	30	35	21	18
5	36	34	30	90	60	50	58	36	30	35	21	18
6	36	34	30	90	60	50	58	36	30	35	21	18
7	37	34	32	110	80	65	72	48	40	44	28	24
8	38	35	33	110	80	65	72	48	40	44	28	24
9	40	36	34	110	80	65	72	48	40	44	28	24
10	41	38	35	140	100	85	90	60	50	55	35	30
12	43	39	35	140	100	85	90	60	50	55	35	30
15	44	40	35	180	130	100	110	78	60	65	46	35
17	45	41	36	180	130	100	110	78	60	65	46	35
20	46	42	37	220	160	125	130	100	75	80	60	45
25	47	43	40	220	160	125	130	100	75	80	60	45
30	48	44	41	250	200	160	150	120	100	90	75	60
35	49	45	43	250	200	160	150	120	100	90	75	60
40	51	46	44	300	250	220	180	150	130	110	90	80
45	53	48	45	300	250	220	180	150	130	110	90	80
50	54	50	47	350	270	270	210	160	160	125	100	100
55	56	52	49	350	300	300	210	180	180	125	110	110
60	58	54	51	400	300	370	240	180	220	145	110	130