

Spherical roller bearings

Features

Spherical roller bearings are double row inseparable bearings, including outer rings with spherical raceways, inner rings with double raceways and drum rollers with cages. It has the characteristic of compensating the misalignment of the shaft. They're suitable for heavy load conditions. There are two types of inner rings, cylindrical bore and tapered bore.

Spherical roller bearings provide: E-type design, CC-type design, CA-type design.

E-type structure design: It consists of symmetrical rollers, a floating guide ring between two rows of rollers, an inner ring without ribs, two hardened stamped steel cages and an outer ring.

This type of bearing is a patented product of KMR. Its dynamic load rating has been increased by an average of 25% to 35%. Therefore, under the same conditions, the rated life of the bearing is 2.0-3.5 times that of the traditional structure bearing of the same type

CC type structure design: It consists of symmetrical rollers, two stamped steel cages, an inner ring without ribs, a floating guide ring between two rows of rollers and an outer ring.

CA-type structural design: It consists of symmetrical rollers, fork-shaped machined brass or steel cages, inner and outer rings with ribs.

Radial and axial load carrying capacity

Spherical roller bearings can bearing bidirectional axial forces and extremely high radial forces. The optimized fit between the rollers and the raceways ensures a uniform stress distribution in the bearing.

Bearings with Tapered bore

The inner ring of the spherical roller bearing has a tapered bore design.

Seals

KMR has a sealed series of spherical roller bearings.

Bearings with Cylindrical bore

All series of spherical roller bearing inner rings have a cylindrical bore design.

Spherical Roller Bearings for Vibrating Machinery

For machines that required eccentric motion, such as vibrating screens and compactors, KMR has developed a series of spherical roller bearings suitable for applications in vibration situations. These bearings are in the 223 series, with a cylindrical or tapered bore, with shaft diameters ranging from 40 to 240 mm, and a standard radial internal clearance of C4.

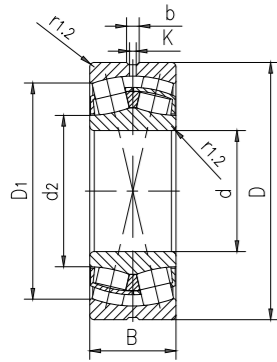
Existing bearings for vibrating machinery have been tested and verified to prove that they can greatly reduce the temperature and prolong the service life of the machine. KMR spherical roller bearings for vibration machinery have the following advantages: Applied in all kinds of vibrating machinery, it shows excellent performance. The performance of KMR bearings allows the design of more compact arrangements. High wear resistance even in polluted environments.



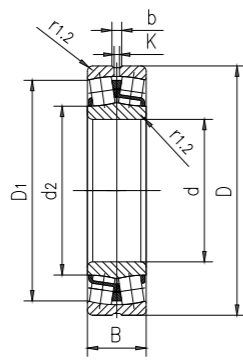
suffix for an existing design

Suffix	Meaning
BC	Bearing for wind turbine main shafts with roller-guided cast iron cage
CA CAC	Retaining langes on the inner ring, guide ring centred on the inner ring, machined brass
CC(J) CJ	Flangeless inner ring, guide ring centred on the inner ring, two stamped steel cages
CCJA EJA	Flangeless inner ring, guide ring centred on the outer ring raceway, two stamped steel cages
E	Optimized internal design for increased load carrying capacity 213, 222 and 223 series: Flangeless inner ring and two stamped steel cages Annular groove and three lubrication holes in the outer ring d ≤ 65 mm: Guide ring centred on the inner ring d > 65 mm: Guide ring centred on the cage
-CS -2CS	Contact seal, NBR, on one or both sides
-CS2 -2CS2	Contact seal, FKM, on one or both sides
-CS5 -2CS5	Contact seal, HNBR, on one or both sides
-RS -2RS	Contact seal, NBR, on one or both sides
-RS5 -2RS5	Contact seal, HNBR, on one or both sides
K	Tapered bore, taper 1:12
K30	Tapered bore, taper 1:30
F	Machined steel cage, inner ring centred
FA	Machined steel cage, outer ring centred
J	Stamped steel cage, inner ring centred
JA	Stamped steel cage, outer ring centred
MA	Machined brass cage, outer ring centred
C08	Running accuracy to P5 tolerance class
C083	C08 + C3
C084	C08 + C4
C2	Radial internal clearance smaller than Normal
C3	Radial internal clearance greater than Normal
C4	Radial internal clearance greater than C3
C5	Radial internal clearance greater than C4
P5	Dimensional and running accuracy to P5 tolerance class
P6	Dimensional and running accuracy to P6 tolerance class
P62	P6 + C2
235220	Case-hardened inner ring with a helical groove in the bore
HA3	Case-hardened inner ring

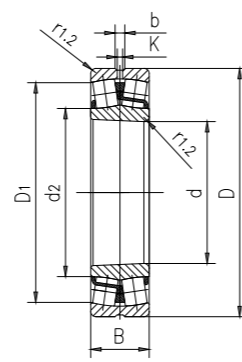
Spherical roller bearings



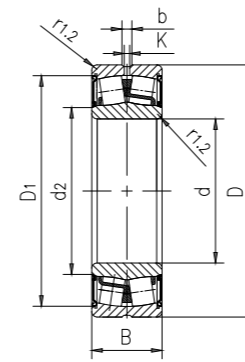
Cylindrical bore (CC)



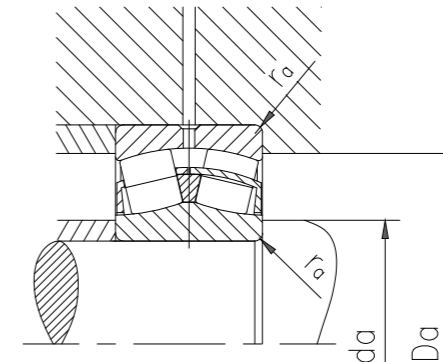
Cylindrical bore (E)



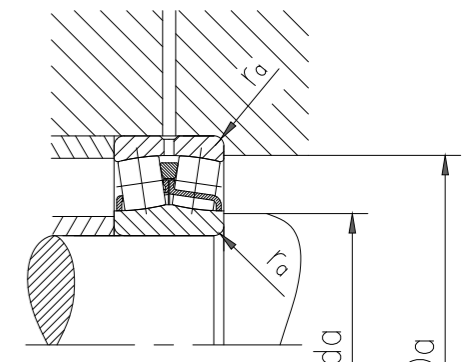
Tapered bore (E)



Sealed (E)



CC

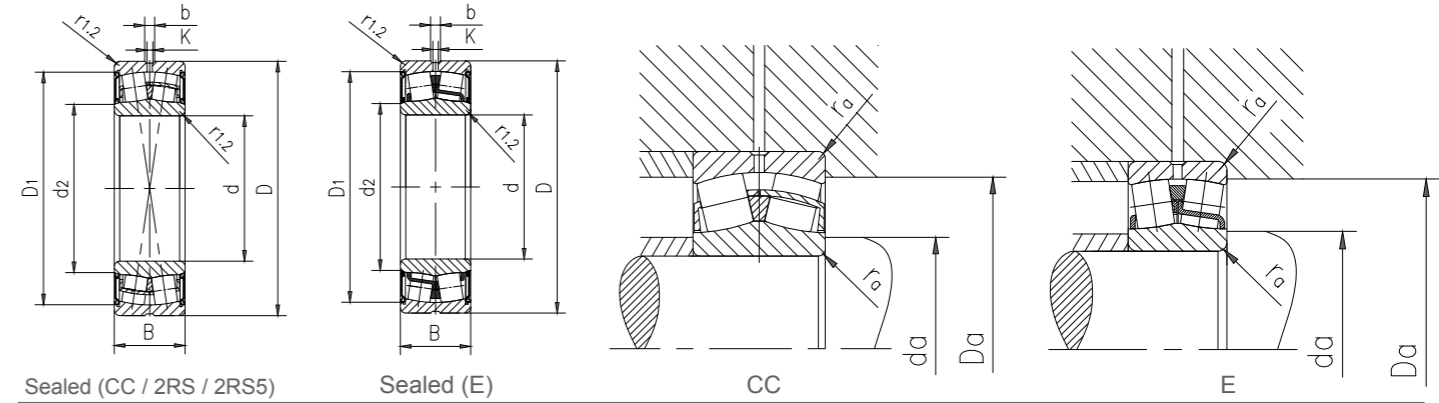
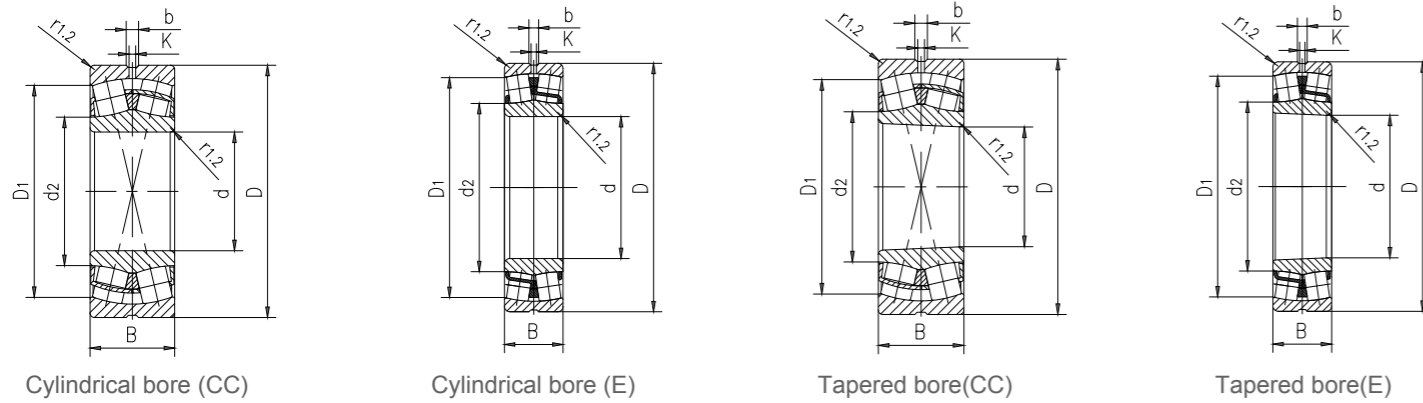


E

Type		Main dimensions			Dimensions					Shoulder and chamfer dimensions			
Bearing with cylindrical bore	Taper Hole	d	D	B	d ₂ ≈	D ₁ ≈	b	K	C	r _{1.2} min.	d _a min.	d _a max.	r _a max.
-	-	20	52	18	31.3	44.2	3.7	2	1	25.6	-	46.4	1
22205/20E	-	20	52	18	31.3	44.2	3.7	2	1	25.6	-	46.4	1
22205E	22205EK	25	52	18	31.3	44.2	3.7	2	1	30.6	-	46.4	1
BS2-2205-2RS/VT143	-	25	52	23	30	46.6	4.4	2	1	30	30	46.4	1
21305CC	-	25	62	17	35.7	50.7	-	-	1.1	32	-	55	1
22206E	22206EK	30	62	20	37.6	53	3.7	2	1	35.6	-	56.4	1
BS2-2206-2RS/VT143	-	30	62	25	35.8	56.4	4.4	2	1	35.5	35.5	56.4	1
21306CC	-	30	72	19	43.3	58.8	-	-	1.1	37	-	65	1
22207E	22207EK	35	72	23	44.5	61.8	3.7	2	1.1	42	-	65	1
BS2-2207-2RS/VT143	-	35	72	28	42.4	65.3	4.4	2	1.1	42	42	65	1
21307CC	-	35	80	21	47.2	65.6	-	-	1.5	44	-	71	1.5
22208E	22208EK	40	80	23	49.6	69.4	6	3	1.1	47	-	73	1
BS2-2208-2RS/VT143	BS2-2208-2RSK/VT143	40	80	28	47.2	72.8	6	3	1.1	47	47	73	1
21308E	21308EK	40	90	23	60	79.8	5.5	3	1.5	49	-	81	1.5
22308E/VA405	-	40	90	33	49.9	74.3	6	3	1.5	49	-	81	1.5
22308E	22308EK	40	90	33	49.9	74.3	6	3	1.5	49	-	81	1.5
BS2-2308-2RS/VT143	-	40	90	38	47.5	79.3	6	3	1.5	47.5	47.5	81	1.5
22209E	22209EK	45	85	23	54.4	74.4	5.5	3	1.1	52	-	78	1
BS2-2209-2RS/VT143	BS2-2209-2RSK/VT143	45	85	28	52.5	77.8	6	3	1.1	52	52	78	1
21309E	21309EK	45	100	25	65.3	88	6	3	1.5	54	-	91	1.5
22309E/VA405	-	45	100	36	57.6	83.4	6	3	1.5	54	-	91	1.5
22309E	22309EK	45	100	36	57.6	83.4	6	3	1.5	54	-	91	1.5
BS2-2309-2RS/VT143	-	45	100	42	55	88.5	6	3	1.5	54	55	91	1.5
22210E	22210EK	50	90	23	60	79	5.5	3	1.1	57	-	83	1
BS2-2210-2RS/VT143	BS2-2210-2RSK/VT143	50	90	28	58.1	82.3	6	3	1.1	57	58	83	1
21310E	21310EK	50	110	27	72.7	96.8	6	3	2	61	-	99	2
22310E/VA405	-	50	110	40	63.9	91.9	6	3	2	61	-	99	2
22310E	22310EK	50	110	40	63.9	91.9	6	3	2	61	-	99	2
BS2-2310-2RS/VT143	-	50	110	45	61.5	96.8	6	3	2	61	61	99	2
22211E	22211EK	55	100	25	65.3	88	6	3	1.5	64	-	91	1.5
BS2-2211-2RS/VT143	BS2-2211-2RSK/VT143	55	100	31	63.5	92	6	3	1.5	63.5	63.5	91	1.5
21311E	21311EK	55	120	29	72.7	96.2	6	3	2	66	-	109	2
22311E	22311EK	55	120	43	70.1	102	5.5	3	2	66	-	109	2
22311E/VA405	22311EK/VA405	55	120	43	70.1	102	5.5	3	2	66	-	109	2
BS2-2311-2RS/VT143	-	55	120	49	67.5	107	6	3	2	66	67	109	2
22212E	22212EK	60	110	28	72.7	96.5	6	3	1.5	69	-	101	1.5
BS2-2212-2RS/VT143	BS2-2212-2RSK/VT143	60	110	34	69.7	101	6	3	1.5	69	69	101	1.5

Type		Weight	Basic load rating			Fatigue load limit P _u	Rated speed		The allowable acceleration of oil lubrication		Calculate the coefficient			
Bearing with cylindrical bore	Taper Hole		Dynamic	Static	C ₀		reference speed	Maximum speed	Spin	Linear	e	Y ₁	Y ₂	Y ₀
			C	C ₀										
-	-	kg	kN				r/min			-				
22205/20E	-	0.28	52.395	46.2	4.9875	13650	17850	-	-	0.35	1.9	2.9	1.8	
22205E	22205EK	0.26	52.395	46.2	4.9875	13650	17850	-	-	0.35	1.9	2.9	1.8	
BS2-2205-2RS/VT143	-	0.26	52.395	46.2	4.9875	-	6405	-	-	0.35	1.9	2.9	1.8	
21305CC	-	0.28	51.555	43.575	4.7775	9765	12600	-	-	0.3	2.3	3.4	2.2	
22206E	22206EK	0.29	69.405	63	6.72	10500	14700	-	-	0.31	2.2	3.3	2.2	
BS2-2206-2RS/VT143	-	0.34	69.405	63	6.72	-	5355	-	-	0.31	2.2	3.3	2.2	
21306CC	-	0.41	68.985	64.05	7.14	8610	10500	-	-	0.27	2.5	3.7	2.5	
22207E	22207EK	0.45	93.24	89.25	9.765	9450	12600	-	-	0.31	2.2	3.3	2.2	
BS2-2207-2RS/VT143	-	0.52	93.24	89.25	9.765	-	4515	-	-	0.31	2.2	3.3	2.2	
21307CC	-	0.55	83.16	75.6	8.5575	7665	9975	-	-	0.28	2.4	3.6	2.5	
22208E	22208EK	0.53	103.425	94.5	10.29	8400	11550	-	-	0.28	2.4	3.6	2.5	
BS2-2208-2RS/VT143	BS2-2208-2RSK/VT143	0.57	103.425	94.5	10.29	-	4095	-	-	0.28	2.4	3.6	2.5	
21308E	21308EK	0.75	112.35	113.4	12.39	7350	9975	-	-	0.24	2.8	4.2	2.8	
22308E/VA405	-	1.05	162.75	147	15.75	6300	8400	115g	31g	0.37	1.8	2.7	1.8	
22308E	22308EK	1.05	162.75	147	15.75	6300	8400	-	-	0.37	1.8	2.7	1.8	
BS2-2308-2RS/VT143	-	1.2	162.75	147	15.75	-	4095	-	-	0.37	1.8	2.7	1.8	
22209E	22209EK	0.58	109.2	102.9	11.34	7875	10500	-	-	0.26	2.6	3.9	2.5	
BS2-2209-2RS/VT143	BS2-2209-2RSK/VT143	0.66	109.2	102.9	11.34	-	3675	-	-	0.26	2.6	3.9	2.5	
21309E	21309EK	0.99	135.45	133.35	14.385	6615	8925	-	-	0.24	2.8	4.2	2.8	
22309E/VA405	-	1.4	199.5	192.15	20.58	5565	7350	97g	29g	0.37	1.8	2.7	1.8	
22309E	22309EK	1.4	199.5	192.15	20.58	5565	7350	-	-	0.37	1.8	2.7	1.8	
BS2-2309-2RS/VT143	-	1.6	199.5	192.15	20.58	-	3570	-	-	0.37	1.8	2.7	1.8	
22210E	22210EK	0.63	112.35	113.4	12.39	7350	9975	-	-	0.24	2.8	4.2	2.8	
BS2-2210-2RS/VT143	BS2-2210-2RSK/VT143	0.7	112.35	113.4	12.39	-	3360	-	-	0.24	2.8	4.2	2.8	
21310E	21310EK	1.35	166.95	174.3	19.53	5880	7875	-	-	0.24	2.8	4.2	2.8	
22310E/VA405	-	1.9	239.4	235.2	25.2	5040	6615	85g	28g	0.37	1.8	2.7	1.8	
22310E	22310EK	1.9	239.4	235.2	25.2	5040	6615	-	-	0.37	1.8	2.7	1.8	
BS2-2310-2RS/VT143	-	2.1	239.4	235.2	25.2	-	3150	-	-	0.37	1.8	2.7	1.8	
22211E	22211EK	0.84	135.45	133.35	14.385	6615	8925	-	-	0.24	2.8	4.2	2.8	
BS2-2211-2RS/VT143	BS2-2211-2RSK/VT143	1	135.45	133.35	14.385	-	3045	-	-	0.24	2.8	4.2	2.8	
21311E	21311EK	1.7	166.95	174.3	19.53	5880	7875	-	-	0.24	2.8	4.2	2.8	
22311E	22311EK	2.45	294	294	31.5	4515	5880	-	-	0.35	1.9	2.9	1.8	
22311E/VA405	22311EK/VA405	2.45	294	294	31.5	4515	5880	78g	26g	0.35	1.9	2.9	1.8	
BS2-2311-2RS/VT143	-	2.8	294	294	31.5	-	2940	-	-	0.35	1.9	2.9	1.8	
22212E	22212EK	1.15	166.95	174.3	19.53	5880	7875	-	-	0.24	2.8	4.2	2.8	
BS2-2212-2RS/VT143	BS2-2212-2RSK/VT143	1.3	166.95	174.3	19.53	-	2835	-	-	0.24	2.8	4.2	2.8	

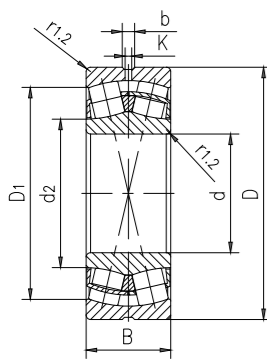
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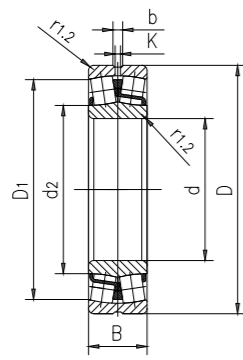
Type		Main dimensions			Dimensions					Shoulder and chamfer dimensions				
Bearing with cylindrical bore	Taper Hole	d	D	B	$d_2 \approx$	$D_1 \approx$	b	K	C	$r_{1.2}$ min.	d_a min.	d_a max.	r_a max.	
														mm
-	-	mm												
22312E	22312EK	60	130	46	77.9	110	8.3	4.5	2.1	72	-	118	2	
22312E/VA405	22312EK/VA405	60	130	46	77.9	110	8.3	4.5	2.1	72	-	118	2	
BS2-2312-2RS/VT143	-	60	130	53	75	117	8.3	4.5	2.1	72	75	118	2	
24013-2RS5W/VT143	-	65	100	35	71.6	93.5	-	-	1.1	71	71	94	1	
24013CC/W33	24013CCK30/W33	65	100	35	73.9	87.3	3.7	2	1.1	71	-	94	1	
22213E	22213EK	65	120	31	80.1	106	6	3	1.5	74	-	111	1.5	
BS2-2213-2RS/VT143	BS2-2213-2RSK/VT143	65	120	38	76.5	110	6	3	1.5	74	76	111	1.5	
21313E	21313EK	65	140	33	94.7	124	6	3	2.1	77	-	128	2	
22313E	22313EK	65	140	48	81.6	118	8.3	4.5	2.1	77	-	128	2	
22313E/VA405	22313EK/VA405	65	140	48	81.6	118	8.3	4.5	2.1	77	-	128	2	
BS2-2313-2RS/VT143	-	65	140	56	78.7	125	8.3	4.5	2.1	77	78	128	2	
22214E	22214EK	70	125	31	83	111	6	3	1.5	79	-	116	1.5	
BS2-2214-2RS/VT143	BS2-2214-2RSK/VT143	70	125	38	80.1	116	6	3	1.5	79	80	116	1.5	
21314E	21314EK	70	150	35	101	133	6	3	2.1	82	-	138	2	
22314E	22314EK	70	150	51	90.3	128	8.3	4.5	2.1	82	-	138	2	
22314E/VA405	22314EK/VA405	70	150	51	90.3	128	8.3	4.5	2.1	82	-	138	2	
BS2-2314-2RS/VT143	-	70	150	60	86.7	136	8.3	4.5	2.1	82	86	138	2	
24015-2RS5/VT143	-	75	115	40	81.8	106	6	3	1.1	81	81	109	1	
24015CC/W33	BS2-2214-2RSK/VT143	75	115	40	84.2	100	5.5	3	1.1	81	-	109	1	
22215E	22215EK	75	130	31	87.8	115	6	3	1.5	84	-	121	1.5	
BS2-2215-2RS/VT143	BS2-2215-2RSK/VT143	75	130	38	84.5	120	6	3	1.5	84	84	121	1.5	
21315E	21315EK	75	160	37	101	133	6	3	2.1	87	-	148	2	
22315E	22315EK	75	160	55	92.8	135	8.3	4.5	2.1	87	-	148	2	
22315EJA/VA405	22315EKJA/VA405	75	160	55	92.8	135	8.3	4.5	2.1	87	-	148	2	
BS2-2315-2RS/VT143	BS2-2315-2RSK/VT143	75	160	64	89.9	140	8.3	4.5	2.1	87	89	148	2	
22216E	22216EK	80	140	33	94.7	124	6	3	2	91	-	129	2	
BS2-2216-2RS/VT143	BS2-2216-2RSK/VT143	80	140	40	91.7	129	6	3	2	91	91	129	2	
21316E	21316EK	80	170	39	106	141	6	3	2.1	92	-	158	2	
22316E	22316EK	80	170	58	98.3	143	8.3	4.5	2.1	92	-	158	2	
22316EJA/VA405	22316EKJA/VA405	80	170	58	98.3	143	8.3	4.5	2.1	92	-	158	2	
BS2_2316_2RS/VT143	-	80	170	67	94.2	150	8.3	4.5	2.1	92	94	158	2	
22217E	22217EK	85	150	36	101	133	6	3	2	96	-	139	2	
BS2-2217-2RS/VT143	BS2-2217-2RSK/VT143	85	150	44	98.2	137	6	3	2	96	98	139	2	
21317E	21317EK	85	180	41	106	141	6	3	3	99	-	166	2.5	
22317E	22317EK	85	180	60	108	154	8.3	4.5	3	99	-	166	2.5	
22317EJA/VA405	22317EKJA/VA405	85	180	60	108	154	8.3	4.5	3	99	-	166	2.5	

Type		Weight	Basic load rating		Fatigue load limit	Rated speed		The allowable acceleration of oil lubrication		Calculate the coefficient			
Bearing with cylindrical bore	Taper Hole		Dynamic	Static		reference speed	Maximum speed	Spin	Linear	e	Y ₁	Y ₂	Y ₀
		C	C ₀	P _u	m/s ²								
-	-	kg	kN			r/min		m/s ²		-			
22312E	22312EK	3.1	341.25	351.75	37.8	4200	5565	-	-	0.35	1.9	2.9	1.8
22312E/VA405	22312EK/VA405	3.1	341.25	351.75	37.8	4200	5565	70g	25g	0.35	1.9	2.9	1.8
BS2-2312-2RS/VT143	-	3.4	341.25	351.75	37.8	-	2625	-	-	0.35	1.9	2.9	1.8
24013-2RS5W/VT143	-	0.95	143.85	181.65	21.42	-	2730	-	-	0.27	2.5	3.7	2.5
24013CC/W33	24013CCK30/W33	0.95	143.85	181.65	21.42	4515	6615	-	-	0.27	2.5	3.7	2.5
22213E	22213EK	1.55	207.9	226.8	25.2	5250	7350	-	-	0.24	2.8	4.2	2.8
BS2-2213-2RS/VT143	BS2-2213-2RSK/VT143	1.6	207.9	226.8	25.2	-	2520	-	-	0.24	2.8	4.2	2.8
21313E	21313EK	2.55	255.15	283.5	30.45	4515	6300	-	-	0.22	3	4.6	2.8
22313E	22313EK	3.75	374.85	378	39.9	3990	5250	-	-	0.35	1.9	2.9	1.8
22313E/VA405	22313EK/VA405	3.75	374.85	378	39.9	3990	525	69g	24g	0.35	1.9	2.9	1.8
BS2-2313-2RS/VT143	-	4.15	374.85	378	39.9	-	2520	-	-	0.35	1.9	2.9	1.8
22214E	22214EK	1.55	223.65	239.4	26.775	5250	7035	-	-	0.23	2.9	4.4	2.8
BS2-2214-2RS/VT143	BS2-2214-2RSK/VT143	1.8	223.65	239.4	26.775	-	2415	-	-	0.23	2.9	4.4	2.8
21314E	21314EK	3.1	305.55	341.25	36.225	4200	5880	-	-	0.22	3	4.6	2.8
22314E	22314EK	4.55	433.65	451.5	47.25	3570	4725	-	-	0.33	2	3	2
22314E/VA405	22314EK/VA405	4.55	433.65	451.5	47.25	3570	4725	61g	23g	0.33	2	3	2
BS2-2314-2RS/VT143	-	5.1	433.65	451.5	47.25	-	2205	-	-	0.33	2	3	2
24015-2RS5/VT143	-	1.55	190.05	243.6	29.925	-	2415	-	-	0.28	2.4	3.6	2.5
24015CC/W33	BS2-2214-2RSK/VT143	1.55	190.05	243.6	29.925	3990	5565	-	-	0.28	2.4	3.6	2.5
22215E	22215EK	1.7	227.85	252	27.825	5040	6615	-	-	0.22	3	4.6	2.8
BS2-2215-2RS/VT143	BS2-2215-2RSK/VT143	2.1	227.85	252	27.825	-	2310	-	-	0.22	3	4.6	2.8
21315E	21315EK	3.75	305.55	341.25	36.225	4200	5880	-	-	0.22	3	4.6	2.8
22315E	22315EK	5.55	485.1	498.75	50.4	3360	4515	-	-	0.35	1.9	2.9	1.8
22315EJA/VA405	22315EKJA/VA405	5.55	485.1	498.75	50.4	3360	4515	88g	23g	0.35	1.9	2.9	1.8
BS2-2315-2RS/VT143	BS2-2315-2RSK/VT143	6.5	485.1	498.75	50.4	-	2205	-	-	0.35	1.9	2.9	1.8
22216E	22216EK	2.1	255.15	283.5	30.45	4515	6300	-	-	0.22	3	4.6	2.8
BS2-2216-2RS/VT143	BS2-2216-2RSK/VT143	2.4	255.15	283.5	30.45	-	2100	-	-	0.22	3	4.6	2.8
21316E	21316EK	4.45	347.55	393.75	40.95	3990	5565	-	-	0.24	2.8	4.2	2.8
22316E	22316EK	6.6	541.8	556.5	56.7	3150	4200	-	-	0.35	1.9	2.9	1.8
22316EJA/VA405	22316EKJA/VA405	6.6	541.8	556.5	56.7	3150	4200	80g	22g	0.35	1.9	2.9	1.8
BS2_2316_2RS/VT143	-	7.2	541.8	556.5	56.7	-	2100	-	-	0.35	1.9	2.9	1.8
22217E	22217EK	2.7	305.55	341.25	36.225	4200	5880	-	-	0.22	3	4.6	2.8
BS2-2217-2RS/VT143	BS2-2217-2RSK/VT143	3	305.55	341.25	36.225	-	1995	-	-	0.22	3	4.6	2.8
21317E	21317EK	5.2	347.55	393.75	40.95	3990	5565	-	-	0.24	2.8	4.2	2.8
22317E	22317EK	7.65	605.85	651	64.05	2940	3990	-	-	0.33	2	3	2
22317EJA/VA405	22317EKJA/VA405	7.65	605.85	651	64.05	2940	3990	74g	21g	0.33	2	3	2

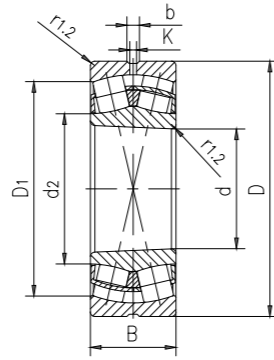
Spherical roller bearings



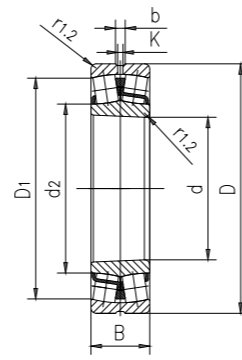
Cylindrical bore (CC)



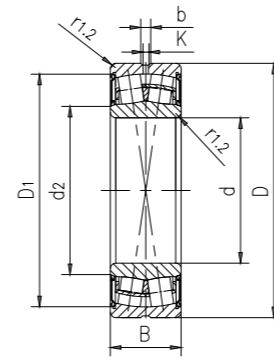
Cylindrical bore (E)



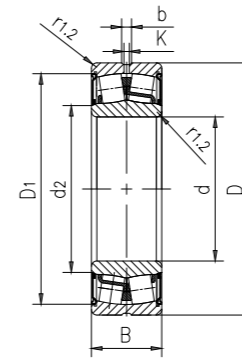
Tapered bore(CC)



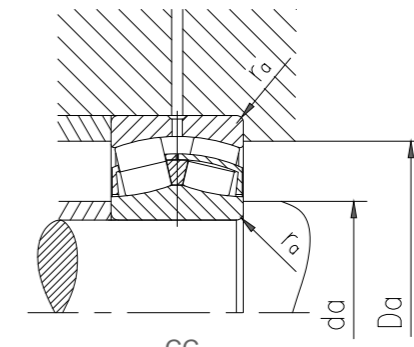
Tapered bore(E)



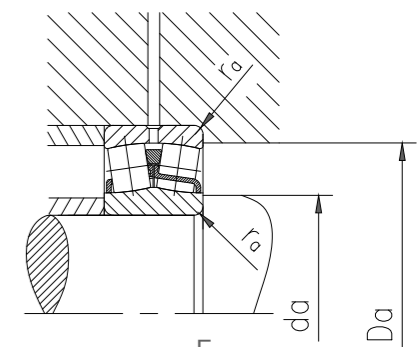
Sealed (CC / 2RS / 2RS5)



Sealed (E)



CC

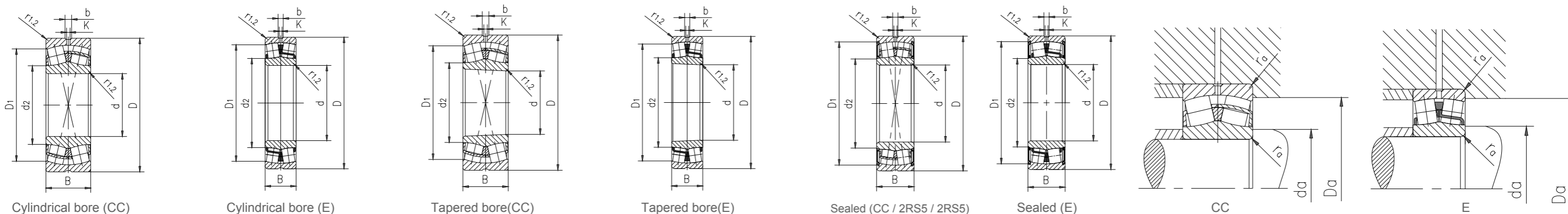


E

Type		Main dimensions			Dimensions					Shoulder and chamfer dimensions			
Bearing with cylindrical bore	Taper Hole	d	D	B	d ₂ ≈	D ₁ ≈	b	K	C	r _{1,2}	d _a	d _a	r _a
										min.	min.	max.	max.
		mm			mm					mm			
22218E	22218EK	90	160	40	106	141	6	3	2	101	-	149	2
BS2-2218-2RS/VT143	BS2-2218-2RSK/VT143	90	160	48	102	146	6	3	2	101	102	149	2
23218CC/W33	23218CCK/W33	90	160	52.4	106	137	5.5	3	2	101	-	149	2
21318E	21318EK	90	190	43	112	150	8.3	4.5	3	104	-	176	2.5
22318E	22318EK	90	190	64	113	161	11.1	6	3	104	-	176	2.5
22318EJA/VA405	22318EKJA/VA405	90	190	64	113	161	11.1	6	3	104	-	176	2.5
BS2-2318-2RS5/VT143	BS2-2318-2RS5K/VT143	90	190	73	109	165	11.1	6	3	104	109	176	2.5
22219E	22219EK	95	170	43	112	150	8.3	4.5	2.1	107	-	158	2
4.65	BS2-2219-2RS/VT143	95	170	51	109	155	8.3	4.5	2.1	107	109	158	2
21319E	21319EK	95	200	45	118	159	8.3	4.5	3	109	-	186	2.5
22319E	22319EK	95	200	67	118	168	11.1	6	3	109	-	186	2.5
22319EJA/VA405	22319EKJA/VA405	95	200	67	118	168	11.1	6	3	109	-	186	2.5
24020-2RS5/VT143	-	100	150	50	108	138	6	3	1.5	107	108	143	1.5
24020CC/W33	24020CCK30/W33	100	150	50	111	132	6	3	1.5	107	-	143	1.5
23120CC/W33	23120CCK/W33	100	165	52	115	144	6	3	2	111	-	154	2
23120-2RS5/VT143	-	100	165	52	112	149	6	3	2	111	112	154	2
24120CC/W33	24120CCK30/W33	100	165	65	113	141	4.4	2	2	111	-	154	2
24120-2RS5/VT143	-	100	165	65	110	147	4.4	2	2	110	110	154	2
22220E	22220EK	100	180	46	118	159	8.3	4.5	2.1	112	-	168	2
BS2-2220-2RS5/VT143	BS2-2220-2RS5K/VT143	100	180	55	114	163	8.3	4.5	2.1	112	114	168	2
23220CC/W33	23220CCK/W33	100	180	60.3	117	153	8.3	4.5	2.1	112	-	168	2
23220-2RS/VT143	-	100	180	60.3	114	159	8.3	4.5	2.1	112	114	168	2
23220-2RS5/VT143	-	100	180	60.3	114	159	8.3	4.5	2.1	112	114	168	2
21320E	21320EK	100	215	47	118	159	8.3	4.5	3	114	-	201	2.5
22320E	22320EK	100	215	73	130	184	11.1	6	3	114	-	201	2.5
22320EJA/VA405	22320EKJA/VA405	100	215	73	130	184	11.1	6	3	114	-	201	2.5
22320EJA/VA406	-	100	215	73	130	184	11.1	6	3	114	-	201	2.5
23022-2RS/VT143	-	110	170	45	122	156	6	3	2	119	122	161	2
23022CC/W33	23022CCK/W33	110	170	45	125	151	6	3	2	119	-	161	2
24022CC/W33	24022CCK30/W33	110	170	60	122	149	5.5	3	2	119	-	161	2
24022-2RS5/VT143	-	110	170	60	120	154	6	3	2	119	120	161	2
23122CC/W33	23122CCK/W33	110	180	56	126	157	8.3	4.5	2	121	-	169	2
23122-2CS5/VT143	23122-2CS5K/VT143	110	180	56	122	166	8.3	4.5	2	121	122	169	2
24122CC/W33	24122CCK30/W33	110	180	69	123	153	6	3	2	121	-	169	2
24122-2CS5/VT143	-	110	180	69	120	163	6	3	2	121	121	169	2
22222E	22222EK	110	200	53	130	178	8.3	4.5	2.1	122	-	188	2

Type		Weight	Basic load rating		Fatigue load limit	Rated speed		The allowable acceleration of oil lubrication		Calculate the coefficient			
Bearing with cylindrical bore	Taper Hole		Dynamic	Static		reference speed	Maximum speed	Spin	Linear	e	Y ₁	Y ₂	Y ₀
		C	C ₀	P _u	r/min	m/s ²							
		kg	kN			r/min		m/s ²					
22218E	22218EK	3.4	347.55	393.75	40.95	3990	5565	-	-	0.24	2.8	4.2	2.8
BS2-2218-2RS/VT143	BS2-2218-2RSK/VT143	3.7	347.55	393.75	40.95	-	1890	-	-	0.24	2.8	4.2	2.8
23218CC/W33	23218CCK/W33	4.65	390.6	462	50.4	2940	3990	-	-	0.31	2.2	3.3	2.2
21318E	21318EK	6.1	412.65	472.5	47.775	3780	5040	-	-	0.24	2.8	4.2	2.8
22318E	22318EK	9.05	668.85	729.75	70.35	2730	3780	-	-	0.33	2	3	2
22318EJA/VA405	22318EKJA/VA405	9.05	668.85	729.75	70.35	2730	3780	68g	21g	0.33	2	3	2
BS2-2318-2RS5/VT143	BS2-2318-2RS5K/VT143	9.8	668.85	729.75	70.35	-	1785	-	-	0.33	2	3	2
22219E	22219EK	4.15	412.65	472.5	47.775	3780	5040	-	-	0.24	2.8	4.2	2.8
4.65	BS2-2219-2RS/VT143	7.00	412.65	472.5	47.775	-	1.05	-	-	0.24	2.8	4.2	2.8
21319E	21319EK	7.05	454.65	514.5	51.45	3570	4725	-	-	0.24	2.8	4.2	2.8
22319E	22319EK	10.5	733.95	803.25	77.175	2730	3570	-	-	0.33	2	3	2
22319EJA/VA405	22319EKJA/VA405	10.5	733.95	803.25	77.175	2730	3570	64g	20g	0.33	2	3	2
24020-2RS5/VT143	-	3.15	310.8	435.75	47.775	-	1785	-	-	0.28	2.4	3.6	2.5
24020CC/W33	24020CCK30/W33	3.15	310.8	435.75	47.775	2940	4200	-	-	0.28	2.4	3.6	2.5
23120CC/W33	23120CCK/W33	4.55	404.25	514.5	55.65	3150	4200	-	-	0.3	2.3	3.4	2.2
23120-2RS5/VT143	-	4.55	405.3	514.5	55.65	-	1785	-	-	0.27	2.5	3.7	2.5
24120CC/W33	24120CCK30/W33	5.65	491.4	672	71.4	2520	3360	-	-	0.37	1.8	2.7	1.8
24120-2RS5/VT143	-	5.65	493.5	672	71.4	-	1785	-	-	0.35	1.9	2.9	1.8
22220E	22220EK	4.9	454.65	514.5	51.45	3570	4725	-	-	0.24	2.8	4.2	2.8
BS2-2220-2RS5/VT143	BS2-2220-2RS5K/VT143	5.5	454.65	514.5	51.45	-	1680	-	-	0.24	2.8	4.2	2.8
23220CC/W33	23220CCK/W33	6.85	522.9	630	66.15	2520	3570	-	-	0.33	2	3	2
23220-2RS/VT143	-	6.85	523.95	630	66.15	-	1680	-	-	0.3	2.3	3.4	2.2
23220-2RS5/VT143	-	6.85	523.95	630	66.15	-	1680	-	-	0.3	2.3	3.4	2.2
21320E	21320EK	8.6	454.65	514.5	51.45	3570	4725	-	-	0.24	2.8	4.2	2.8
22320E	22320EK	13.5	889.35	997.5	92.4	2520	3150	-	-	0.33	2	3	2
22320EJA/VA405	22320EKJA/VA405	13.5	889.35	997.5	92.4	2520	3150	56g	20g	0.33	2	3	2
22320EJA/VA406	-	13.5	889.35	997.5	92.4	2520	3150	56g	20g	0.33	2	3	2
23022-2RS/VT143	-	3.8	342.3	462	48.825	-	1575	-	-	0.21	3.2	4.8	3.2
23022CC/W33	23022CCK/W33	3.8	342.3	462	48.825	3570	4515	-	-	0.23	2.9	4.4	2.8
24022CC/W33	24022CCK30/W33	5	458.85	651	70.35	2520	3780	-	-	0.33	2	3	2
24022-2RS5/VT143	-	5	459.9	651	70.35	-	1680	-	-	0.3	2.3	3.4	2.2
23122CC/W33	23122CCK/W33	5.75	472.5	614.25	64.05	2940	3780	-	-	0.3	2.3	3.4	2.2
23122-2CS5/VT143	23122-2CS5K/VT143	5.75	473.55	614.25	64.05	-	840	-	-	0.27	2.5	3.7	2.5
24122CC/W33	24122CCK30/W33	7.1	565.95	787.5	81.9	2100	3150	-	-	0.37	1.8	2.7	1.8
24122-2CS5/VT143	-	7.1	567	787.5	81.9	-	661.5	-	-	0.35	1.9	2.9	1.8
22222E	22222EK	7	600.6	672	66.15	2100	4200	-	-	0.25	2.7	4	2.5

Spherical roller bearings



Type		Main dimensions			Dimensions					Shoulder and chamfer dimensions			
Bearing with cylindrical bore	Taper Hole	d	D	B	d ₂	D ₁	b	K	C	r _{1.2} min.	d _a min.	d _a max.	r _a max.
		mm			mm					mm			
23222-2CS5/VT143	23222-2CS5K/VT143	110	200	69.8	130	169	8.3	4.5	2.1	122	-	188	2
22322E	22322EK	110	240	80	126	178	8.3	4.5	2.1	122	126	188	2
22322EJA/VA405	22322EKJA/VA405	110	240	80	143	204	13.9	7.5	3	124	-	226	2.5
22322EJA/VA406	-	110	240	80	143	204	13.9	7.5	3	124	-	226	2.5
23024CC/W33	23024CCK/W33	120	180	46	135	163	6	3	2	129	-	171	2
23024-2RS5/VT143	-	120	180	46	132	168	6	3	2	129	132	171	2
24024CC/W33	24024CCK30/W33	120	180	60	132	159	6	3	2	129	-	171	2
24024-2CS5/VT143	-	120	180	60	130	166	6	3	2	129	130	171	2
23124CC/W33	23124CCK/W33	120	200	62	139	174	8.3	4.5	2	131	-	189	2
23124-2CS5/VT143	-	120	200	62	135	183	8.3	4.5	2	131	135	189	2
24124CC/W33	24124CCK30/W33	120	200	80	135	168	6	3	2	131	-	189	2
24124-2CS5/VT143	-	120	200	80	132	179	6	3	2	131	132	189	2
22224E	22224EK	120	215	58	141	189	11.1	6	2.1	132	-	203	2
BS2-2224-2RS5/VT143	BS2-2224-2RS5K/VT143	120	215	69	136	194	11.1	6	2.1	132	136	203	2
23224CC/W33	23224CCK/W33	120	215	76	141	182	8.3	4.5	2.1	132	-	203	2
23224-2CS5/VT143	23224-2CS5K/VT143	120	215	76	137	193	8.3	4.5	2.1	132	137	203	2
22324CC/W33	22324CCK/W33	120	260	86	152	216	13.9	7.5	3	134	-	246	2.5
22324CCJA/W33VA405	22324CCKJA/W33VA405	120	260	86	152	216	13.9	7.5	3	134	-	246	2.5
22324CCJA/W33VA406	-	120	260	86	152	216	13.9	7.5	3	134	-	246	2.5
22324-2CS5/VT143	22324-2CS5K/VT143	120	260	86	147	229	13.9	7.5	3	134	147	246	2.5
23026CC/W33	23026CCK/W33	130	200	52	148	180	8.3	4.5	2	139	-	191	2
23026-2CS5/VT143	23026-2CS5K/VT143	130	200	52	145	186	8.3	4.5	2	139	145	191	2
24026CC/W33	24026CCK30/W33	130	200	69	145	175	6	3	2	139	-	191	2
24026-2CS5/VT143	-	130	200	69	140	183	6	3	2	139	140	191	2
23126CC/W33	23126CCK/W33	130	210	64	148	184	8.3	4.5	2	141	-	199	2
24126CC/W33	24126CCK30/W33	130	210	80	146	180	6	3	2	141	-	199	2
24126-2CS5/VT143	-	130	210	80	141	190	6	3	2	141	141	199	2
22226E	22226EK	130	230	64	154	190	-	-	2.1	142	-	208	2
229750J/C3R505	-	130	220	73	152	201	11.1	6	3	144	-	216	2.5
BS2-2226-2CS5/VT143	BS2-2226-2CS5K/VT143	130	230	75	147	205	11.1	6	3	144	147	216	2.5
23226CC/W33	23226CCK/W33	130	230	80	151	196	8.3	4.5	3	144	-	216	2.5
23226-2CS5/VT143	23226-2CS5K/VT143	130	230	80	147	209	8.3	4.5	3	144	147	216	2.5
22326CC/W33	22326CCK/W33	130	280	93	164	233	16.7	9	4	147	-	263	3
22326CCJA/W33VA405	22326CCKJA/W33VA405	130	280	93	164	233	16.7	9	4	147	-	263	3
22326CCJA/W33VA406	-	130	280	93	164	233	16.7	9	4	147	-	263	3
22326-2CS5/VT143	22326-2CS5K/VT143	130	280	93	159	246	16.7	9	4	147	159	263	3

Type		Weight	Basic load rating		Fatigue load limit	Rated speed		The allowable acceleration of oil lubrication		Calculate the coefficient			
Bearing with cylindrical bore	Taper Hole		Dynamic	Static		reference speed	Maximum speed	Spin	Linear	e	Y ₁	Y ₂	Y ₀
		C	C ₀	P _u	r/min	m/s ²	-	-	-	-	-	-	
23222-2CS5/VT143	23222-2CS5K/VT143	9.85	658.35	803.25	80.325	-	672	-	-	0.33	2	3	2
22322E	22322EK	18.5	1038.45	1176	105	2100	2940	-	-	0.33	2	3	2
22322EJA/VA405	22322EKJA/VA405	18.5	1038.45	1176	105	2100	2940	53g	19g	0.33	2	3	2
22322EJA/VA406	-	18.5	1038.45	1176	105	2100	2940	53g	19g	0.33	2	3	2
23024CC/W33	23024CCK/W33	4.2	384.3	525	54.6	3360	4200	-	-	0.22	3	4.6	2.8
23024-2RS5/VT143	-	4.2	385.35	525	54.6	-	1470	-	-	0.2	3.4	5	3.2
24024CC/W33	24024CCK30/W33	5.45	478.8	703.5	71.4	2520	3570	-	-	0.3	2.3	3.4	2.2
24024-2CS5/VT143	-	5.45	479.85	703.5	71.4	-	703.5	-	-	0.28	2.4	3.6	2.5
23124CC/W33	23124CCK/W33	8	560.7	729.75	74.55	2730	3570	-	-	0.28	2.4	3.6	2.5
23124-2CS5/VT143	-	7.55	561.75	729.75	74.55	-	756	-	-	0.27	2.5	3.7	2.5
24124CC/W33	24124CCK30/W33	10.5	712.95	997.5	99.75	1995	2730	-	-	0.37	1.8	2.7	1.8
24124-2CS5/VT143	-	10.5	714	997.5	99.75	-	588	-	-	0.37	1.8	2.7	1.8
22224E	22224EK	8.7	684.6	803.25	77.175	2940	3990	-	-	0.26	2.6	3.9	2.5
BS2-2224-2RS5/VT143	BS2-2224-2RS5K/VT143	9.75	684.6	803.25	77.175	-	1470	-	-	0.26	2.6	3.9	2.5
23224CC/W33	23224CCK/W33	12	768.6	976.5	97.65	2100	2940	-	-	0.35	1.9	2.9	1.8
23224-2CS5/VT143	23224-2CS5K/VT143	12	770.7	976.5	97.65	-	630	-	-	0.33	2	3	2
22324CC/W33	22324CCK/W33	23	1069.95	105	1260	2100	2730	-	-	0.35	1.9	2.9	1.8
22324CCJA/W33VA405	22324CCKJA/W33VA405	23	1069.95	105	1260	2100	2730	96g	21g	0.35	1.9	2.9	1.8
22324CCJA/W33VA406	-	23	1069.95	105	1260	2100	2730	96g	21g	0.35	1.9	2.9	1.8
22324-2CS5/VT143	22324-2CS5K/VT143	23	1073.1	1176	105	-	630	-	-	0.33	2	3	2
23026CC/W33	23026CCK/W33	6	474.6	640.5	64.05	2940	3780	-	-	0.23	2.9	4.4	2.8
23026-2CS5/VT143	23026-2CS5K/VT143	6	474.6	640.5	65.1	-	840	-	-	0.21	3.2	4.8	3.2
24026CC/W33	24026CCK30/W33	8.05	597.45	855.75	85.575	2100	3150	-	-	0.31	2.2	3.3	2.2
24026-2CS5/VT143	-	8.05	598.5	871.5	85.575	-	630	-	-	0.3	2.3	3.4	2.2
23126CC/W33	23126CCK/W33	8.8	615.3	819	81.9	2520	3360	-	-	0.28	2.4	3.6	2.5
24126CC/W33	24126CCK30/W33	11	733.95	1050	105	1785	2520	-	-	0.35	1.9	2.9	1.8
24126-2CS5/VT143	-	11	736.05	1050	105	-	556.5	-	-	0.33	2	3	2
22226E	22226EK	11	795.9	976.5	92.4	2730	3780	-	-	0.31	2.2	3.3	2.2
229750J/C3R505	-	11.5	672	976.5	97.65	2730	2520	-	-	0.27	2.5	3.7	2.5
BS2-2226-2CS5/VT143	BS2-2226-2CS5K/VT143	11	795.9	976.5	92.4	-	735	-	-	0.27	2.5	3.7	2.5
23226CC/W33	23226CCK/W33	14.5	867.3	1113	109.2	1995	2730	-	-	0.33	2	3	2
23226-2CS5/VT143	23226-2CS5K/VT143	14.5	869.4	1113	109.2	-	556.5	-	-	0.31	2.2	3.3	2.2
22326CC/W33	22326CCK/W33	29	1234.8	1386	119.7	1890	2520	-	-	0.35	1.9	2.9	1.8
22326CCJA/W33VA405	22326CCKJA/W33VA405	29	1234.8	1386	119.7	1890	2520	87g	20g	0.35	1.9	2.9	1.8
22326CCJA/W33VA406	-	29	1234.8	1386	119.7	1890	2520	87g	20g	0.35	1.9	2.9	1.8
22326-2CS5/VT143	22326-2CS5K/VT143	29	1236.9	1386	119.7	-	525	-	-	0.33	2	3	2