

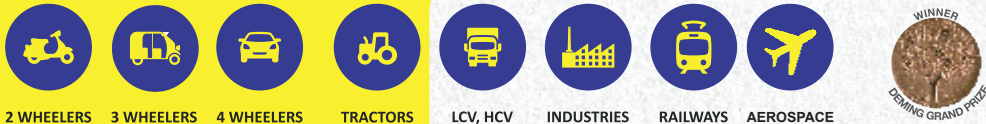
Spherical Roller Bearings

This version supersedes all previously published versions. All the bearing mentioned in this catalogue are manufactured with normal tolerance class. We can, however, supply other class bearing against specific requirement.

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Products from NBC

Founded in 1946, NBC is India's first bearings manufacturer and the last word in quality and durability. In 2020, the company acquired leading European manufacturer, Kinex Bearings to further boost its expertise.

75 years since its beginning, NBC remains India's leading bearings manufacturer and exporter. NBC is also the world's only bearings manufacturer to receive the prestigious Deming Grand Prize for Total Quality Management.



Since the challenges faced by industry are many, NBC offers a diverse range of exceptional bearings. NBC bearings are available in sizes from 04 mm bore to 2000 mm outer diameter.

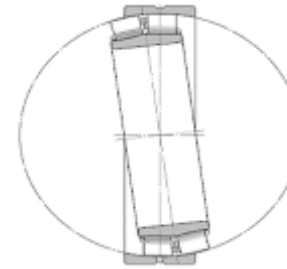


* Products with special features like high temperature application, special heat treatment, coated roller/faces and cage options are also available across product range.

20 Spherical Roller Bearing

Spherical Roller Bearing Configuration

Spherical roller bearing inner consists of two rows with symmetrical rollers and outer. The inner raceways are separated by a rib. The outer has a spherical raceway. These bearings have a large capacity for radial loads and axial loads in either directions. In addition to straight bore, tapered bore are also available. The standard taper ratio of 1:12 have 'K' suffix. With a taper ratio of 1:30 as in the case of 240 series, the suffix is 'K30'. Most of the tapered bore bearings use adaptor sleeve or withdrawal sleeve. The spherical roller bearing have a self-aligning property.



Steel press cage and machined brass cages are widely used in Spherical roller bearings. The bearings with steel cage has 'CC' suffix and with brass cage 'MB' suffix.

Brass cage (MB)



Steel cage (CC)



Type of configuration

- CA - Bearing with symmetrical rollers and retaining ribs. The cage is a one-piece, double pronged machined cage of brass
- CC - Bearing with symmetrical rollers, flangeless inner ring, a non-integral guide ring between the two rows of rollers centred on the inner ring and one pressed steel window-type cage for each roller row
- MB - Machined brass cage

In addition to bearings with cylindrical bore those with tapered bore are also available. Bearings with tapered bore are specified by attaching the suffix "K" to the end of the bearing's basic number. The standard taper ratio is 1:12 for

Bearings with a "K" suffix, but for bearings in series 240 and 241 the suffix "K30" indicates the taper ratio for a bearing is 1:30. Most tapered bore bearings incorporate the use of adapters and withdrawal sleeves for shaft mounting

K- Tapered bearing bore, taper 1:12

K30 - Tapered bearing bore, taper 1:30

Oil inlets and oil groove dimensions

Spherical roller bearings with an outer diameter of 320mm or more are provided with an oil inlet and oil groove on the outer ring for the purpose of supplying lubricant to the bearing's moving parts. When necessary, oil inlets and oil grooves can also be provided on bearings with outer diameters less than 320 mm.

W33-Bearing with annular groove and three lubrication holes in the outer ring

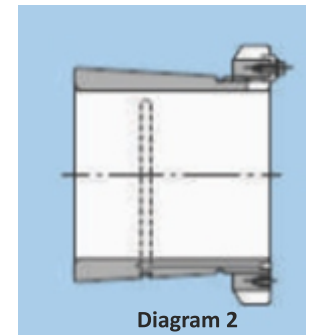
W33X-Bearing with annular groove and six lubrication holes in the outer ring

Adapters and withdrawal sleeves

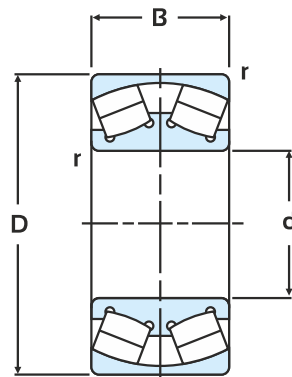
Adapters are used for installation of bearings with tapered bore on cylindrical shafts. Withdrawal sleeves are also used to install and disassemble bearings with tapered bore onto and off cylindrical shafts. In disassembling the bearing from the shaft, the nut is pressed down against the edge of the inner ring utilizing the bolt provided on the withdrawal sleeve, and then the sleeve is drawn away from the bearing's inner diameter surface.

As shown in diagram 2 construction is designed to reduce friction by injecting high pressure oil between the surfaces of the adapter sleeve and bearing inner bore by means of a pressure fitting.

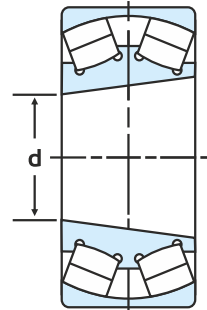
* Adapter as well as withdrawal sleeves are also available



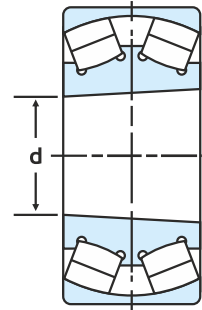
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

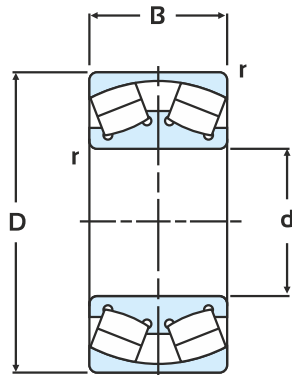
static

$$P_{or} = F_r + Y_0 F_a$$

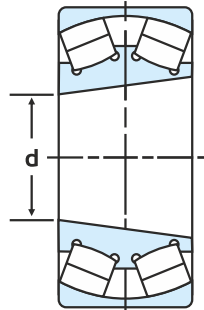
For values of e , Y_2 and Y_0
see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_0	Bearing Number	Mass Kg. (Approx.)
				Dynamic	Static	Dynamic	Static							
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
25	52	18	1	42.1	43.5	4293	4436	5.3	0.35	1.9	2.9	1.9	22205 CC W33	0.18
25	52	18	1	42.1	43.5	4293	4436	5.3	0.35	1.9	2.9	1.9	22205K CC W33	0.16
25	52	18	1	39.0	43.5	4293	4436	5.3	0.35	1.9	2.9	1.9	22205 MB W33	0.19
25	52	18	1	39.0	43.5	4293	4436	5.3	0.35	1.9	2.9	1.9	22205K MB W33	0.17
30	62	20	1	51.7	55	5272	5608	6.7	0.32	2.1	3.1	2.1	22206 CC W33	0.28
30	62	20	1	51.7	55	5272	5608	6.7	0.32	2.1	3.1	2.1	22206K CC W33	0.27
30	62	20	1	52.0	55	5302	5608	6.7	0.33	2.0	3.0	2.0	22206 MB W33	0.32
30	62	20	1	52.0	55	5302	5608	6.7	0.33	2.0	3.0	2.0	22206K MB W33	0.28
35	72	23	1.1	68.0	77	6934	7852	9.4	0.31	2.2	3.0	2.2	22207K CA W33	0.43
35	72	23	1.1	69.8	73.9	7118	7536	9.0	0.32	2.1	3.2	2.1	22207 MB W33	0.45
35	72	23	1.1	69.8	73.9	7118	7536	9.0	0.32	2.1	3.2	2.1	22207K MB W33	0.43
35	72	23	1.1	70.4	78.7	7179	8025	9.6	0.32	2.1	3.2	2.1	22207 CC W33	0.44
35	72	23	1.1	70.4	78.7	7179	8025	9.6	0.32	2.1	3.2	2.1	22207K CC W33	0.41
40	80	23	1.1	79.1	87.9	8066	8963	10.7	0.28	2.4	3.5	2.3	22208 CC W33	0.53
40	80	23	1.1	79.1	87.9	8066	8963	10.7	0.28	2.4	3.5	2.3	22208K CC W33	0.52
40	80	23	1.1	80.5	90.4	8209	9218	11.0	0.28	2.4	3.5	2.3	22208 CA W33	0.47

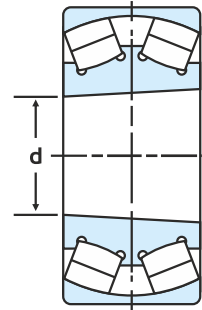
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

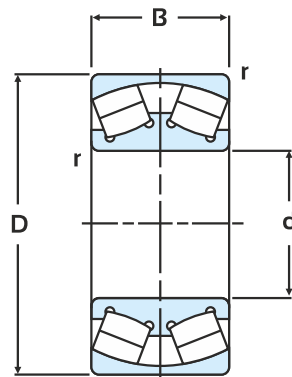
static

$$P_{or} = F_r + Y_o F_a$$

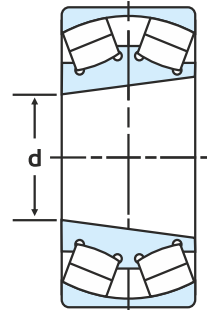
For values of e , Y_2 and Y_o
see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
40	80	23	1.1	80.5	90.4	8209	9218	11.0	0.28	2.4	3.5	2.3	22208K CA W33	0.45
40	80	23	1.1	80.5	90.4	8209	9218	11.0	0.31	2.2	3.2	2.1	22208 MB W33	0.47
40	80	23	1.1	80.5	90.4	8209	9218	11.0	0.31	2.2	3.2	2.1	22208K MB W33	0.47
40	90	23	1.5	85.6	88.1	8729	8984	10.7	0.24	2.8	4.1	2.8	21308 CC W33	0.72
40	90	23	1.5	85.6	88.1	8729	8984	10.7	0.24	2.8	4.1	2.8	21308 MB W33	0.73
40	90	23	1.5	85.6	88.1	8729	8984	10.7	0.24	2.8	4.1	2.8	21308K MB W33	0.70
40	90	23	1.5	85.6	88.1	8729	8984	10.7	0.24	2.8	4.1	2.8	21308K CC W33	0.93
40	90	33	1.5	123.6	142.1	12603	14490	17.3	0.39	1.7	2.5	1.7	22308 CC W33	1.01
40	90	33	1.5	123.6	142.1	12603	14490	17.3	0.39	1.7	2.5	1.7	22308K CC W33	0.95
40	90	33	1.5	123.6	142.1	12603	14490	17.3	0.39	1.7	2.5	1.7	22308 MB W33	1.03
40	90	33	1.5	123.6	142.1	12603	14490	17.3	0.39	1.7	2.5	1.7	22308K MB W33	1.00
45	85	23	1.1	82.6	91.3	8423	9310	11.1	0.37	1.8	2.7	1.8	22209 CA W33	0.61
45	85	23	1.1	82.6	91.3	8423	9310	11.1	0.37	1.8	2.7	1.8	22209K CA W33	0.60
45	85	23	1.1	82.6	95	8423	9687	11.6	0.26	2.6	3.8	2.5	22209 CC W33	0.59
45	85	23	1.1	82.6	95	8423	9687	11.6	0.26	2.6	3.8	2.5	22209K CC W33	0.58
45	85	23	1.1	82.6	91.3	8423	9310	11.1	0.28	2.4	3.5	2.3	22209 MB W33	0.61

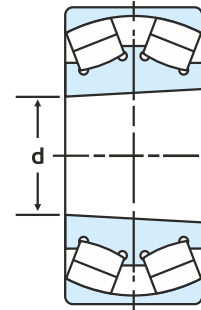
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

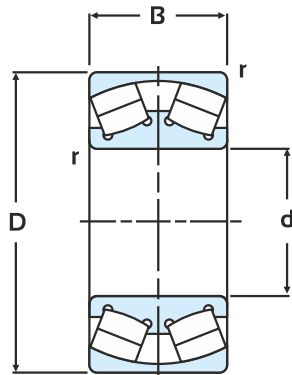
static

$$P_{or} = F_r + Y_o F_a$$

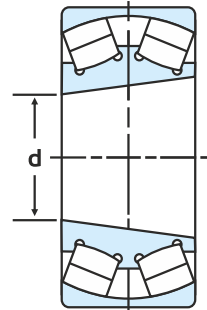
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
45	85	23	1.1	82.6	91.3	8423	9310	11.1	0.28	2.4	3.5	2.3	22209K MB W33	0.61
45	100	36	1.5	146	175	14888	17845	21.3	0.37	1.8	2.7	1.8	22309 CC W33	1.30
45	100	36	1.5	146	175	14888	17845	21.3	0.37	1.8	2.7	1.8	22309K CC W33	1.10
45	100	36	1.5	146	175	14888	17845	21.3	0.37	1.8	2.7	1.8	22309 CA W33	1.37
45	100	36	1.5	146	175	14888	17845	21.3	0.37	1.8	2.7	1.8	22309 MB W33	1.40
45	100	36	1.5	146	175	14888	17845	21.3	0.37	1.8	2.7	1.8	22309K MB W33	1.38
50	90	23	1.1	82.5	95.8	8413	9769	11.7	0.24	2.8	4.1	2.7	22210 CA W33	0.64
50	90	23	1.1	82.5	95.8	8413	9769	11.7	0.24	2.8	4.1	2.7	22210K CA W33	0.62
50	90	23	1.1	85.9	102	8759	10401	12.4	0.24	2.8	4.1	2.7	22210 CC W33	0.62
50	90	23	1.1	85.9	102	8759	10401	12.4	0.24	2.8	4.1	2.7	22210K CC W33	0.60
50	90	23	1.1	86.6	103.3	8831	10534	12.6	0.26	2.6	3.8	2.5	22210 MB W33	0.64
50	90	23	1.1	86.6	103.3	8831	10534	12.6	0.26	2.6	3.8	2.5	22210K MB W33	0.63
50	110	27	2	126	142	12848	14480	17.3	0.24	2.8	4.2	2.8	21310 CC W33	1.20
50	110	27	2	126	142	12848	14480	17.3	0.24	2.8	4.2	2.8	21310K CC W33	1.01
50	110	27	2	126	142	12848	14480	17.3	0.24	2.8	4.2	2.8	21310 MB W33	1.50
50	110	27	2	126	142	12848	14480	17.3	0.24	2.8	4.2	2.8	21310K MB W33	1.30

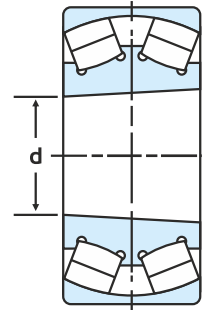
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

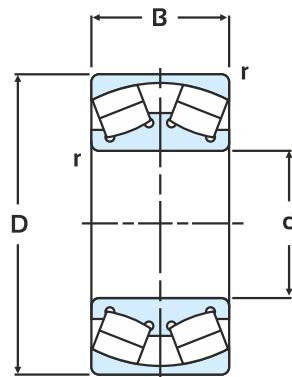
static

$$P_{or} = F_r + Y_o F_a$$

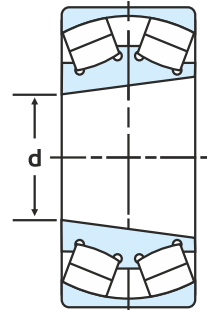
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y ₁	Y ₂	Y _o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
50	110	40	2	193	227	19680	23147	27.7	0.37	1.8	2.7	1.8	22310 CA W33	1.83
50	110	40	2	193	227	19680	23147	27.7	0.37	1.8	2.7	1.8	22310 MB W33	1.88
50	110	40	2	193	227	19680	23147	27.7	0.37	1.8	2.7	1.8	22310K MB W33	1.84
55	100	25	1.5	98.9	118.9	10085	12124	14.5	0.27	2.5	3.7	2.5	22211 MB W33	0.87
55	100	25	1.5	98.9	118.9	10085	12124	14.5	0.27	2.5	3.7	2.5	22211K MB W33	0.85
55	100	25	1.5	106	126	10809	12848	15.4	0.24	2.8	4.2	2.8	22211 CA W33	0.83
55	100	25	1.5	106	126	10809	12848	15.4	0.24	2.8	4.2	2.8	22211K CA W33	0.81
55	100	25	1.5	108	128	11013	13052	15.6	0.24	2.8	4.2	2.8	22211 CC W33	0.83
55	100	25	1.5	108	128	11013	13052	15.6	0.24	2.8	4.2	2.8	22211K CC W33	0.83
55	120	29	2	145	163	14786	16621	19.9	0.24	2.8	4.2	2.8	21311 CC W33	1.61
55	120	29	2	145	163	14786	16621	19.9	0.24	2.8	4.2	2.8	21311K CC W33	1.45
55	120	29	2	145	163	14786	16621	19.9	0.24	2.8	4.2	2.8	21311 MB W33	1.66
55	120	29	2	145	163	14786	16621	19.9	0.24	2.8	4.2	2.8	21311K MB W33	1.62
55	120	43	2	214	258	21822	26308	31.5	0.36	1.9	2.8	1.8	22311 CA W33	2.33
55	120	43	2	214	258	21822	26308	31.5	0.36	1.9	2.8	1.8	22311K CA W33	2.30
55	120	43	2	214	258	21822	26308	31.5	0.36	1.9	2.8	1.8	22311 MB W33	2.33

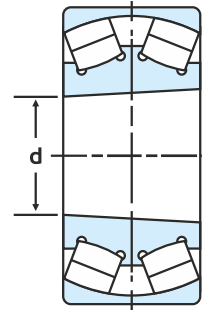
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

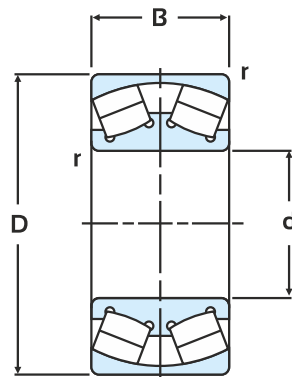
static

$$P_{or} = F_r + Y_o F_a$$

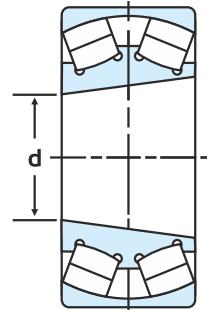
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y ₁	Y ₂	Y _o	Bearing Number	Mass Kg. (Approx.)
				Dynamic	Static	Dynamic	Static							
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
55	120	43	2	214	258	21822	26308	31.5	0.36	1.9	2.8	1.8	22311K MB W33	2.30
60	110	28	1.5	132	156	13460	15907	19.0	0.25	2.7	4.0	2.7	22212 MB W33	1.23
60	110	28	1.5	132	156	13460	15907	19.0	0.25	2.7	4.0	2.7	22212K MB W33	1.20
60	110	28	1.5	135	157	13766	16009	19.1	0.24	2.8	4.1	2.7	22212 CA W33	1.18
60	110	28	1.5	135	157	13766	16009	19.1	0.24	2.8	4.1	2.7	22212K CA W33	1.15
60	110	28	1.5	150	182	15296	18559	22.2	0.24	2.8	4.1	2.7	22212 CC W33	1.18
60	110	28	1.5	150	182	15296	18559	22.2	0.24	2.8	4.1	2.7	22212K CC W33	1.15
60	130	31	2.1	167	191	17029	19476	23.3	0.24	2.8	4.2	2.8	21312 CA W33	2.10
60	130	31	2.1	174	202	17743	20598	24.6	0.24	2.8	4.2	2.8	21312 CC W33	1.98
60	130	31	2.1	174	202	17743	20598	24.6	0.24	2.8	4.2	2.8	21312K CC W33	1.93
60	130	46	2.1	240	310	24473	31611	37.8	0.36	1.9	2.8	1.8	22312 CC W33	2.87
60	130	46	2.1	240	310	24473	31611	37.8	0.36	1.9	2.8	1.8	22312 CA W33	2.91
60	130	46	2.1	240	310	24473	31611	37.8	0.38	1.8	2.7	1.8	22312 MB W33	2.93
60	130	46	2.1	240	310	24473	31611	37.8	0.38	1.8	2.7	1.8	22312K MB W33	2.90
60	130	46	2.1	240	310	24473	31611	37.8	0.36	1.9	2.8	1.8	22312K CC W33	2.82
65	120	31	1.5	112	158	11421	16111	19.3	0.28	2.4	3.6	2.3	22213K MB W33	1.48

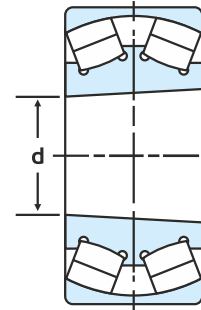
Spherical Roller Bearing



Cylindrical bore



Tapered bore (1K)
(1:12)



Tapered bore (1K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

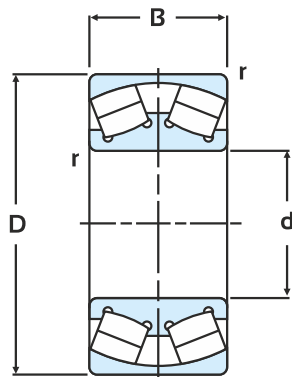
static

$$P_{or} = F_r + Y_o F_a$$

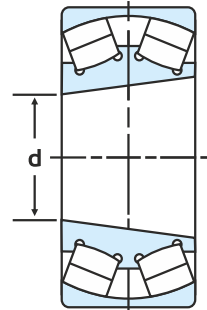
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
65	120	31	1.5	147	181	14990	18457	22.1	0.28	2.4	3.6	2.3	22213 MB W33	1.54
65	120	31	1.5	157.2	196.8	16030	20068	24.0	0.25	2.7	4.0	2.6	22213K CC W33	1.46
65	120	31	1.5	164	197	16723	20088	24.0	0.25	2.7	4.0	2.6	22213 CC W33	1.49
65	120	31	1.5	164	197	16723	20088	24.0	0.25	2.7	4.0	2.6	22213K CA W33	1.52
65	140	48	2.1	275	327	28042	33344	39.6	0.35	1.9	2.9	1.9	22313 CC W33	3.50
65	140	48	2.1	275	327	28042	33344	39.6	0.35	1.9	2.9	1.9	22313K CC W33	3.50
65	140	48	2.1	295	353	30081	35995	42.7	0.35	1.9	2.9	1.9	22313 CA W33	2.61
65	140	48	2.1	295	353	30081	35995	42.7	0.35	1.9	2.9	1.9	22313 MB W33	3.61
65	140	48	2.1	295	353	30081	35995	42.7	0.35	1.9	2.9	1.9	22313K MB W33	3.54
70	125	31	1.5	161.4	203.8	16458	20781	25.0	0.24	2.8	4.2	2.8	22214 CC W33	1.65
70	125	31	1.5	161.4	203.8	16458	20781	25.0	0.24	2.8	4.2	2.8	22214K CC W33	1.63
70	125	31	1.5	170	218	17335	22229	26.6	0.24	2.8	4.2	2.8	22214 MB W33	1.64
70	125	31	1.5	170	218	17335	22229	26.6	0.24	2.8	4.2	2.8	22214K MB W33	1.64
70	150	35	2.1	204.6	219.6	20863	22393	26.0	0.25	2.7	4.1	2.7	21314 MB W33	3.00
70	150	35	2.1	204.6	219.6	20863	22393	26.0	0.25	2.7	4.1	2.7	21314K MB W33	2.67

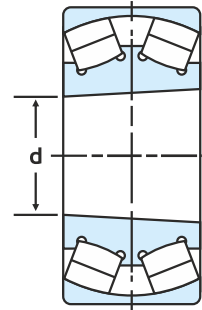
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

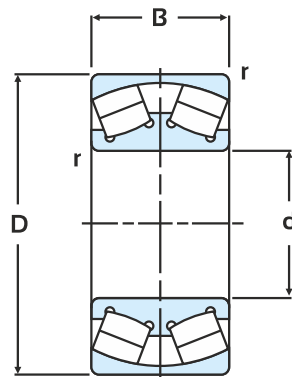
static

$$P_{or} = F_r + Y_o F_a$$

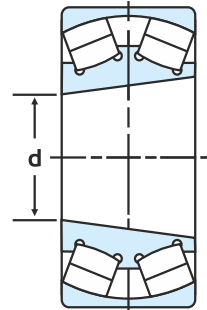
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
70	150	35	2.1	210	247	21414	25187	29.3	0.23	2.9	4.3	2.9	21314 CA W33	3.05
70	150	35	2.1	210	247	21414	25187	29.3	0.23	2.9	4.3	2.9	21314 CC W33	3.08
70	150	35	2.1	210	247	21414	25187	29.3	0.23	2.9	4.3	2.9	21314K CC W33	3.06
70	150	51	2.1	342	426	34874	43439	50.5	0.34	2.0	2.9	1.9	22314 CC W33	4.36
70	150	51	2.1	342	426	34874	43439	50.5	0.34	2.0	2.9	1.9	22314K CC W33	4.31
70	150	51	2.1	342	426	34874	43439	50.5	0.34	2.0	2.9	1.9	22314 CA W33	4.39
70	150	51	2.1	342	426	34874	43439	50.5	0.34	2.0	3.0	1.9	22314 MB W33	4.41
70	150	51	2.1	342	426	34874	43439	50.5	0.34	2.0	3.0	1.9	22314K MB W33	4.32
75	130	31	1.5	163	215	16621	21924	26.0	0.24	2.9	4.3	2.8	22215K MB W33	1.80
75	130	31	1.5	170	220	17335	22433	26.6	0.22	3.0	4.5	2.9	22215 CC W33	1.80
75	130	31	1.5	170.2	220.3	17355	22464	26.7	0.22	3.0	4.5	2.9	22215K CA W33	1.71
75	130	31	1.5	170.2	220.3	17355	22464	26.7	0.22	3.0	4.5	2.9	22215K CC W33	1.71
75	130	31	1.5	190	240	19374	24473	29.1	0.24	2.9	4.3	2.8	22215 MB W33	1.69
75	160	37	2.1	239	287	24371	29265	33.3	0.23	2.9	4.4	2.9	21315 CA W33	3.65
75	160	37	2.1	242	287	24371	29265	33.3	0.23	2.9	4.4	2.9	21315 CC W33	3.80
75	160	37	2.1	242	287	24371	29265	33.3	0.23	2.9	4.4	2.9	21315K CC W33	3.30

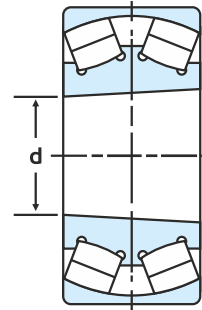
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

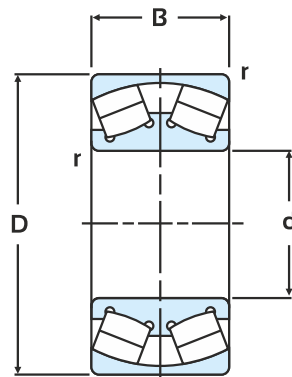
static

$$P_{or} = F_r + Y_o F_a$$

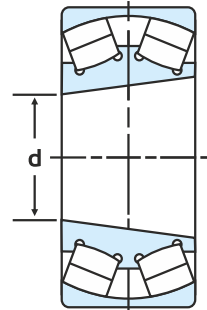
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic	Static	Dynamic	Static							
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
75	160	37	2.1	262	288	26716	29367	33.5	0.32	2.1	3.2	2.1	21315 MB W33	3.70
75	160	37	2.1	262	288	26716	29367	33.5	0.32	2.1	3.2	2.1	21315K MB W33	3.65
75	160	55	2.1	357	449	36403	45785	52.2	0.32	2.1	3.2	2.1	22315 CC W33	5.35
75	160	55	2.1	357	449	36403	45785	52.2	0.32	2.1	3.2	2.1	22315K CC W33	5.31
75	160	55	2.1	373	451	38035	45988	52.4	0.35	2.0	2.9	1.9	22315 CA W33	5.85
75	160	55	2.1	373	451	38035	45988	52.4	0.35	2.0	2.9	1.9	22315K CA W33	5.81
75	160	55	2.1	373	451	38035	45988	52.4	0.35	2.0	2.9	1.9	22315 MB W33	5.89
75	160	55	2.1	373	451	38035	45988	52.4	0.35	2.0	2.9	1.9	22315K MB W33	5.85
80	140	33	2	174	234	17743	23861	27.7	0.22	3.0	4.5	3.0	22216 MB W33	2.26
80	140	33	2	175	234	17845	23861	27.7	0.35	2.0	2.9	2.0	22216K CC W33	2.10
80	140	33	2	175	234	17845	23861	27.7	0.22	3.0	4.5	3.0	22216K MB W33	2.26
80	140	33	2	175	234	17845	23861	27.7	0.35	2.0	2.9	2.0	22216 CC W33	2.2
80	140	33	2	179	240	18253	24473	28.4	0.22	3.0	4.5	3.0	22216 CA W33	2.26
80	140	33	2	179	240	18253	24473	28.4	0.22	3.0	4.5	3.0	22216K CA W33	2.24
80	170	39	2.1	256	325	26104	33140	37.1	0.24	2.8	4.2	2.8	21316 CC W33	4.50
80	170	39	2.1	256	325	26104	33140	37.1	0.24	2.8	4.2	2.8	21316K CC W33	4.1

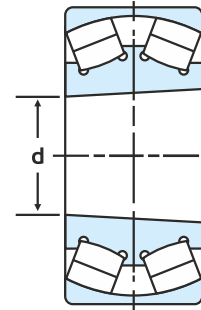
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

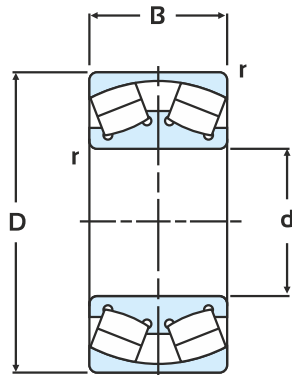
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$$P_{or} = F_r + Y_o F_a$$

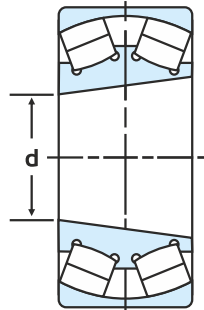
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y ₁	Y ₂	Y _o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
80	170	58	2.1	436	533	44459	54350	60.8	0.34	2.0	2.9	1.9	22316 CA W33	6.19
80	170	58	2.1	436	533	44459	54350	60.8	0.34	2.0	2.9	1.9	22316K CA W33	6.15
80	170	58	2.1	436	533	44459	54350	60.8	0.34	2.0	2.9	1.9	22316 MB W33	6.34
80	170	58	2.1	436	533	44459	54350	60.8	0.34	2.0	2.9	1.9	22316K MB W33	6.2
85	150	36	2	213	282	21720	28756	32.8	0.23	3.0	4.4	2.9	22217K CA W33	2.87
85	150	36	2	224	290	22841	29571	33.7	0.24	2.8	4.2	2.8	22217 MB W33	2.92
85	150	36	2	224	290	22841	29571	33.7	0.24	2.8	4.2	2.8	22217K MB W33	2.88
85	150	36	2	225	293	22943	29877	34.0	0.23	3.0	4.4	2.9	22217 CC W33	2.71
85	150	36	2	225	293	22943	29877	34.0	0.23	3.0	4.4	2.9	22217K CC W33	2.68
85	180	60	3	433	560	44153	57103	62.8	0.34	2.0	3.0	2.0	22317 MB W33	7.31
85	180	60	3	433	560	44153	57103	62.8	0.34	2.0	3.0	2.0	22317K MB W33	7.27
85	180	60	3	438	560	44663	57103	62.8	0.34	2.0	3.0	2.0	22317 CA W33	7.31
85	180	60	3	446	563	45479	57409	63.1	0.34	2.0	3.0	2.0	22317 CC W33	7.25
85	180	60	3	446	563	45479	57409	63.1	0.34	2.0	3.0	2.0	22317K CC W33	7.21
90	160	40	2	202	286	20598	29163	32.6	0.25	2.7	4.1	2.7	22218K MB W33	3.32
90	160	40	2	248	345	25289	35180	39.3	0.24	2.9	4.3	2.8	22218 CC W33	3.50

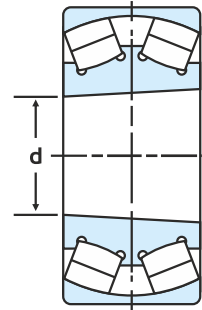
Spherical Roller Bearing



Cylindrical bore



Tapered bore (1K)
(1:12)



Tapered bore (1K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

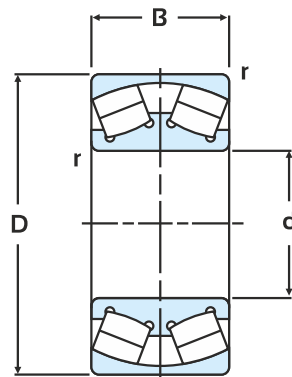
static

$$P_{or} = F_r + Y_o F_a$$

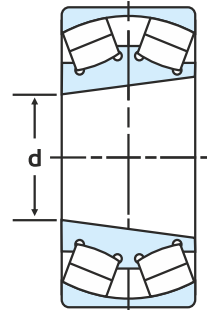
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
90	160	40	2	254	336	25900	34262	38.3	0.25	2.7	4.1	2.7	22218 MB W33	3.36
90	160	40	2	265	353	27022	35995	40.3	0.24	2.8	4.2	2.8	22218K CC W33	3.42
90	160	40	2	265	353	27022	35995	40.3	0.23	3.0	4.4	3.0	22218K CA W33	3.40
90	160	52.4	2	335	492	34160	50169	56.1	0.33	2.1	3.1	2.0	23218 MB W33	4.58
90	160	52.4	2	339	492	34568	50169	56.1	0.33	2.1	3.1	2.0	23218K MB W33	4.54
90	190	64	3	489	641	49863	65363	70.7	0.34	2.0	3.0	2.0	22318 MB W33	8.35
90	190	64	3	489	641	49863	65363	70.7	0.34	2.0	3.0	2.0	22318K MB W33	8.34
95	170	43	2.1	314.4	410.2	32059	41828	46.0	0.25	2.7	4.0	2.6	22219 MB W33	4.57
95	170	43	2.1	314.4	410.2	32059	41828	46.0	0.25	2.7	4.0	2.6	22219K MB W33	4.52
95	170	43	2.1	317	411	32059	41828	46.0	0.25	2.7	4.0	2.6	22219 CC W33	4.52
95	170	43	2.1	317	411	32059	41828	46.0	0.25	2.7	4.0	2.6	22219K CC W33	4.10
95	200	67	3	500	615	50985	62712	66.7	0.34	2.0	3.0	2.0	22319K MB W33	10.11
95	200	67	3	536	709	54656	72297	76.9	0.34	2.0	3.0	2.0	22319K CA W33	10.09
95	200	67	3	536	709	54656	72297	76.9	0.34	2.0	3.0	2.0	22319 MB W33	10.11

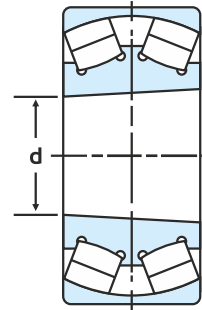
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

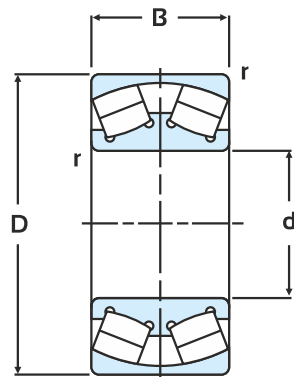
static

$$P_{or} = F_r + Y_o F_a$$

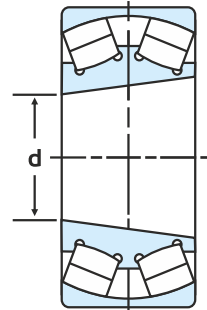
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y ₁	Y ₂	Y _o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
95	200	67	3	551	714	56185	72807	77.5	0.34	2.0	3.0	2.0	22319 CC W33	10.28
95	200	67	3	551	714	56185	72807	77.5	0.34	2.0	3.0	2.0	22319K CC W33	9.60
100	180	46	2.1	324	449	33038	45785	49.5	0.24	2.8	4.2	2.8	22220 CC W33	4.95
100	180	46	2.1	324	449	33038	45785	49.5	0.24	2.8	4.2	2.8	22220K CC W33	4.90
100	165	52	2	335	520	34160	53024	58.3	0.31	2.2	3.2	2.2	23120 MB W33	4.58
100	165	52	2	335	520	34160	53024	58.3	0.31	2.2	3.2	2.2	23120K MB W33	4.54
100	165	52	2	340	525	34670	53534	58.8	0.30	2.2	3.3	2.2	23120 MB W33	4.34
100	165	52	2	340	525	34670	53534	58.8	0.30	2.2	3.3	2.2	23120K MB W33	4.30
100	165	52	2	345	530	34670	53534	58.8	0.30	2.2	3.3	2.2	23120 CC W33	4.00
100	165	52	2	345	530	34670	53534	58.8	0.30	2.2	3.3	2.2	23120K CC W33	3.90
100	180	46	2.1	360	474	36709	48334	52.3	0.26	2.6	3.9	2.6	22220 MB W33	5.03
100	180	46	2.1	360	474	36709	48334	52.3	0.26	2.6	3.9	2.6	22220K MB W33	4.97
100	180	60.3	2.1	420	580	42827	59143	63.9	0.32	2.1	3.2	2.1	23220 MB W33	6.80
100	180	60.3	2.1	420	580	42827	59143	63.9	0.32	2.1	3.2	2.1	23220K MB W33	6.68
100	180	60.3	2.1	437	638	44561	65057	70.3	0.30	2.2	3.3	2.2	23220 CC W33	6.75
100	180	60.3	2.1	437	638	44561	65057	70.3	0.30	2.2	3.3	2.2	23220K CC W33	6.71

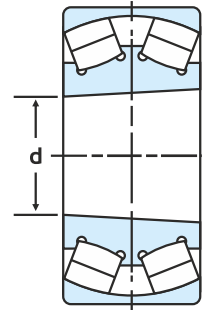
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

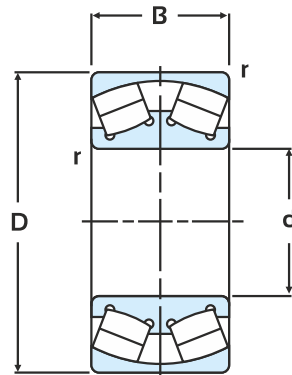
static

$$P_{or} = F_r + Y_o F_a$$

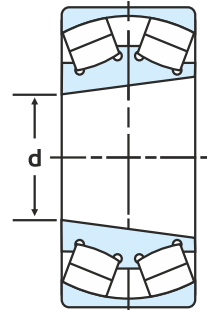
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
100	215	73	3	626	840	63833	85655	89.4	0.24	2.8	4.2	2.8	22320K MB W33	12.90
100	215	73	3	626	840	63833	85655	89.4	0.34	2.0	2.9	1.9	22320 MB W33	12.95
100	215	73	3	630	840	63833	85655	89.4	0.24	2.8	4.2	2.8	22320 CC W33	12.90
100	215	73	3	630	840	63833	85655	89.4	0.24	2.8	4.2	2.8	22320K CC W33	11.87
110	170	45	2	282	455	28756	46396	50.2	0.24	2.8	4.2	2.8	23022 MB W33	3.63
110	170	45	2	282	455	28756	46396	50.2	0.24	2.8	4.2	2.8	23022K MB W33	3.60
110	180	56	2	325	580	33140	59143	63.3	0.31	2.2	3.3	2.2	23122 MB W33	5.90
110	180	56	2	325	580	33140	59143	63.3	0.31	2.2	3.3	2.2	23122K MB W33	5.87
110	200	53	2.1	424	591	43235	60264	63.2	0.27	2.5	3.7	2.5	22222 MB W33	7.54
110	200	53	2.1	424	591	43235	60264	63.2	0.27	2.5	3.7	2.5	22222K MB W33	6.95
110	200	69.8	2.1	510	750	52005	76478	80.2	0.35	1.9	2.8	1.9	23222K MB W33	9.50
110	200	69.8	2.1	536.5	802.3	54707	81811	85.8	0.35	1.9	2.8	1.9	23222 MB W33	9.90
110	200	53	2.1	572	651	58327	66382	69.6	0.25	2.7	4.0	2.6	22222 CC W33	7.40
110	200	53	2.1	572	651	58327	66382	69.6	0.25	2.7	4.0	2.6	22222K CC W33	7.37

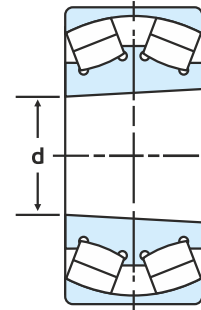
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

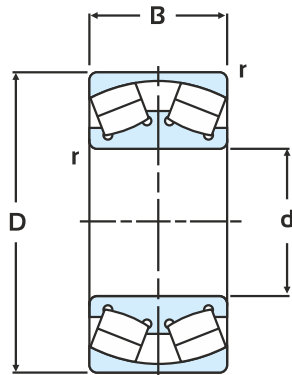
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$$P_{or} = F_r + Y_o F_a$$

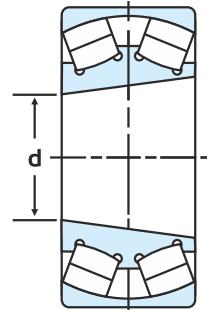
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
110	240	80	3	723	949	76478	98197	99.3	0.36	1.9	2.8	1.8	22322 MB W33	18.20
110	240	80	3	723	949	73724	96770	97.8	0.36	1.9	2.8	1.8	22322K MB W33	17.80
110	240	80	3	744	935	75866	95342	96.4	0.35	1.9	2.9	1.9	22322 CC W33	17.90
110	240	80	3	744	935	75866	95342	96.4	0.35	1.9	2.9	1.9	22322K CC W33	17.88
120	180	46	2	296	495	30183	50475	53.5	0.23	2.9	4.4	2.9	23024 MB W33	4.20
120	180	46	2	324.5	513.5	33089	52362	55.4	0.23	2.9	4.4	2.9	23024K MB W33	4.06
120	180	60	2	353	638	35995	65057	68.9	0.30	2.3	3.4	2.2	24024 CA W33	5.30
120	180	60	2	390	700	39768	71379	75.6	0.30	2.3	3.4	2.2	24024 MB W33	5.27
120	180	60	2	390	700	39768	71379	75.6	0.30	2.3	3.4	2.2	24024K30 MB W33	5.22
120	215	58	2.1	396	582	40380	59347	60.8	0.28	2.4	3.6	2.4	22224K MB W33	9.14
120	200	62	2	460	705	46906	71889	74.7	0.30	2.3	3.4	2.2	23124 MB W33	8.00
120	200	62	2	460	705	46906	71889	74.7	0.30	2.3	3.4	2.2	23124K MB W33	7.70
120	215	58	2.1	507	697	51699	71073	72.8	0.28	2.4	3.6	2.4	22224 MB W33	9.14
120	215	76	2.1	595	950	60672	96872	99.2	0.35	1.9	2.9	1.9	23224 MB W33	12.30
120	215	76	2.1	595	950	60672	96872	99.2	0.35	1.9	2.9	1.9	23224K MB W33	11.90
120	215	58	2.1	652	765	66484	78007	79.9	0.26	2.6	3.8	2.5	22224 CC W33	9.00

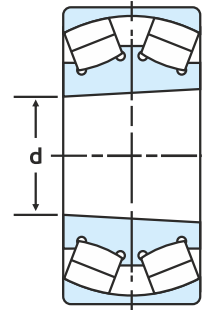
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

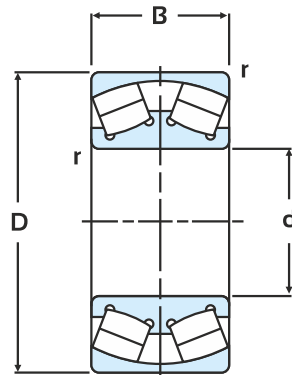
static

$$P_{or} = F_r + Y_o F_a$$

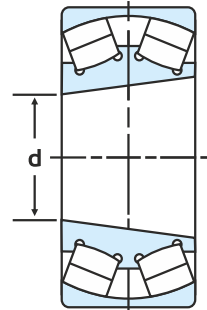
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
120	215	58	2.1	652	765	66484	78007	79.9	0.26	2.6	3.8	2.5	22224K CC W33	8.86
120	260	86	3	880	1130	89734	115226	113.7	0.34	2.0	3.0	2.0	22324 CC W33	23.50
120	260	86	3	880	1130	89734	115226	113.7	0.34	2.0	3.0	2.0	22324K CC W33	22.73
120	260	86	3	884	1154	90141	117673	116.1	0.35	1.9	2.9	1.9	22324 MB W33	22.67
120	260	86	3	884	1154	90141	117673	116.1	0.35	1.9	2.9	1.9	22324K MB W33	22.40
130	200	52	2	375	620	38239	63221	65.1	0.25	2.7	4.0	2.6	23026 MB W33	6.00
130	200	52	2	375	620	38239	63221	65.1	0.25	2.7	4.0	2.6	23026K MB W33	5.87
130	210	64	2	459	721	46804	73520	75.0	0.28	2.4	3.6	2.4	23126 MB W33	8.60
130	210	64	2	459	721	46804	73520	75.0	0.28	2.4	3.6	2.4	23126K MB W33	8.11
130	230	64	3	563	832	57409	84839	85.1	0.26	2.6	3.8	2.5	22226 CC W33	11.10
130	230	64	3	563	832	57409	84839	85.1	0.26	2.6	3.8	2.5	22226K CC W33	11.05
130	230	64	3	570	729	58123	74336	74.5	0.28	2.4	3.6	2.4	22226 MB W33	11.30
130	230	64	3	570	729	58123	74336	74.5	0.28	2.4	3.6	2.4	22226K MB W33	11.26
130	280	93	4	1142	1377	116490	140413	135.4	0.33	2.0	3.0	2.0	22326 MB W33	27.50
130	280	93	4	1142	1377	116490	140413	135.4	0.33	2.0	3.0	2.0	22326K MB W33	27.10
130	230	80	3	662	1008	67504	102786	103	0.34	2.0	3.0	2.0	23226 MB W33	14.4

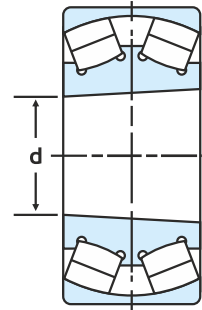
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

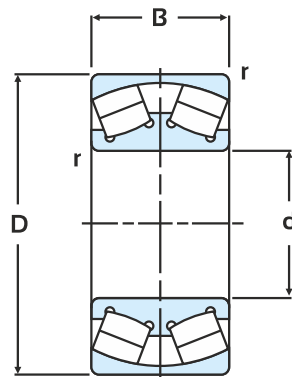
static

$$P_{or} = F_r + Y_o F_a$$

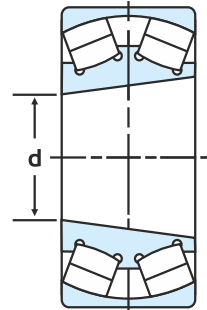
For values of e , Y_2 and Y_o
see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic	Static	Dynamic	Static							
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
130	230	80	3	662	1008	67504	102786	103	0.34	2.0	3.0	2.0	23226K MB W33	13.8
140	210	53	2	400	675	40788	68830	69.6	0.23	3.0	4.4	2.9	23028 CA W33	7.00
140	210	53	2	400	675	40788	68830	69.6	0.23	3.0	4.4	2.9	23028K CA W33	6.77
140	210	53	2	415	695	42318	70869	71.7	0.23	3.0	4.4	2.9	23028 MB W33	6.66
140	210	53	2	415	695	42318	70869	71.7	0.23	3.0	4.4	2.9	23028K MB W33	6.62
140	210	69	2	525	945	53534	96362	97.4	0.29	2.3	3.4	2.2	24028 CC W33	8.45
140	210	69	2	525	945	53534	96362	97.4	0.29	2.3	3.4	2.2	24028K30 CC W33	8.40
140	210	69	2	510	930	52005	94832	95.9	0.32	2.1	3.2	2.1	24028 MB W33	8.50
140	210	69	2	510	930	52005	94832	95.9	0.32	2.1	3.2	2.1	24028K30 MB W33	8.47
140	225	68	2.1	540	895	55064	91263	91.1	0.29	2.4	3.5	2.3	23128 MB W33	10.7
140	225	68	2.1	540	895	55064	91263	91.1	0.29	2.4	3.5	2.3	23128K MB W33	10.4
140	225	68	2.1	550	900	56084	91773	91.6	0.28	2.4	3.6	2.4	23128 CC W33	11.8
140	225	68	2.1	550	900	56084	91773	91.6	0.28	2.4	3.6	2.4	23128K CC W33	11.1
140	250	68	3	634	924	64649	94220	92.2	0.27	2.5	3.7	2.4	22228 MB W33	14.8
140	250	68	3	634	924	64649	94220	92.2	0.27	2.5	3.7	2.4	22228K MB W33	14.0
140	250	68	3	639	933	65159	95138	93.1	0.27	2.5	3.7	2.4	22228 CC W33	14.3
140	250	68	3	639	933	65159	95138	93.1	0.27	2.5	3.7	2.4	22228K CC W33	14.0

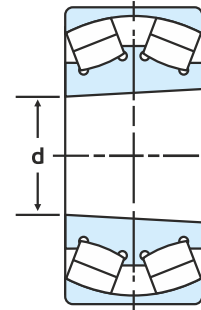
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

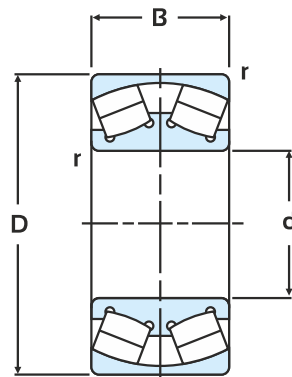
static

$$P_{or} = F_r + Y_o F_a$$

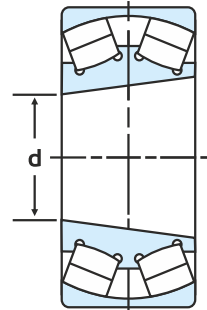
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic	Static	Dynamic	Static							
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
140	250	88	3	826	1320	84227	134600	131.7	0.34	2.0	3.0	2.0	23228K MB W33	19.3
140	250	88	3	826	1320	84227	134600	131.7	0.34	2.0	3.0	2.0	23228 MB W33	18.5
140	280	93	4	830	1250	84635	127463	122.0	0.36	1.9	2.8	1.8	73727	26.0
140	300	102	4	1292	1620	131793	165191	155.9	0.35	1.9	2.9	1.9	22328 MB W33	35.5
140	300	102	4	1292	1620	131793	165191	155.9	0.35	1.9	2.9	1.9	22328K MB W33	35.5
150	225	56	2.1	450	795	45887	81066	80.3	0.23	2.9	4.3	2.8	23030 MB W33	8.10
150	225	56	2.1	450	795	45887	81066	80.3	0.23	2.9	4.3	2.8	23030K MB W33	7.50
150	225	56	2.1	531	820	54146	83615	82.8	0.24	2.8	4.2	2.8	23030K CC W33	7.70
150	225	56	2.1	531	820	54146	83615	82.8	0.24	2.8	4.2	2.8	23030 CC W33	8.35
150	225	75	2.1	680	1116	69323	110128	112.7	0.33	2.0	3.0	2.0	24030EK30 MB W33	10.37
150	225	75	2.1	680	1116	69323	113799	112.7	0.33	2.0	3.0	2.0	24030E MB W33	10.52
150	270	73	3	680	965	69340	98401	94.2	0.27	2.5	3.7	2.4	22230 MB W33	21.1
150	250	80	2.1	730	1190	74438	121344	117.9	0.31	2.2	3.2	2.1	23130K MB W33	16.0
150	250	80	2.1	745	1244	75968	126851	123.2	0.31	2.2	3.2	2.1	23130 MB W33	16.3
150	270	73	3	800	1200	81576	122364	117.1	0.27	2.5	3.7	2.4	22230K MB W33	18.6
150	270	96	3	950	1500	96872	152955	146.4	0.36	1.9	2.8	1.8	23230K MB W33	23.4

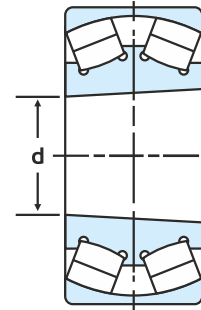
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

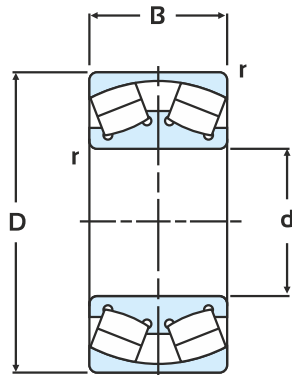
static

$$P_{or} = F_r + Y_o F_a$$

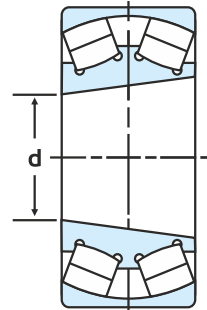
For values of e , Y_2 and Y_o
see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y ₁	Y ₂	Y _o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
150	270	96	3	960	1520	96872	152955	146.4	0.36	1.9	2.8	1.8	23230 MB W33	24.4
150	320	108	4	1270	1750	129502	178448	165.2	0.36	1.9	2.8	1.8	22330E1 MB W33	43.9
150	320	108	4	1270	1750	129502	178448	165.2	0.36	1.9	2.8	1.8	22330 MB W33	43.9
150	320	108	4	1270	1750	129502	178448	165.2	0.36	1.9	2.8	1.8	22330K MB W33	41.9
160	240	60	2.1	500	875	50985	89224	86.7	0.22	3.0	4.5	2.9	23032 MB W33	9.60
160	240	60	2.1	500	875	50985	89224	86.7	0.22	3.0	4.5	2.9	23032K MB W33	9.57
160	240	80	2.1	796	1329	81201	135518	131.6	0.32	2.1	3.1	2.0	24032E MB W33	12.8
160	240	80	2.1	796	1329	81201	135518	131.6	0.32	2.1	3.1	2.0	24032EK30 MB W33	12.6
160	270	86	2.1	837	1362	85349	138883	131.6	0.31	2.2	3.2	2.1	23132K MB W33	20.5
160	270	86	2.1	839	1350	85553	137660	130.9	0.31	2.2	3.2	2.1	23132 MB W33	20.2
160	290	80	3	862	1276	87898	130114	122.0	0.28	2.4	3.6	2.4	22232 MB W33	23.5
160	290	80	3	862	1276	87898	130114	122.0	0.28	2.4	3.6	2.4	22232K MB W33	20.1
160	290	104	3	1100	1760	112167	179467	168.3	0.36	1.9	2.8	1.8	23232 MB W33	30.9
160	290	104	3	1100	1760	112167	179467	168.3	0.36	1.9	2.8	1.8	23232K MB W33	29.6
170	260	67	2.1	630	1090	64241	111147	105.7	0.24	2.8	4.2	2.8	23034K MB W33	12.7
170	260	67	2.1	640	1080	65261	110128	104.7	0.24	2.8	4.2	2.8	23034 MB W33	13.2

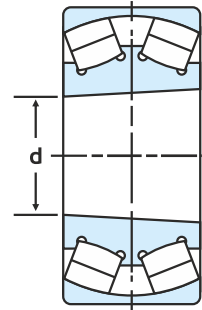
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

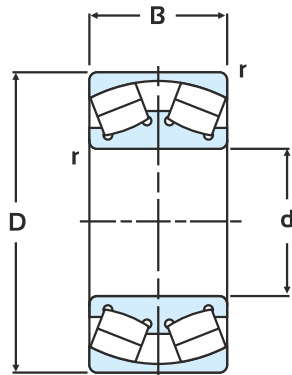
static

$$P_{or} = F_r + Y_o F_a$$

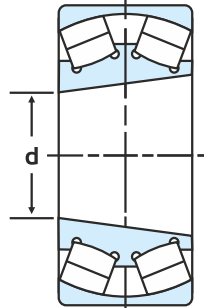
For values of e , Y_2 and Y_o
see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
170	260	90	2.1	700	1450	71379	147857	140.5	0.34	2.0	3.0	2.0	24034 MB W33	17.9
170	260	67	2.1	728	1100	74234	112167	106.6	0.23	2.9	4.3	2.9	23034 CC W33	12.8
170	260	67	2.1	728	1100	74234	112167	106.6	0.23	2.9	4.3	2.9	23034K CC W33	11.7
170	260	90	2.1	820	1500	83615	152955	145.4	0.34	2.0	3.0	2.0	24034K30 MB W33	17.5
170	280	88	2.1	840	1530	85655	156014	146.3	0.30	2.2	3.3	2.2	23134 MB W33	21.9
170	280	88	2.1	895	1550	91263	158054	148.2	0.30	2.2	3.3	2.2	23134K MB W33	21.8
170	310	86	4	990	1440	100950	146837	135.0	0.27	2.5	3.8	2.5	22234K MB W33	27.1
170	310	86	4	999	1518	101868	154790	142.4	0.27	2.5	3.8	2.5	22234 MB W33	28.5
170	280	109	2.1	1020	1800	104009	183546	172.1	0.36	1.9	2.8	1.8	24134 MB W33	26.9
170	280	109	2.1	1020	1800	104009	183546	172.1	0.36	1.9	2.8	1.8	24134K30 MB W33	24.5
170	280	88	2.1	1086	1519	110739	154892	145.2	0.30	2.2	3.3	2.2	23134 CC W33	21.4
170	280	88	2.1	1086	1519	110739	154892	145.2	0.30	2.2	3.3	2.2	23134K CC W33	19.1
170	310	110	4	1180	1960	120325	199861	183.8	0.35	1.9	2.9	1.9	23234K MB W33	35.3
170	310	110	4	1206	1946	122976	198434	182.5	0.35	1.9	2.9	1.9	23234 MB W33	37.3
170	360	120	4	1400	1790	142758	182526	163.0	0.36	1.9	2.8	1.8	22334E1 MB W33	63.2

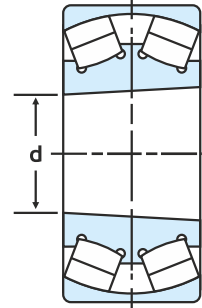
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

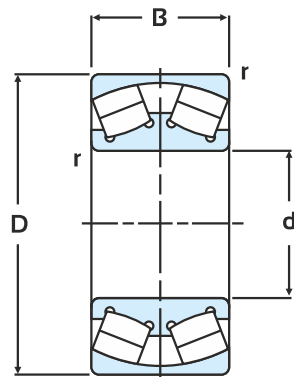
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$$P_{or} = F_r + Y_o F_a$$

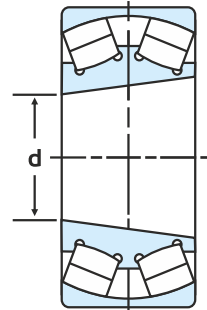
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y ₁	Y ₂	Y _o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
170	310	110	4	1472	1980	150100	201901	185.7	0.35	1.9	2.9	1.9	23234 CC W33	37.0
170	360	120	4	1540	2240	157034	228413	203.9	0.36	1.9	2.8	1.8	22334E1 CC W33	58.5
170	360	120	4	1550	2150	158054	219236	195.7	0.35	1.9	2.9	1.9	22334 CA W33	60.0
170	360	120	4	1550	2200	158054	224334	200.3	0.36	1.9	2.8	1.8	22334 MB W33	61.5
170	360	120	4	1550	2200	158054	224334	200.3	0.36	1.9	2.8	1.8	22334K MB W33	59.3
180	280	74	2.1	756	1308	77089	133377	124.2	0.25	2.7	4.0	2.6	23036 MB W33	17.5
180	280	74	2.1	740	1290	75458	131541	122.5	0.25	2.7	4.0	2.6	23036K MB W33	16
180	280	74	2.1	752.5	1300	76732	132551	123.5	0.24	2.8	4.2	2.7	23036 CC W33	17.2
180	280	74	2.1	752.5	1300	76732	132551	123.5	0.24	2.8	4.2	2.7	23036K CC W33	16.8
180	280	100	2.1	930	1700	94832	173349	161.5	0.35	1.9	2.9	1.9	24036 CA W33	23.5
180	320	86	4	940	1390	95852	141738	128.8	0.28	2.4	3.6	2.3	22236 MB W33	30
180	280	100	2.1	970	1770	98911	180487	168.1	0.33	2.0	3.0	2.0	24036K30 MB W33	22.5
180	300	96	3	1030	1730	105029	176408	162.2	0.33	2.0	3.0	2.0	23136 MB W33	26
180	300	96	3	1030	1730	105029	176408	162.2	0.33	2.0	3.0	2.0	23136K MB W33	25.9
180	320	86	4	1040	1610	106049	164172	149.2	0.28	2.4	3.6	2.3	22236K MB W33	28.1

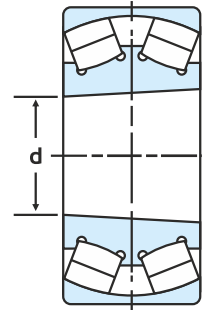
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

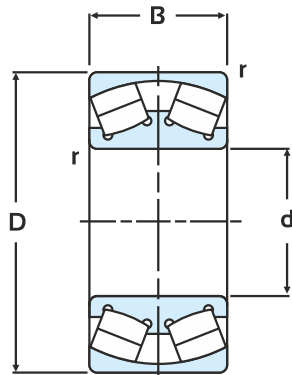
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$$P_{or} = F_r + Y_o F_a$$

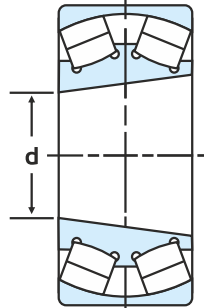
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y ₁	Y ₂	Y _o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
180	300	96	3	1050	1750	107069	178448	164.1	0.30	2.3	3.4	2.2	23136K CA W33	26.64
180	320	112	4	1230	2030	125423	206999	188.1	0.35	1.9	2.9	1.9	23236 MB W33	39.4
180	320	112	4	1230	2130	125423	217196	197.3	0.35	1.9	2.9	1.9	23236K MB W33	36.2
180	300	118	3	1438	2201	146633	224436	206.4	0.38	1.8	2.7	1.7	24136 CC W33	33.5
180	380	126	4	1730	2560	176408	261043	229	0.36	1.9	2.8	1.9	22336K MB W33	69
180	380	126	4	1730	2560	176408	261043	229	0.36	1.9	2.8	1.9	22336 MB W33	70.5
180	280	100	2.1	970	1770	98911	180487	168	0.35	1.9	2.9	1.9	24036 MB W33	22.9
180	300	118	3	1110	1890	113187	192723	177	0.39	1.7	2.5	1.7	24136 MB W33	33.4
180	300	118	3	1110	1890	113187	192723	177	0.39	1.7	2.5	1.7	24136K30 MB W33	32.9
190	290	75	2.1	657	1319	66994	134498	123.7	0.23	2.9	4.3	2.9	23038 CC W33	17.6
190	290	75	2.1	760	1350	77497	137660	126.6	0.23	2.9	4.4	2.9	23038 MB W33	18
190	290	75	2.1	760	1350	77497	137660	126.6	0.23	2.9	4.4	2.9	23038K MB W33	17.5
190	290	75	2.1	916	1355	93405	138169	127.1	0.23	2.9	4.3	2.8	23038K CC W33	17.4
190	340	92	4	1120	1680	114206	171310	152.9	0.28	2.4	3.6	2.4	22238 MB W33	37
190	340	92	4	1150	1820	117266	185585	165.7	0.27	2.5	3.7	2.4	22238K MB W33	35.6
190	320	104	3	1190	2020	121344	205979	186.0	0.33	2.1	3.1	2.0	23138 MB W33	35.1

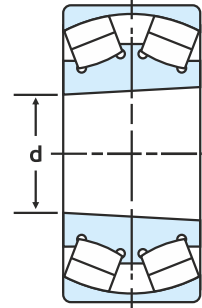
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

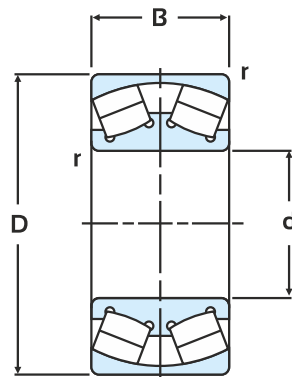
static

$$P_{or} = F_r + Y_o F_a$$

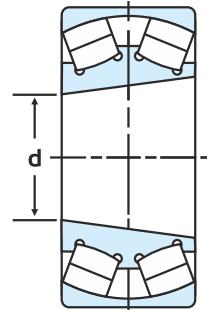
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
190	320	104	3	1190	2020	121344	205979	186.0	0.33	2.1	3.1	2.0	23138K MB W33	34.7
190	320	128	3	1420	2480	144797	252886	228.4	0.39	1.7	2.6	1.7	24138 MB W33	41.6
190	340	120	4	1450	2370	147857	241669	215.8	0.35	1.9	2.9	1.9	23238 MB W33	48.1
190	340	120	4	1450	2350	147857	239630	213.9	0.35	1.9	2.9	1.9	23238K MB W33	47.6
190	320	128	3	1420	2480	144797	252886	228	0.39	1.7	2.6	1.7	24138K30 MB W33	41.2
200	310	82	2.1	910	1614	92793	164580	148.6	0.25	2.7	4.0	2.6	23040 MB W33	23.7
200	310	82	2.1	1038	1606	105845	163764	147.9	0.24	2.8	4.2	2.7	23040 CC W33	23.1
200	310	82	2.1	1038	1606	105845	163764	147.9	0.24	2.8	4.2	2.7	23040K CC W33	22.3
200	310	109	2.1	1150	2150	117266	219236	198.0	0.33	2.0	3.0	2.0	24040K30 MB W33	30
200	360	98	4	1190	1810	121344	184566	162.1	0.28	2.4	3.6	2.4	22240 MB W33	44.5
200	360	98	4	1190	1810	121344	184566	162.1	0.28	2.4	3.6	2.4	22240K MB W33	44.0
200	310	109	2.1	1310	2090	133581	213117	192.5	0.34	2.0	2.9	1.9	24040 MB W33	30.4
200	340	112	3	1340	2220	136640	226373	201.0	0.32	2.1	3.2	2.1	23140K MB W33	42.0
200	340	112	3	1355	2280	138169	232492	206.4	0.32	2.1	3.2	2.1	23140 MB W33	42.5
200	360	98	4	1500	1950	152955	198842	174.6	0.26	2.6	3.9	2.5	22240K CC W33	42.2
200	360	98	4	1500	1950	152955	198842	174.6	0.26	2.6	3.9	2.5	22240 CC W33	42.7

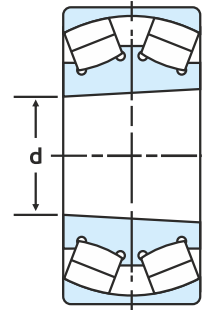
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

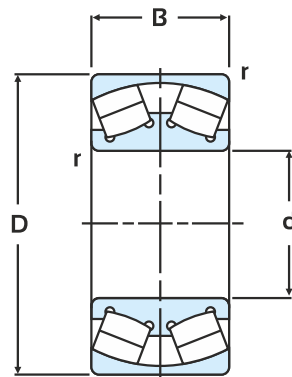
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$$P_{or} = F_r + Y_o F_a$$

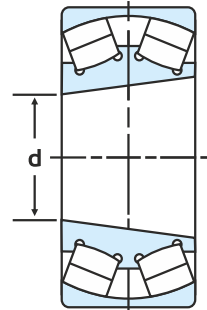
For values of e , Y_2 and Y_o
see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
200	360	128	4	1620	2630	165191	268181	235.5	0.35	1.9	2.8	1.9	23240 MB W33	57.9
200	360	128	4	1620	2640	165191	269201	236.4	0.35	1.9	2.8	1.9	23240K MB W33	57.4
200	420	138	5	2040	3050	208019	311009	264.9	0.35	1.9	2.9	1.9	22340 MB W33	94.5
200	420	138	5	2040	3050	208019	311009	264.9	0.35	1.9	2.9	1.9	22340K MB W33	90.3
200	310	82	2.1	878	1550	89530	158054	143	0.25	2.7	4.1	2.7	23040K MB W33	22.6
220	340	90	3	1100	1920	112167	195782	171.9	0.25	2.7	4.1	2.7	23044 MB W33	30.1
220	340	90	3	1100	1920	112167	195782	171.9	0.25	2.7	4.1	2.7	23044K MB W33	30.95
220	340	118	3	1355	2580	138169	263083	231.0	0.33	2.1	3.1	2.0	24044K30 MB W33	38.6
220	340	118	3	1355	2580	138169	263083	231.0	0.33	2.1	3.1	2.0	24044 MB W33	39.3
220	400	108	4	1835	2460	187115	250846	213.7	0.27	2.5	3.7	2.4	22244 MB W33	62.0
220	400	108	4	1835	2460	187115	250846	213.7	0.27	2.5	3.7	2.4	22244K MB W33	59.0
220	370	120	4	1520	2590	154994	264102	228	0.32	2.1	3.1	2.1	23144 MB W33	52.7
220	370	120	4	1520	2590	154994	264102	228	0.32	2.1	3.1	2.1	23144K MB W33	51.1
220	400	144	4	1870	3020	190684	307949	262	0.37	1.8	2.7	1.8	23244 MB W33	79.2
220	400	144	4	1870	3020	190684	307949	262	0.37	1.8	2.7	1.8	23244K MB W33	78.0
240	360	92	3	1130	2170	115226	221275	190.3	0.25	2.7	4.0	2.7	23048K MB W33	33.5

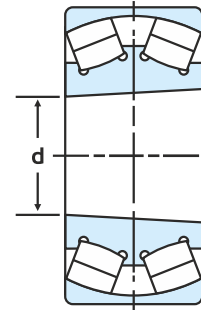
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

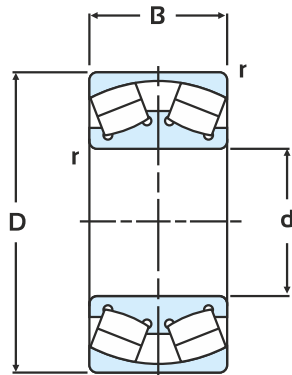
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$$P_{or} = F_r + Y_o F_a$$

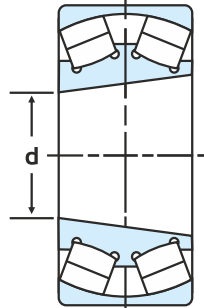
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y ₁	Y ₂	Y _o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
240	360	92	3	1130	2170	115226	221275	190.3	0.25	2.7	4.0	2.7	23048 MB W33	33.7
240	360	118	3	1370	2670	139699	272260	234.2	0.31	2.2	3.2	2.1	24048K30 MB W33	40.0
240	360	118	3	1370	2670	139699	272260	234.2	0.31	2.2	3.2	2.1	24048 MB W33	42.0
240	400	128	4	1730	3050	176408	311009	262.4	0.30	2.2	3.3	2.2	23148K MB W33	64.6
240	400	128	4	1770	3090	180487	315087	265.8	0.30	2.2	3.3	2.2	23148 MB W33	67.0
240	440	120	4	1900	3050	193743	311009	257.7	0.27	2.5	3.7	2.4	22248 MB W33	83.0
240	440	120	4	1900	3050	193743	311009	257.7	0.27	2.5	3.7	2.4	22248K MB W33	82.6
240	440	120	4	1940	3130	197822	319166	264.4	0.27	2.5	3.7	2.5	22248 CC W33	81.4
240	440	120	4	1940	3130	197822	319166	264.4	0.27	2.5	3.7	2.5	22248K CC W33	79.9
240	400	128	4	2130	3240	217196	330383	278.7	0.30	2.3	3.4	2.2	23148 CC W33	62.2
240	400	128	4	2130	3240	217196	330383	278.7	0.30	2.3	3.4	2.2	23148K CC W33	61.8
240	440	160	4	2430	4100	247787	418077	346	0.36	1.9	2.8	1.9	23248 MB W33	110
240	440	160	4	2430	4100	247787	418077	346	0.36	1.9	2.8	1.9	23248K MB W33	107
260	360	75	2.1	976	1790	99523	182526	155.5	0.18	3.8	5.6	3.8	23952 CA W33	22.9
260	400	104	4	1400	2610	142758	266142	222.5	0.24	2.8	4.2	2.7	23052K MB W33	45
260	400	104	4	1450	2700	147857	275319	230.1	0.24	2.8	4.2	2.7	23052 MB W33	47.2

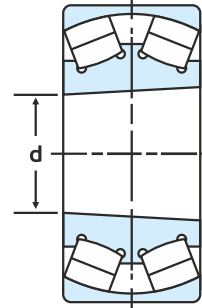
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

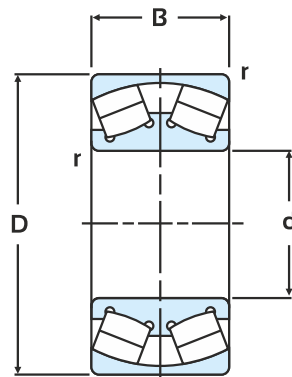
static

$$P_{or} = F_r + Y_o F_a$$

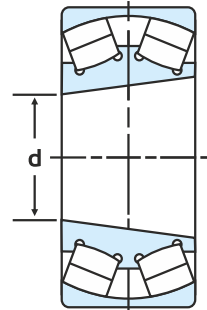
For values of e , Y_2 and Y_o
see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y ₁	Y ₂	Y _o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
260	400	104	4	1671	2580	170392	263083	219.9	0.23	2.9	4.3	2.8	23052 CC W33	47.2
260	400	104	4	1671	2580	170392	263083	219.9	0.23	2.9	4.3	2.8	23052K CC W33	46.4
260	440	144	4	2120	3830	216176	390545	320.7	0.32	2.1	3.2	2.1	23152K MB W33	92.0
260	440	144	4	2120	3830	216176	390545	320.7	0.32	2.1	3.2	2.1	23152 MB W33	94.0
260	540	165	6	3200	4750	326304	484358	382.2	0.31	2.1	3.2	2.1	22352 CC W33	181
260	540	165	6	2880	4460	293674	454786	359	0.34	2.0	2.9	2.0	22352 MB W33	186
260	540	165	6	2880	4460	293674	454786	359	0.34	2.0	2.9	2.0	22352K MB W33	182
260	480	174	5	2610	4260	266142	434392	351	0.37	1.8	2.7	1.8	23252 MB W33	139
260	480	174	5	2610	4260	266142	434392	351	0.37	1.8	2.7	1.8	23252K MB W33	135
260	400	140	4	1830	3550	186605	361994	303	0.33	2.0	3.0	2.0	24052 MB W33	65.4
260	400	140	4	1830	3550	186605	361994	303	0.33	2.0	3.0	2.0	24052K30 MB W33	64.3
280	420	106	4	1320	2850	134600	290615	238.7	0.24	2.9	4.3	2.8	23056 MB W33	52.5
280	420	106	4	1500	2800	152955	285516	234.5	0.24	2.9	4.3	2.8	23056K CA W33	54
280	420	106	4	1540	2950	157034	300812	247.1	0.23	2.9	4.3	2.8	23056K MB W33	49.8
280	460	146	5	2295	4150	234021	423176	341.8	0.30	2.3	3.4	2.2	23156K MB W33	96.2
280	460	146	5	2300	4250	234531	433373	350.0	0.30	2.3	3.4	2.2	23156E CA W33	97.5

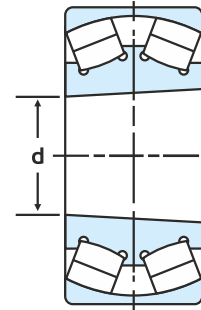
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

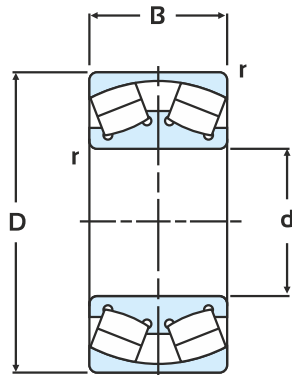
static

$$P_{or} = F_r + Y_o F_a$$

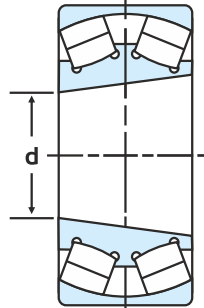
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
280	500	130	5	2310	3800	235551	387486	308.1	0.26	2.6	3.8	2.5	22256 MB W33	113
280	500	130	5	2310	3800	235551	387486	308.1	0.26	2.6	3.8	2.5	22256K MB W33	111
280	460	180	5	2730	5200	278378	530244	428.3	0.40	1.7	2.5	1.6	24156E CC W33X	121
280	460	180	5	2767	5308	282151	541257	437.2	0.36	1.9	2.8	1.8	24156 CC W33	114
280	500	176	5	2820	4790	287555	488436	388.3	0.36	1.9	2.8	1.8	23256K MB W33	145
280	500	176	5	2820	4790	287555	488436	388.3	0.36	1.9	2.8	1.8	23256 MB W33	148
280	580	175	6	3340	5080	340580	518008	400	0.31	2.2	3.2	2.2	22356 MB W33	225
280	580	175	6	3340	5080	340580	518008	400	0.31	2.2	3.2	2.2	22356K MB W33	221
280	460	146	5	2295	4150	234021	423176	342	0.30	2.3	3.4	2.3	23156 MB W33	99.3
280	420	140	4	1800	3570	183546	364033	299	0.32	2.1	3.2	2.1	24056 MB W33	67.8
280	420	140	4	1800	3570	183546	364033	299	0.32	2.1	3.2	2.1	24056K30 MB W33	66.7
300	440	105	4	1450	2760	147857	281437	227.3	0.21	3.2	4.7	3.1	3760	55
300	460	118	4	1840	3440	187625	350777	281.1	0.24	2.9	4.3	2.8	23060CK W33	70
300	460	118	4	1890	3550	192723	361994	290.1	0.24	2.9	4.3	2.8	23060K MB W33	70
300	460	118	4	1890	3550	192723	361994	290.1	0.24	2.9	4.3	2.8	23060 MB W33	72.5
300	500	160	5	2720	4690	277358	478239	377.3	0.31	2.2	3.3	2.2	23160K MB W33	127

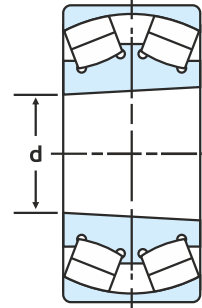
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

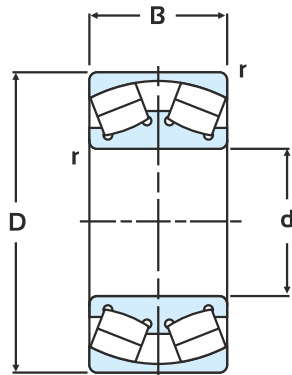
static

$$P_{or} = F_r + Y_o F_a$$

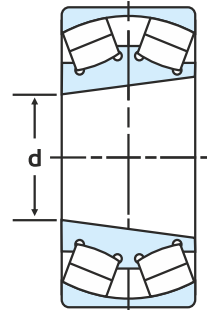
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y_1	Y_2	Y_o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
300	500	160	5	2720	4690	277358	478239	377.3	0.31	2.2	3.3	2.2	23160 MB W33	131
300	500	200	5	3300	6400	336501	652608	514.9	0.40	1.7	2.5	1.7	24160E CC W33X	159
320	480	121	4	1940	3790	197822	386466	304.9	0.23	2.9	4.4	2.9	23064 CA W33	80.1
320	480	160	4	2511	5201	256047	530346	418.5	0.35	1.9	2.9	1.9	24064 CC W33	97.8
320	480	160	4	2892	5212	294897	531468	419.3	0.30	2.3	3.4	2.2	24064 CA W33	103.6
320	540	176	5	3650	5800	372191	591426	456.6	0.32	2.1	3.1	2.1	23164 MB W33	167
320	540	176	5	3650	5800	372191	591426	456.6	0.32	2.1	3.1	2.1	23164K MB W33	164
320	580	208	5	4000	7050	407880	718889	547.5	0.36	1.9	2.8	1.8	23264 CA W33X	240
320	580	208	5	4000	7050	407880	718889	547.5	0.36	1.9	2.8	1.8	23264 CA W33	246
320	580	208	5	4050	7130	412979	727046	553.7	0.36	1.9	2.8	1.8	23264K MB W33	243
320	580	208	5	4050	7130	412979	727046	553.7	0.36	1.9	2.8	1.8	23264 MB W33	247
320	480	121	4	1900	3695	193743	376779	297	0.24	2.8	4.1	2.8	23064 MB W33	84.8
320	480	121	4	1900	3695	193743	376779	297	0.24	2.8	4.1	2.8	23064K MB W33	76.8
340	460	90	3	1290	2720	131541	277358	218.8	0.17	4.0	6.0	3.9	23968 CA W33	44
340	520	133	5	2310	4450	235551	453767	350.4	0.24	2.8	4.2	2.8	23068K MB W33	103
340	520	133	5	2310	4450	235551	453767	350.4	0.24	2.8	4.2	2.8	23068 MB W33	107

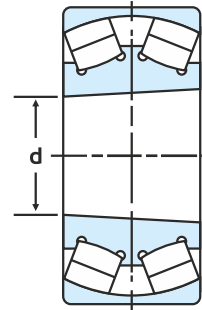
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load dynamic

$$P_r = X F_r + Y F_a$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

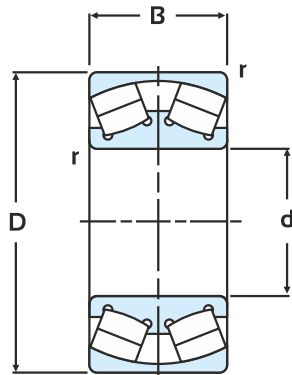
static

$$P_{or} = F_r + Y_o F_a$$

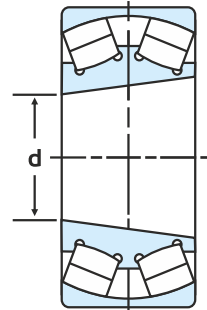
For values of e , Y_2 and Y_o see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y ₁	Y ₂	Y _o	Bearing Number	Mass Kg. (Approx.)
				Dynamic	Static	Dynamic	Static							
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
340	580	190	5	3600	6600	367092	673002	509.2	0.34	2.0	2.9	1.9	23168 MB W33	211
340	580	190	5	3600	6600	367092	673002	509.2	0.34	2.0	2.9	1.9	23168K MB W33	209
340	620	224	6	5128	7980	522851	813761	607.9	0.36	1.9	2.8	1.8	23268 CA W33	303.4
340	580	243	5	5168	8950	526981	912632	690.5	0.39	1.7	2.6	1.7	24168E CA W33	266.5
340	580	243	5	4620	8620	471101	878981	665	0.40	1.7	2.5	1.7	24168 MB W33	259
340	580	243	5	4620	8620	471101	878981	665	0.40	1.7	2.5	1.7	24168K30 MB W33	255
360	540	134	5	2370	4750	241669	484358	368.9	0.22	3.1	4.5	3.0	23072 CC W33	110
360	540	134	5	2370	4750	241669	484358	368.9	0.22	3.1	4.5	3.0	23072K CC W33	107
360	540	180	5	3100	6500	316107	662805	504.8	0.36	1.9	2.8	1.8	24072 CA W33	145
360	540	180	5	3200	6650	326304	678101	516.5	0.31	2.2	3.3	2.2	24072 MB W33	147
360	600	192	5	3650	6850	372191	698495	522	0.31	2.2	3.2	2.2	23172 MB W33	227
360	600	192	5	3650	6850	372191	698495	522	0.31	2.2	3.2	2.2	23172K MB W33	220
360	540	180	5	3200	6650	326304	678101	516	0.36	1.9	2.8	1.9	24072K30 MB W33	145
400	590	142	5	2450	5000	249827	509850	377.4	0.22	3.1	4.6	3.0	3880	134
400	600	148	5	2980	6050	303871	616919	455.3	0.22	3.1	4.6	3.0	23080 CA W33	154
400	650	250	6	5100	10500	520047	1070685	778.6	0.36	1.9	2.8	1.8	24180E CA W33	322

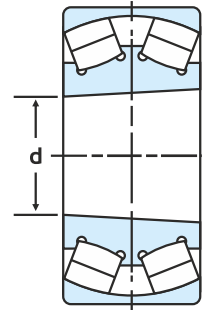
Spherical Roller Bearing



Cylindrical bore



Tapered bore (K)
(1:12)



Tapered bore (K30)
(1:30)

Equivalent radial load

dynamic
 $P_r = XF_r + YF_a$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

static

$P_{or} = F_r + Y_o F_a$

For values of e , Y_2 and Y_o
see the table below.

Boundary Dimensions				Basic Load Rating (KN)				Fatigue load limit	e	Y ₁	Y ₂	Y _o	Bearing Number	Mass Kg. (Approx.)
				Dynamic		Static								
mm				KN		Kgf		KN						
d	D	B	r	Cr	Cor	Cr	Cor	Cu						
420	760	272	7.5	6550	12100	667904	1233837	866.4	0.36	1.9	2.8	1.9	23284K MB W33	526
420	760	272	7.5	6550	12100	667904	1233837	866.4	0.36	1.9	2.8	1.9	23284 MB W33	521
440	720	226	6	5200	10100	530244	1029897	726.9	0.30	2.2	3.3	2.2	23188 CA W33	377
440	720	280	6	6450	13100	657707	1335807	942.8	0.37	1.8	2.7	1.8	24188 MB W33	473
440	720	280	6	6450	13100	657707	1335807	942.8	0.37	1.8	2.7	1.8	24188K30 MB W33	467
480	870	310	7.5	8350	15500	851450	1580535	1066	0.36	1.9	2.8	1.9	23296K MB W33	784
480	650	128	5	2875	5684	293164	579597	412.3	0.18	3.8	5.6	3.7	23996 MB W33	125
480	790	308	7.5	7450	15300	759677	1560141	1071.6	0.38	1.8	2.7	1.7	24196E CA W33	587
480	870	310	7.5	8300	15500	846351	1580535	1065.9	0.36	1.9	2.8	1.8	23296 CA W33	820
480	870	310	7.5	8350	15500	851450	1580535	1065.9	0.36	1.9	2.8	1.8	23296 MB W33	808
750	920	170	5	3600	11050	367092	1126769	712.9	0.16	4.2	6.2	4.1	40038/750 (248/750 MB W33)	245
850	1220	365	7.5	12700	31500	1295019	3212055	1905.5	0.27	2.5	3.7	2.5	40031/850 (240/850 CA W33)	1410
850	1420	620	12	23300	49260	2375901	5023042	2898.6	0.34	2.0	3.0	1.9	241/900K30 MB W33/AH241_900G_H3480	
1180	1420	180	6	5620	17200	573071	1753884	971.7	0.10	6.4	9.6	6.3	238/1180 CA W33	565