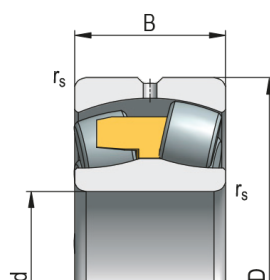


Double row spherical roller bearings with cylindrical and tapered bore



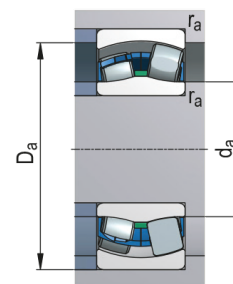
EW33J



W33M



EKW33J



Bearing Designation with Cylindrical Bore	22309W33M
Bearing Designation with Tapered Bore (1:12)	22309KW33M

Dimensions (mm)

d	45
D	100
B	36
r _s min	1,5

Abutment and Fillet Dimensions (mm)

d _a min	54
D _a max	91
r _a max	1

Basic Load Rating (kN)

C	153,4
C ⁰	178,5

Limiting Speed for Lubrication (min⁻¹)

Grease	3700
Oil	4600

Weight [kg]	1,430
Weight - K [kg]	1,400

Corresponding

Adapter Sleeve	H2309
Withdrawal Sleeve	AH2309
Withdrawal Nut	KM10

Coefficients

e	0,41
Y ₁	1,5
Y ₂	2,4
Y ₃	1,5

Tolerance Class

Tolerance Class	Inner Ring									
	Cylindrical Bore									
	Δ_{dmp}		V_{dp}			V_{dmp}	K_{ia}	Δ_{B_s}		V_{B_s}
			Diameter Series							
			7,8,9	0,1	2,3,4					
	max	min	max	max	max	max	max	max	min	max
	μm									
P0	0	-12	15	12	9	9	15	0	-120	20
P6	0	-10	13	10	8	8	10	0	-120	20

Tolerance Class	Inner Ring									
	Tapered Bore 1:12					Tapered Bore 1:30				
	Δ_{dmp}		$\Delta_{d1mp} - \Delta_{dmp}$		$V_{dp}^{1)}$	Δ_{dmp}		$\Delta_{d1mp} - \Delta_{dmp}$		$V_{dp}^{1)}$
	max	min	max	min	max	max	min	max	min	max
	μm									
P0 - P6	25	0	25	0	15	-	-	-	-	-

Tolerance Class	Outer Ring								
	Δ_{Dmp}		V_{Dp}				V_{Dmp}	K_{ea}	Δ_{CS}, V_{CS}
			Diameter Series			bearings ²⁾ with seals			
			7,8,9	0,1	2,3,4				
	max	min	max	max	max	max	max	max	
	μm								
P0	0	-15	19	19	11	26	11	35	Corresponds to Δ_{BS}, V_{BS} of the same bearing inner ring
P6	0	-13	16	16	10	20	10	18	

1) Valid in any bore radial plane

2) P0 - Valid only for bearings in diameter series 2, 3 and 4 * P6 - Valid only for bearings in diameter series 0, 1, 2, 3 and 4

Radial Clearance - Cylindrical Bore

C2		normal		C3		C4		C5	
min	max	min	max	min	max	min	max	min	max
μm									
20	35	35	55	55	75	75	100	100	125

Radial Clearance - Tapered Bore

C2		normal		C3		C4		C5	
min	max	min	max	min	max	min	max	min	max
μm									
30	45	45	60	60	80	80	100	100	130

Tolerance Symbols and Their Meaning

d	nominal bore diameter	H_4	rated height of spherical-roller bearing
d_1	nominal diameter of larger theoretical tapered bore diameter	Δ_{Bs}	inner ring single width deviation
d_2	nominal diameter of the shaft washer of double direction thrust bearings	Δ_{Cs}	outer ring single width deviation
Δ_{ds}	deviation of single bore diameter from nominal	Δ_{Is}	bearing single width deviation (total)
Δ_{dmp}	mean cylindrical bore diameter deviation in single radial plane (for tapered bore Δ_{dmp} is valid for theoretical bore diameter)	Δ_{T1s}	cone sub-unit effective width deviation
Δ_{d1mp}	deviation of mean larger theoretical diameter of tapered bore	Δ_{T2s}	cup sub-unit effective width deviation
Δ_{d2mp}	mean shaft washer bore diameter deviation of double direction thrust bearings in single radial plane	Δ_{Hs}	height deviation of single direction axial bearings from nominal value
V_{dp}	single bore diameter variation in single radial plane	Δ_{H1s}	height deviation of single direction axial ball bearings with sphered housing washer from nominal value
V_{dmp}	mean cylindrical bore diameter variation	Δ_{H2s}	height deviation of double direction axial bearings from nominal value
V_{d2p}	shaft washer bore diameter variation of double direction thrust bearings in single radial plane	Δ_{H3s}	height deviation of double direction axial ball bearings with sphered housing washer from nominal value
D	nominal outside diameter	Δ_{H4s}	height deviation of axial spherical-roller bearing from the rated value
Δ_{Ds}	deviation of single outside diameter from the nominal dimension	C	outer ring nominal width
Δ_{Dmp}	mean outside cylindrical surface diameter deviation in single plane	V_{Bs}	inner ring single width variation
V_{Dp}	single outside cylindrical surface diameter variation in single radial plane	V_{Cs}	outer ring single width variation
V_{Dmp}	mean outside cylindrical surface diameter variation	K_{ia}	radial runout of assembled bearing inner ring
B	inner ring nominal width	K_{ea}	radial runout of assembled bearing outer ring
T	total nominal width of tapered roller bearings	S_{ea}	shaft washer raceway axial runout
T_1	nominal effective width of cup sub-unit	S_i	housing washer raceway axial runout
T_2	nominal effective width of cone sub-unit	S_e	inner ring flat seat face axial runout of assembled bearing
H	rated width of unidirectional axial bearing	S_{ia}	outer ring flat seat face axial runout of assembled bearing
H_1	rated height of unidirectional ball axial bearing including the body ring	S_{ea}	flat seat face axial runout
H_2	rated height of bidirectional axial bearing	S_d	runout of outside cylindrical surface towards outer ring face
H_3	rated height of bidirectional axial ball bearing including body rings	S_D	runout of supporting face towards seat face for single row tapered roller bearings
		S_s	