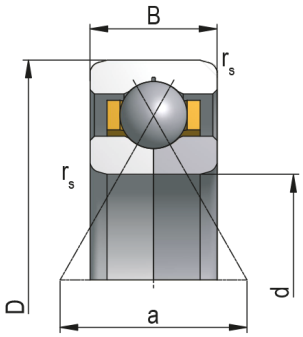
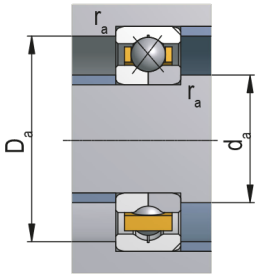
Single row
four-point angular contact ball bearings





Bearing Designation	QJ310MA

Dimensions (mm)

d	50
D	110
B	27
r_s min	2
a	56

Abutment and Fillet Dimensions (mm)

d_a min	70
D_a max	90
r_a max	1,5

Basic Load Rating (kN)

C	109,62
C_0	92,21

Limiting Speed for Lubrication (min^{-1})

Grease	4 600
Oil	6 200

Weight [kg]	1,330

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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

Axial Clearance

C2		normal		C3		C4	
min	max	min	max	min	max	min	max
µm							
35	85	75	125	110	165	150	200

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Tolerance Symbols and Their Meaning

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