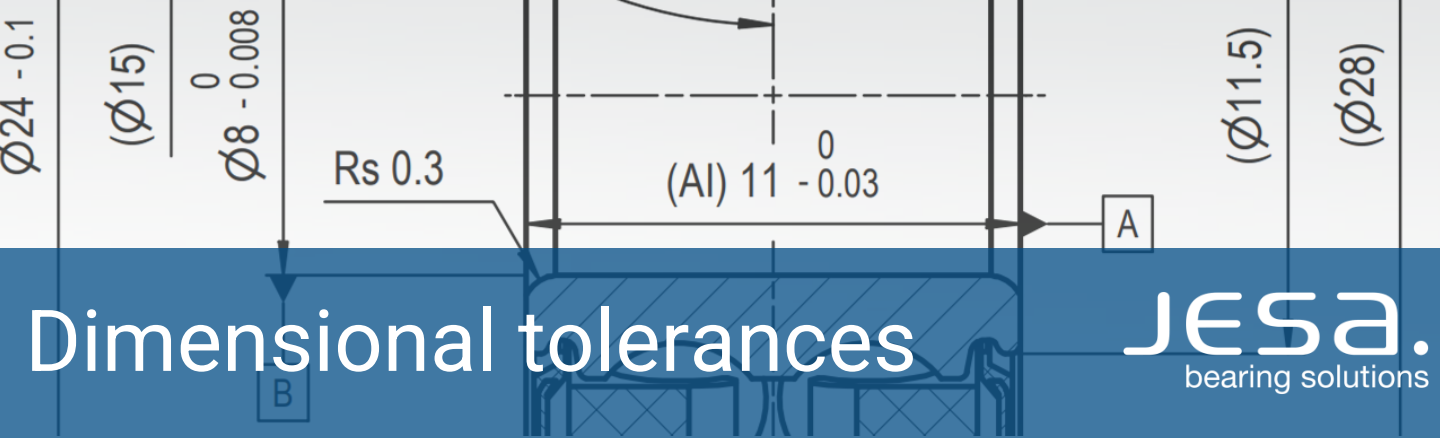


Dimensional tolerances

JESA bearing solutions

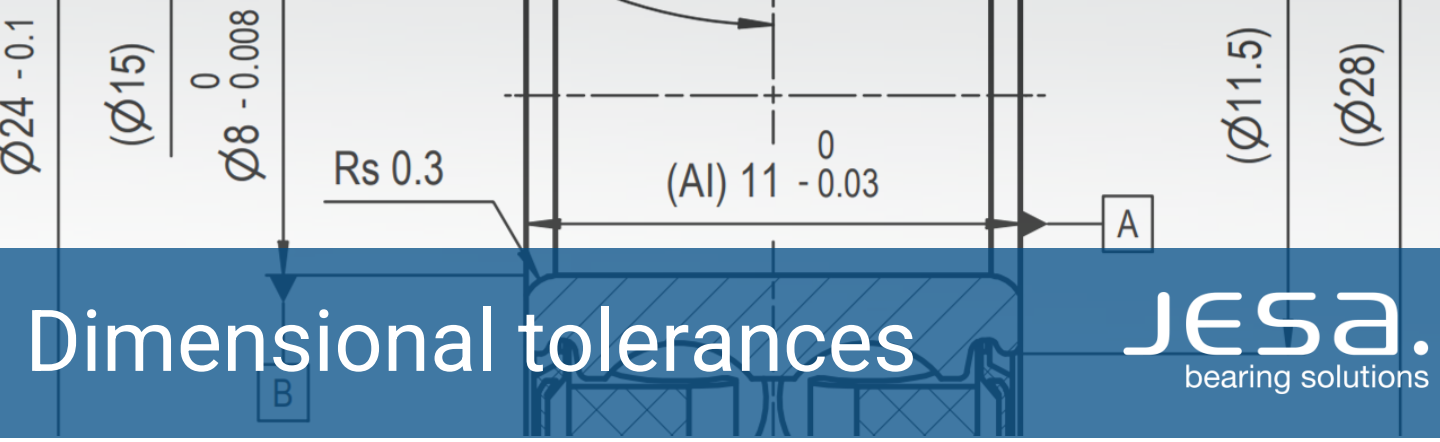
The tolerances concerning the dimensions of a bearing and the circularity of its rotation are part of international norms, such as **DIN 620 and ISO 492** for bearings with metric dimensions.

JESA bearings are manufactured according the following tolerance norms **DIN P0, P6, P5 and P4, respectively AFBMA ABEC 1, ABEC 3, ABEC 5 and ABEC 7.** For other types of functions of our special bearings, we adapt the tolerances to the requirements of the application.

The particular tolerances valid for inner and outer deep groove ball bearing rings are indicated in the following charts :

Inner ring

Tolerance class	Nominal bore		Tolerance		Bore variation				Variation	Width tolerance		Width variation	Circu-larity	Lateral runout	Axial runout
	d		Δ dmp		Vdp				Vdmp	Δ Bs		VBs	Kia	Sd	Sia
	Tolerance														
	from	to	sup	inf	Serie				max	sup	inf	max.	max.	max.	max.
					7.8.9	0.1	2.3.4	-							
	mm	mm	µm	µm	µm	µm	µm		µm	µm	µm	µm	µm	µm	mm
PO	2,5	10	0	- 8	10	8	6		6	0	- 120	15	10	-	-
ABEC 1	18	30	0	-10	13	10	8		8	0	- 120	20	13	-	-
P6	2.5	10	0	- 7	9	7	5		5	0	- 120	15	6	-	-
ABEC 3	18	30	0	- 8	10	8	6		6	0	- 120	20	8	-	-
P5	2,5	10	0	- 5	5	4	4		3	0	- 40	5	4	7	7
ABEC 5	18	30	0	- 6	6	5	5		3	0	- 120	5	4	8	8
P4	2.5	10	0	- 4	4	3	3		2	0	- 40	2.5	2.5	3	3
ABEC 7	18	30	0	- 5	5	4	4		2.5	0	- 120	2.5	3	4	4



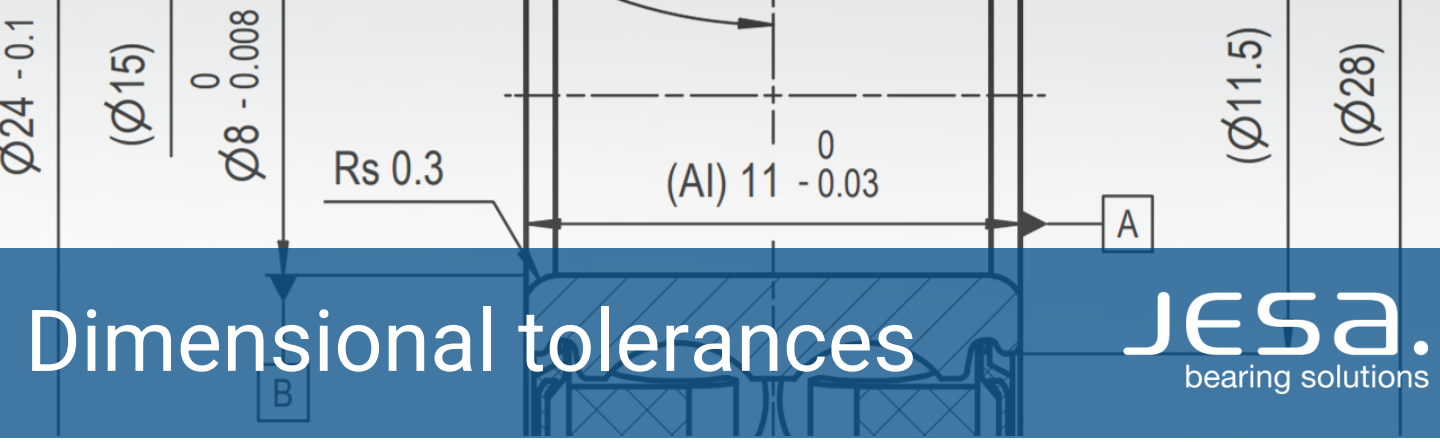
Dimensional tolerances

JESA bearing solutions

Outer ring

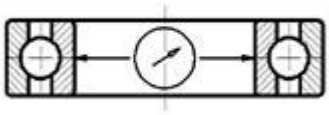
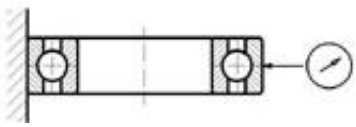
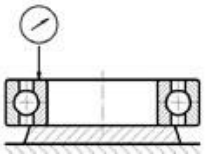
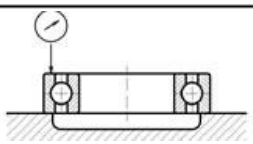
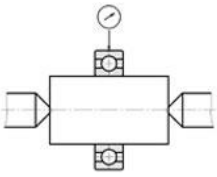
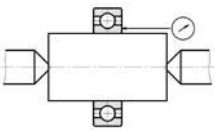
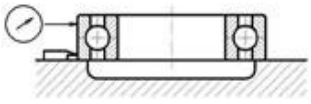
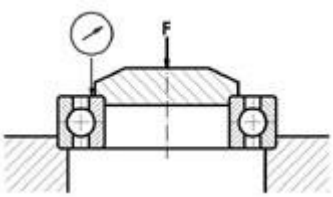
Tolerance class	Nominal outer diameter		Tolerance		Variation of outer diameter				Variation	Width tolerance	Width variation	Circu-larity	Perpendi-cularity	Axial runout
	D		Δ Dmp		VDp				VDmp	Δ Cs	VCs	Kea	SD	Sea
	Tolerance													
	from	to	sup	inf	Serie 7.8.9	Serie 0.1	Serie 2.3.4	Serie 0.1 2.3 4	max		max.	max.	max.	max.
	mm	mm	µm	µm	µm	µm	µm	µm	µm		µm	µm	µm	mm
P0	6	18	0	- 8	10	8	6	10	6	***	***		-	-
ABEC 1	30	50	0	-11	14	11	8	16	8			20	-	-
P6	6	18	0	-7	9	7	5	9	5			8	-	-
ABEC 3	30	50	0	-9	11	9	7	13	7			10	-	-
P5	6	18	0	-5	5	4	4	-	3		5	5	8	8
ABEC 5	30	50	0	- 7	7	5	5	-	4		5	7	8	8
P4	6	18	0	-4	4	3	3	3	2		2.5	3	4	5
ABEC 7	30	50	0	-6	6	5	5	5	3		2.5	5	4	5

*** The width tolerances ΔCs are identical to ΔBs for corresponding inner ring



Dimensional tolerances

JESA bearing solutions

	Vdmp Average external diameter variation : difference between the biggest and the smallest average bore diameter of a ring or a disc (conicity).	d	Nominal bore diameter
		Δdmp (dm)	Average bore diameter : arithmetic average between the biggest and the smallest bore diameter, measured in radial plan.
		Vdp	Bore diameter variation : difference between the biggest and the smallest bore diameter, measured in radial plan (circularity default).
	VDmp Average external diameter variation : difference between the biggest and the smallest average external diameter of a ring or a disc (conicity).	D	Nominal external diameter of outer ring
		ΔDmp (Dm)	Average external diameter: arithmetic average between the biggest and the smallest external diameter, measured in radial plan.
		VDp	External diameter variation : difference between the biggest and the smallest external diameter, measured in radial plan (circularity default).
		ΔBs,Cs (B)	Width tolerance : width measured from inner ring respectively outer ring, measured in an isolated point.
		VBs,VCs (Up)	Ring width variation. Difference between the biggest, respectively the smallest width of an inner, respectively outer ring.
		Kia, Kea (Ri, Ra)	False-round (radial flapping) of the inner, respectively outer ring, measured on the assembled bearing.
		Sd (Si)	Lateral flapping of the inner ring
		SD (Sa)	Lateral flapping of the outer ring : cylindrical envelope slope variation in comparison with the reference surface.
		Sia,Sea (Ai,Aa)	Axial flapping of the lateral surface in comparison with the inner, respectively outer ring trajectory of the assembled bearing.

F	D	
	mm	
kN	from	to
0.005	-	30
0.007	30	50