

P4 and ABEC 7 Precision Tolerances

In Accordance with ISO 492 and ABMA 20 Standards



Phone: (800) 323-5725

Nominal ID [mm]	Inner Ring Tolerance - Metric									
Including 10	Naminal ID [mm]		2.5					80		
Average ID tolerance	Nominal ID [mm]	Including	10	18	30	50	80	120		
Δds (Bearing Series 60 & 62) [μm] Max 0	Δ _{dmp} [μm]	Max	0	0	0	0	0	0		
Single ID tolerance	Average ID tolerance	Min	-4.0	-4.0	-5.0	-6.0	-7.0	-8.0		
V _{dp max} (Bearing Series 618 & 619) [μm] Max 4.0 4.0 5.0 6.0 7.0 8.0	Δ _{ds} (Bearing Series 60 & 62) [μm]	Max	0	0	0	0	0	0		
Difference between largest and smallest ID	Single ID tolerance	Min	-4.0	-4.0	-5.0	-6.0	-7.0	-8.0		
Difference between largest and smallest ID	74 3	Max	4.0	4.0	5.0	6.0	7.0	8.0		
Difference between largest and smallest ID	7.1	Max	3.0	3.0	4.0	5.0	5.0	6.0		
Difference between largest average ID and smallest average ID in different planes Max 2.0 2.0 2.5 3.0 3.5 4.0	, , , , ,	Max	3.0	3.0	4.0	5.0	5.0	6.0		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Difference between largest average ID and	Max	2.0	2.0	2.5	3.0	3.5	4.0		
Inner ring face runout Max 3.0 3.0 4.0 4.0 5.0 5.0 5.0		Max	2.5	2.5	3.0	4.0	4.0	5.0		
		Max	3.0	3.0	4.0	4.0	5.0	5.0		
		Max	3.0	3.0	4.0	4.0	5.0	5.0		
Δ _{BS} Bearing Pair [μm] Max 0 0 0 0 0 Inner ring pair width tolerance Min -250 -250 -250 -250 -250 -250 -380 V _{BS max} [μm] Max 2.5 2.5 2.5 3.0 4.0 4.0	Δ _{BS} Single Bearing [μm]	Max	0	0	0	0	0	0		
Inner ring pair width tolerance Min -250 -250 -250 -250 -250 -380	Single inner ring width tolerance	Min	-40	-80	-120	-120	-150	-200		
V _{BS max} [µm] Max 25 25 25 30 40 40	Δ _{BS} Bearing Pair [μm]	Max	0	0	0	0	0	0		
Max 25 25 30 40 40	Inner ring pair width tolerance	Min	-250	-250	-250	-250	-250	-380		
Difference between largest and employer width WIGA 2.0 2.0 2.0 3.0 4.0 4.0	V _{BS max} [µm]	May	2.5	2.5	2.5	3.0	4.0	4.0		
Difference between largest and smallest width	Difference between largest and smallest width	IVIAX	2.0	2.5	2.5	5.0	7.0	7.0		

Outer Ring Tolerance - Metric										
Nominal OD [mm]							120			
	Including	18	30	50	80	120	150	180		
Δ _{Dmp} [μm]	Max	0	0	0	0	0	0	0		
Average OD tolerance	Min	-4.0	-5.0	-6.0	-7.0	-8.0	-9.0	-10.0		
Δ _{Ds} (Bearing Series 60 & 62) [μm]	Max	0	0	0	0	0	0	0		
Single OD tolerance	Min	-4.0	-5.0	-6.0	-7.0	-8.0	-9.0	-10.0		
V _{Dp max} (Bearing Series 618 & 619) [μm]	Max	4.0	5.0	6.0	7.0	8.0	9.0	10.0		
Difference between largest and smallest OD	IVIAA	4.0	3.0	0.0	7.0	0.0	9.0	10.0		
V _{Dp max} (Bearing Series 60) [μm]	Max	3.0	4.0	5.0	5.0	6.0	7.0	8.0		
Difference between largest and smallest OD	IVIGA	5.0	4.0	3.0	3.0	0.0	7.0	0.0		
V _{Dp max} (Bearing Series 62) [μm]	Max	3.0	4.0	5.0	5.0	6.0	7.0	8.0		
Difference between largest and smallest OD	IVIOX	0.0	7.0	0.0	0.0	0.0	7.0	0.0		
V _{Dmp max} [µm]										
Difference between largest average OD and	Max	2.0	2.5	3.0	3.5	4.0	5.0	5.0		
smallest average OD in different planes										
K _{ea max} [µm] Assembled bearing outer ring radial runout	Max	3.0	4.0	5.0	5.0	6.0	7.0	8.0		
S _{D max} [µm] Outer ring face runout	Max	4.0	4.0	4.0	4.0	5.0	5.0	5.0		
S _{ea max} [µm] Assembled bearing outer ring axial runout	Max	5.0	5.0	5.0	5.0	6.0	7.0	8.0		
Δ _{CS} Single Bearing [μm]	Max									
Single outer ring width tolerance	Min	Identical to the App of the inner ring of the same hearing								
Δ _{CS} Bearing Pair [μm]	Max									
Outer ring pair width tolerance		Min Identical to the Δ_{BS} of the inner ring of the same bearing								
V _{CS max} [µm]	IVIIII									
	Max	2.5	2.5	2.5	3.0	4.0	5.0	5.0		
Difference between largest and smallest width										

Inner Ring Tolerance - Imperial									
Name and ID Stands	Above	0.0984	0.3937	0.7087	1.1811	1.9685	3.1496		
Nominal ID [inch]	Including	0.3937	0.7087	1.1811	1.9685	3.1496	4.7244		
Δ _{dmp} [0.0001"]	Max	0	0	0	0	0	0		
Average ID tolerance	Min	-1.6	-1.6	-2.0	-2.4	-2.8	-3.1		
Δ _{ds} (Bearing Series 60 & 62) [0.0001"]	Max	0	0	0	0	0	0		
Single ID tolerance	Min	-1.6	-1.6	-2.0	-2.4	-2.8	-3.1		
V _{dp max} (Bearing Series 618 & 619) [0.0001"] Difference between largest and smallest ID	Max	1.6	1.6	2.0	2.4	2.8	3.1		
V _{dp max} (Bearing Series 60) [0.0001"] Difference between largest and smallest ID	Max	1.2	1.2	1.6	2.0	2.0	2.4		
V _{dp max} (Bearing Series 62) [0.0001"] Difference between largest and smallest ID	Max	1.2	1.2	1.6	2.0	2.0	2.4		
V _{dmp max} [0.0001"] Difference between largest average ID and smallest average ID in different planes	Max	0.8	0.8	1.0	1.2	1.4	1.6		
K _{ia max} [0.0001"] Assembled bearing inner ring radial runout	Max	1.0	1.0	1.2	1.6	1.6	2.0		
S _{d max} [0.0001"] Inner ring face runout	Max	1.2	1.2	1.6	1.6	2.0	2.0		
S _{ia max} [0.0001"] Assembled bearing inner ring axial runout	Max	1.2	1.2	1.6	1.6	2.0	2.0		
Δ _{BS} Single Bearing [0.0001"]	Max	0	0	0	0	0	0		
Single inner ring width tolerance	Min	-15.7	-31.5	-47.2	-47.2	-59.1	-78.7		
Δ _{BS} Bearing Pair [0.0001"]	Max	0	0	0	0	0	0		
Inner ring pair width tolerance	Min	-98.4	-98.4	-98.4	-98.4	-98.4	-149.6		
V _{BS max} [0.0001"] Difference between largest and smallest width	Max	1.0	1.0	1.0	1.2	1.6	1.6		

Outer Ring Tolerance - Imperial										
Nominal OD [Inch]	Above	0.2362	0.7087	1.1811	1.9685	3.1496	4.7244	5.9055		
	Including	0.7087	1.1811	1.9685	3.1496	4.7244	5.9055	7.0866		
Δ _{Dmp} [0.0001"]	Max	0	0	0	0	0	0	0		
Average OD tolerance	Min	-1.6	-2.0	-2.4	-2.8	-3.1	-3.5	-3.9		
Δ _{Ds} (Bearing Series 60 & 62) [0.0001"]	Max	0	0	0	0	0	0	0		
Single OD tolerance	Min	-1.6	-2.0	-2.4	-2.8	-3.1	-3.5	-3.9		
V _{Dp max} (Bearing Series 618 & 619) [0.0001"]	Max	1.6	2.0	2.4	2.8	3.1	3.5	3.9		
Difference between largest and smallest OD	IVIUX	1.0	2.0					5.9		
V _{Dp max} (Bearing Series 60) [0.0001"]	Max	1.2	1.6	2.0	2.0	2.4	2.8	3.1		
Difference between largest and smallest OD	IVIOX	1.2								
V _{Dp max} (Bearing Series 62) [0.0001"]	Max	1.2	1.6	2.0	2.0	2.4	2.8	3.1		
Difference between largest and smallest OD				2.0				0		
V _{Dmp max} [0.0001"]					١					
Difference between largest average OD and	Max	8.0	1.0	1.2	1.4	1.6	2.0	2.0		
smallest average OD in different planes										
Kea max [0.0001"]	Max	1.2	1.6	2.0	2.0	2.4	2.8	3.1		
Assembled bearing outer ring radial runout										
S _{D max} [0.0001"]	Max	1.6	1.6	1.6	1.6	2.0	2.0	2.0		
Outer ring face runout										
S _{ea max} [0.0001"]	Max	2.0	2.0	2.0	2.0	2.4	2.8	3.1		
Assembled bearing outer ring axial runout										
Δ _{CS} Single Bearing [0.0001"]		Max Identical to the Δ_{BS} of the inner ring of the same bearing								
Single outer ring width tolerance		Min								
Δ _{CS} Bearing Pair [0.0001"]		Max Identical to the Δ_{BS} of the inner ring of the same bearing								
Outer ring pair width tolerance	Min	Min								
V _{CS max} [0.0001"]	Max	1.0	1.0	1.0	1.2	1.6	2.0	2.0		
Difference between largest and smallest width	- max									