

# Bearing Inserts • Materials and Tolerances

## Materials of Bearings

### Standard Bearing Inserts

Inner and outer rings, as well as balls, are made from vacuum degassed 52100 bearing steel. Composed of high carbon, chrome alloy, 52100 steel offers great longevity as it is very resistant to deformation and fatigue.

### Stainless Steel & Hard Chrome Coated Bearing Inserts

See page 52 for component detail.

## Tolerances of Rings

### Outer Ring

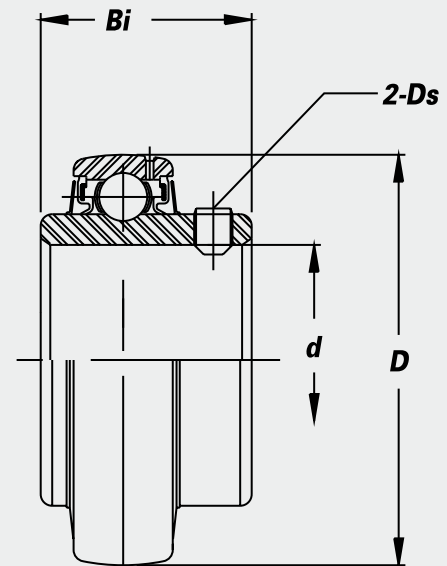
Unit=.0001 in.

Nominal Outside Diameter				Outside Diameter		Radial Run-out (max.)
D				Tolerance of Diameter		
Over		Including		High	Low	
mm	in.	mm	in.			
30	1.1811	50	1.9685	0	- 4	8
50	1.9685	80	3.1496	0	- 5	10
80	3.1496	120	4.7244	0	- 6	14
120	4.7244	150	5.9055	0	- 7	16
150	5.9055	180	7.0866	0	-10	18
180	7.0866	250	9.8425	0	-12	20
250	9.8425	315	12.4016	0	-14	24

### Inner Ring

Unit=.0001 in.

Nominal Bore Diameter				Bore Diameter				Inner Ring Width		Radial Run-outs (Max.)
d				d				Bi		
Over		Including		max.	min.	max.	min.	max.	min.	
mm	in.	mm	in.	dm	d					
10	0.3937	18	0.7087	+ 7	0	+ 9	- 2	0	- 47	6
18	0.7087	30	1.1811	+ 8	0	+10	- 2	0	- 47	7
30	1.1811	50	1.9685	+10	0	+12	- 2	0	- 47	8
50	1.9685	80	3.1496	+12	0	+14	- 2	0	- 59	10
80	3.1496	120	4.7244	+14	0	+17	- 3	0	- 79	12
120	4.7244	180	7.0866	+16	0	+19	- 3	0	- 98	14



## Internal Clearances

The Normal or C<sub>0</sub> fit is generally accepted as an industry standard, and is, therefore, adopted as our standard clearance. However, other fits are available to accommodate extreme temperatures or low tolerance applications where slow r.p.m.s allow for a tighter fit.

Unit=.0001 in.

Bore Diameter				C <sub>2</sub>		Normal		C <sub>3</sub>		C <sub>4</sub>	
Over		Including		min.	max.	min.	max.	min.	max.	min.	max.
mm	in.	mm	in.								
10	0.3937	18	0.7087	0	3	2	6	5	9	8	12
18	0.7087	24	0.9449	0	3.5	3	7	6	10	9	13
24	0.9449	30	1.1811	0	4	3	7	6	10	10	15
30	1.1811	40	1.5748	0	4	3	7	7	12	12	17
40	1.5748	50	1.9685	0	4	3	8	8	13	13	19
50	1.9685	65	2.5591	0	5	4	10	10	16	16	23
65	2.5591	80	3.1496	0	5	5	11	11	19	19	27
80	3.1496	100	3.9370	0	6	6	13	13	22	22	32
100	3.9370	120	4.7244	0	7	7	15	15	25	25	37

