

A.F.B.M.A BALL GRADES

(Anti-Friction Bearing Manufacturers Association)

| GRADE | Allowable Ball Diameter Variation | Deviation From Spherical Form | Surface Roughness Arithmetical Average | Basic Diameter Tolerance | Allowable Lot Diameter Variation |
|-------|-----------------------------------|-------------------------------|----------------------------------------|--------------------------|----------------------------------|
| 3 | 3 μ" 0.000003" | 3 μ" 0.000003" | 0.5 μ" 0.0000005" | 30 μ" ±0.00003" | 5 μ" 0.000005" |
| 5 | 5 μ" 0.000005" | 5 μ" 0.000005" | 0.8 μ" 0.0000008" | 50 μ" ±0.00005" | 10 μ" 0.00001" |
| 10 | 10 μ" 0.00001" | 10 μ" 0.00001" | 1.0 μ" 0.000001" | 100 μ" ±0.0001" | 20 μ" 0.00002" |
| 15 | 15 μ" 0.000015" | 15 μ" 0.000015" | 1.0 μ" 0.000001" | 100 μ" ±0.0001" | 30 μ" 0.00003" |
| 16 | 16 μ" 0.000016" | 16 μ" 0.000016" | 1.0 μ" 0.000001" | 100 μ" ±0.0001" | 32 μ" 0.000032" |
| 24 | 24 μ" 0.000024" | 24 μ" 0.000024" | 2.0 μ" 0.000002" | 100 μ" ±0.0001" | 48 μ" 0.000048" |
| 25 | 25 μ" 0.000025" | 25 μ" 0.000025" | 2.0 μ" 0.000002" | 100 μ" ±0.0001" | 50 μ" 0.00005" |
| 48 | 48 μ" 0.000048" | 48 μ" 0.000048" | 3.0 μ" 0.000003" | 200 μ" ±0.0002" | 96 μ" 0.000096" |
| 50 | 50 μ" 0.00005" | 50 μ" 0.00005" | 3.0 μ" 0.000003" | 300 μ" ±0.0003" | 100 μ" 0.0001" |
| 100 | 100 μ" 0.0001" | 100 μ" 0.0001" | 5.0 μ" 0.000005" | 500 μ" ±0.0005" | 200 μ" 0.0002" |
| 200 | 200 μ" 0.0002" | 200 μ" 0.0002" | 8.0 μ" 0.000008" | 1000 μ" ±0.001" | 400 μ" 0.0004" |
| 300 | 300 μ" 0.0003" | 300 μ" 0.0003" | | 1000 μ" ±0.001" | 600 μ" 0.0006" |
| 500 | 500 μ" 0.0005" | 500 μ" 0.0005" | | 2000 μ" ±0.002" | 1000 μ" 0.001" |
| 1000 | 1000 μ" 0.001" | 1000 μ" 0.001" | | 5000 μ" ±0.005" | 2000 μ" 0.002" |
| 2000 | 2000 μ" 0.002" | 2000 μ" 0.002" | | 5000 μ" ±0.005" | 4000 μ" 0.004" |
| 3000 | 3000 μ" 0.003" | 3000 μ" 0.003" | | 5000 μ" ±0.005" | 6000 μ" 0.006" |

ALLOWABLE BALL DIAMETER VARIATION is the largest variation in diameter found in any one ball from the sample lot inspection.

ALLOWABLE DEVIATION FROM SPHERICAL FORM is the greatest radial distance in any radial plane between a sphere circumscribed around the ball surface and any point on the ball surface.

SURFACE ROUGHNESS is all those irregularities which form the surface relief but are not deviations of form or waviness. The measurement of this characteristic is to be made with equipment meeting the requirements of and in accordance with standard ANSI B 46.1.

BASIC DIAMETER TOLERANCE is the maximum allowable deviation in any ball mean diameter from the basic diameter ordered.

ALLOWABLE LOT DIAMETER VARIATION is the difference between the mean diameter of the largest ball and that of the smallest ball in the lot.