

Quality control

A.F.B.M.A.® GRADE TOLERANCES AND TERMINOLOGY.

GRADE TOLERANCE CHART

A.F.B.M.A. grade	Diameter Tolerance per Ball Sphericity	Diameter Tolerance per Unit Container	Basic Diameter Tolerance	Surface Roughness RA
	inch	inch	inch	inch
3	.000003	.000005	+-.00003	.000003
5	.000005	.000010	+-.00005	.000005
10	.000010	.000020	+-.00010	.000010
15	.000015	.000030	+-.00010	.000015
25	.000025	.000050	+-.00010	.000025
50	.000050	.000100	+-.00020	.000050
100	.000100	.000200	+-.00050	.000100
200	.000200	.000400	+-.00100	.000200

Basic diameter: The size ordered which is the basis to which the basic diameter tolerances apply. The basic diameter is specified by a fraction plus a decimal or a decimal only to the sixth place. (example: 1/4" + .0002" or .2502" - 15/64" + .0003" or .234675").

Basic diameter tolerance: The maximum allowable deviation of any ball diameter from the basic diameter, in any shipments to fill orders for that basic diameter.

Diameter tolerance per ball: The permissible difference between the largest diameter and the smallest diameter measurable on one ball.

Diameter tolerance per unit container: The permissible range of the average diameters of the individuals balls within any one unit container.

Grade: The numerical value of the diameter tolerance per ball expressed in a millionth of an inch.

Marking Increments: The standard unit steps in a millionth of an inch used to express the specific diameter.

Some materials prevent us from obtaining a better result of tolerance than those obtained at level 10. On the other hand, some materials, mainly ceramics, make it possible to obtain dimensions with a level 4 or 5, RA is then higher than in the above table.