

Ceramics



High Purity Oxide Ceramics

Alfa Aesar is pleased to offer this broad line of oxide ceramic shapes comprised of high purity alumina (Al_2O_3), zirconia (ZrO_2), or magnesia (MgO). While ceramics are generally defined as inorganic, nonmetallic materials that are processed or consolidated at high temperatures, oxide ceramics is the designation given to materials manufactured of pure metal oxides without the admixtures of silicates during the ceramic process.

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Ceramic 2-Bore Tubes, Oval Cross Section, Al-23



High Purity Oxide Ceramics

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These high performance oxide ceramics display superior characteristics both at elevated temperature and at high frequencies, and are resistant to corrosive liquids and gases. Oxide ceramics are also inert to oxidation and are not subject to radiation damage.

Advanced oxide ceramics such as described in this catalog use raw materials which have gone through a succession of purification and processing steps before they can be pressed into their respective shapes. Alfa Aesar's line of ceramics includes tubes, multibore tubes, rods, beads, tubes for heating coils, insulating powders, crucibles, boats, combustion trays, etc.

Alfa Aesar's line of Friatec-Degussit® alumina ceramics have superior wear resistance and can exhibit excellent hardness properties (i.e. Al-23). They also provide superb insulation resistance at elevated temperatures. The compressive strength of alumina ceramics is 7-10 times that of its flexural strength which provides significant advantages when design or operating characteristics of end use applications involve compression. Because alumina provides excellent thermal conductivity, these ceramics perform extremely well as heat dissipating materials. Our line of zirconia and magnesia ceramics provide increased working temperature characteristics and offer useful alternatives to alumina.

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Tolerances:

The accuracy of the size of the sintered parts depends essentially on the material and the method of manufacture.

In general:

Diameter: $\pm 5\%$ (but not less than $\pm 0.1\text{mm}$)

Length: $\pm 1\%$

Linearity: Typical deviation 0.5% of total length

For tubes and rods with diameter less than 3mm: Diameter $\pm 5\%$ (but not less than $\pm 0.05\text{mm}$); Length $\pm 1\%$ (Linearity: Maximum deviation 0.5% of total length).

For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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32776

Al-23 Oval Cross Section 2-Bore Insulators;# Bores, 2;OD (mm), 1.55/0.90;Bore (mm), 0.25



32777

Al-23 Oval Cross Section 2-Bore Insulators;# Bores, 2;OD (mm), 2.30/1.40;Bore (mm), 0.70



32774

Al-23 Oval Cross Section 2-Bore Insulators;# Bores, 2;OD (mm), 3.00/1.50;Bore (mm), 0.80



32775

Al-23 Oval Cross Section 2-Bore Insulators;# Bores, 2;OD (mm), 4.20/2.20;Bore (mm), 1.20

Ceramic Crucibles, Conical, has Flat Bottom & High Form, Al-23



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	33009	Al-23 Crucible, Conical;Ht (mm), 25;Top OD (mm), 20;Top ID (mm), 17;Base OD (mm), 11;Volume (ml), 4
	33010	Al-23 Crucible, Conical;Ht (mm), 30;Top OD (mm), 25;Top ID (mm), 21;Base OD (mm), 13;Volume (ml), 9
	33012	Al-23 Crucible, Conical;Ht (mm), 45;Top OD (mm), 35;Top ID (mm), 31;Base OD (mm), 18;Volume (ml), 23
	33013	Al-23 Crucible, Conical;Ht (mm), 55;Top OD (mm), 45;Top ID (mm), 40;Base OD (mm), 22;Volume (ml), 49
	33014	Al-23 Crucible, Conical;Ht (mm), 65;Top OD (mm), 60;Top ID (mm), 53;Base OD (mm), 30;Volume (ml), 75
	33015	Al-23 Crucible, Conical;Ht (mm), 90;Top OD (mm), 73;Top ID (mm), 67;Base OD (mm), 35;Volume (ml), 160

Ceramic Crucibles, Conical, has Flat Bottom & High Form, ZrO₂, 10% Y₂O₃ Stabilized



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41291 Zirconium oxide, Ytria stabilized, crucible, conical, high form;Ht(mm), 90;Top OD(mm), 77;Base OD(mm), 50;Vol(ml), 200

Ceramic Crucibles, Cylindrical, Flat Base, Al-23



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	32956	Al-23 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 100 x 65 x 55;Vol (ml), 225
	32957	Al-23 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 150 x 85 73;Vol (ml), 600
	32950	Al-23 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 15 x 10 x 8;Vol (ml), 0.7
	32951	Al-23 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 30 x 20 x 16;Vol (ml), 6
	32952	Al-23 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 40 x 30 x 26;Vol (ml), 20
	32953	Al-23 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 50 x 35 x 30;Vol (ml), 40
	32954	Al-23 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 60 x 40 x 36;Vol (ml), 60

Ceramic Crucibles, Cylindrical, Flat Base, MgO



High Purity Oxide Ceramics

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Alfa Aesar's line of Friatec-Degussit® alumina ceramics have superior wear resistance and can exhibit excellent hardness properties (i.e. Al-23). They also provide superb insulation resistance at elevated temperatures. The compressive strength of alumina ceramics is 7-10 times that of its flexural strength which provides significant advantages when design or operating characteristics of end use applications involve compression. Because alumina provides excellent thermal conductivity, these ceramics perform extremely well as heat dissipating materials. Our line of zirconia and magnesia ceramics provide increased working temperature characteristics and offer useful alternatives to alumina.

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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	42989	Magnesium oxide Crucible, Cylindrical, Flat Base; HtxOD (mm), 43x24; Vol (ml), 10
	42991	Magnesium oxide Crucible, Cylindrical, Flat Base; HtxOD (mm), 90x45; Vol (ml), 100
	45733	Magnesium Oxide Crucible, Cylindrical, Flat Base;OD (mm), 25;Height (mm), 25
	45854	Magnesium Oxide Crucible, Cylindrical, Flat Base;OD (mm), 32;Height (mm), 32
	45680	Magnesium Oxide Crucible, Cylindrical, Flat Base, OD(mm) 43, Height(mm) 50
	46108	Magnesium Oxide Crucible, Cylindrical, Flat Base;OD (mm), 51;Height (mm), 51
	45900	Magnesium Oxide Crucible, Cylindrical, Flat Base;OD (mm), 76;Height (mm), 76

Ceramic Crucibles, Cylindrical, Flat Base, Al-24



High Purity Oxide Ceramics

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

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	32966	Al-24 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 100 x 65 x 55;Vol (ml), 225
	32967	Al-24 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 150 x 85 x 73;Vol (ml), 600
	32961	Al-24 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 30 x 20 x 16;Vol (ml), 6
	32962	Al-24 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 40 x 30 x 26;Vol (ml), 20
	32963	Al-24 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 50 x 35 x 30;Vol (ml), 40
	32964	Al-24 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 60 x 40 x 36;Vol (ml), 60
	32965	Al-24 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 75 x 50 x 44;Vol (ml), 110

Ceramic Crucibles, Cylindrical, Flat Base, ZrO₂, 10% Y₂O₃ Stabilized



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41277

Zirconium oxide crucible, Yttria stabilized, cylindrical, flat base; HtxOD (mm), 112x55; Vol (ml), 200



41274

Zirconium oxide crucible, Yttria stabilized, cylindrical, flat base; HtxOD (mm), 43x24; Vol (ml), 10



41275

Zirconium oxide crucible, Yttria stabilized, cylindrical, flat base; HtxOD (mm), 72x37; Vol (ml), 50



41276

Zirconium oxide crucible, Yttria stabilized, cylindrical, flat base; HtxOD (mm), 90x45; Vol (ml), 100

Ceramic Crucibles, Cylindrical, Flat Base, Al-25



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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

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32969

Al-25 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 160 x 145 x 125;Vol (ml), 1760



32968

Al-25 Crucible, Cylindrical, Flat Base;Height x OD x ID (mm), 200 x 120 x 100;Vol (ml), 1500

Ceramic Crucibles, Cylindrical, Flat Base, MgAl₂O₄



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These high performance oxide ceramics display superior characteristics both at elevated temperature and at high frequencies, and are resistant to corrosive liquids and gases. Oxide ceramics are also inert to oxidation and are not subject to radiation damage.

Advanced oxide ceramics such as described in this catalog use raw materials which have gone through a succession of purification and processing steps before they can be pressed into their respective shapes. Alfa Aesar's line of ceramics includes tubes, multibore tubes, rods, beads, tubes for heating coils, insulating powders, crucibles, boats, combustion trays, etc.

Alfa Aesar's line of Friatec-Degussit® alumina ceramics have superior wear resistance and can exhibit excellent hardness properties (i.e. Al-23). They also provide superb insulation resistance at elevated temperatures. The compressive strength of alumina ceramics is 7-10 times that of its flexural strength which provides significant advantages when design or operating characteristics of end use applications involve compression. Because alumina provides excellent thermal conductivity, these ceramics perform extremely well as heat dissipating materials. Our line of zirconia and magnesia ceramics provide increased working temperature characteristics and offer useful alternatives to alumina.

Dimensions of shapes other than those described in this catalog are available on request. In addition, other ceramic materials can be made into many of the shapes described in this catalog. Please contact our Specialty Sales Department for items not listed.

Tolerances:

The accuracy of the size of the sintered parts depends essentially on the material and the method of manufacture.

In general:

Diameter: ±5% (but not less than ±0.1mm)

Length: ±1%

Linearity: Typical deviation 0.5% of total length

For tubes and rods with diameter less than 3mm: Diameter ±5% (but not less than ±0.05mm); Length ±1% (Linearity: Maximum deviation 0.5% of total length).

For insulating beads: Tolerances ±3% (but not less than ±0.1mm).

Ceramic Grinding Pieces, Al-23



High Purity Oxide Ceramics

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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33190 Al-23 Grinding Pieces;Ht (mm), 10;Pcs/Kg, 440

Ceramic Grinding Pieces, ZrO₂, 10% Y₂O₃ Stabilized



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43286 Zirconium oxide, Yttria stabilized, Grinding Pieces; Diameter (mm), 10



43285 Zirconium oxide, Yttria stabilized, Grinding Pieces; Diameter (mm), 5

Ceramic Plates, Rectangular, Al-23



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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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33158

Al-23 Rectangular Plate;Length (mm), 100;Width (mm), 50;Thickness (mm), 4



33155

Al-23 Rectangular Plate;Length (mm), 50;Width (mm), 25;Thickness (mm), 4



33156

Al-23 Rectangular Plate;Length (mm), 50;Width (mm), 50;Thickness (mm), 4

Ceramic Plates, Rectangular, MgO



High Purity Oxide Ceramics

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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40624

Magnesia Rectangular Plate;Length (mm), 145;Width (mm), 70;Thickness (mm), 15

Ceramic Plates, Rectangular, Al-25



High Purity Oxide Ceramics

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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33159

Al-25 Rectangular Plate;Length (mm), 105;Width (mm), 50;Thickness (mm), 10



33160

Al-25 Rectangular Plate;Length (mm), 115;Width (mm), 115;Thickness (mm), 15



33161

Al-25 Rectangular Plate;Length (mm), 145;Width (mm), 70;Thickness (mm), 15

Ceramic Plates, Rectangular, Boron Nitride



High Purity Oxide Ceramics

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Linearity: Typical deviation 0.5% of total length

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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45598

45598

Boron Nitride Rectangular Plate;Length (mm), 125;Width (mm), 125;Thick (mm), 12.7

45668

45668

Boron Nitride Rectangular Plate;Length (mm), 125;Width (mm), 125;Thick (mm), 6.4

Ceramic Plates, Rectangular, Glass Ceramic



High Purity Oxide Ceramics

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

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45635

Glass Ceramic Rectangular Plate;Length (mm), 100;Width (mm), 150;Thick (mm), 9.5

Ceramic Tubes, Both Ends Open, Al-23



High Purity Oxide Ceramics

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31562 Al-23 Tube (both ends open);OD (mm), 10;ID (mm), 6



31563 Al-23 Tube (both ends open);OD (mm), 11;ID (mm), 7



31564 Al-23 Tube (both ends open);OD (mm), 12;ID (mm), 8



31566 Al-23 Tube (both ends open);OD (mm), 15;ID (mm), 10



31568 Al-23 Tube (both ends open);OD (mm), 16;ID (mm), 12



31570 Al-23 Tube (both ends open);OD (mm), 20;ID (mm), 15



31572 Al-23 Tube (both ends open);OD (mm), 24;ID (mm), 18



31573 Al-23 Tube (both ends open);OD (mm), 25;ID (mm), 20

31574	Al-23 Tube (both ends open);OD (mm), 30;ID (mm), 25
31575	Al-23 Tube (both ends open);OD (mm), 35;ID (mm), 29
31553	Al-23 Tube (both ends open);OD (mm), 3;ID (mm), 1.6
31577	Al-23 Tube (both ends open);OD (mm), 40;ID (mm), 34
31578	Al-23 Tube (both ends open);OD (mm), 45;ID (mm), 38
31554	Al-23 Tube (both ends open);OD (mm), 4;ID (mm), 2
31579	Al-23 Tube (both ends open);OD (mm), 50;ID (mm), 42
31580	Al-23 Tube (both ends open);OD (mm), 55;ID (mm), 47
31555	Al-23 Tube (both ends open);OD (mm), 5;ID (mm), 3
31581	Al-23 Tube (both ends open);OD (mm), 60;ID (mm), 50
31556	Al-23 Tube (both ends open);OD (mm), 6;ID (mm), 3
31584	Al-23 Tube (both ends open);OD (mm), 70;ID (mm), 60
31558	Al-23 Tube (both ends open);OD (mm), 7;ID (mm), 4
31585	Al-23 Tube (both ends open);OD (mm), 80;ID (mm), 70
31560	Al-23 Tube (both ends open);OD (mm), 8;ID (mm), 5

Ceramic Tubes, Both Ends Open, Al-24



High Purity Oxide Ceramics

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31601 Al-24 Tube (both ends open);OD (mm), 10;ID (mm), 6



31602 Al-24 Tube (both ends open);OD (mm), 12;ID (mm), 8



31603 Al-24 Tube (both ends open);OD (mm), 15;ID (mm), 10



31604 Al-24 Tube (both ends open);OD (mm), 20;ID (mm), 15



31605 Al-24 Tube (both ends open);OD (mm), 24;ID (mm), 18



31606 Al-24 Tube (both ends open);OD (mm), 30;ID (mm), 24



31607 Al-24 Tube (both ends open);OD (mm), 40;ID (mm), 32



31608 Al-24 Tube (both ends open);OD (mm), 50;ID (mm), 40

Ceramic Tubes, Both Ends Open, Al-25



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Ceramic Tubes, One End Closed, Al-23



High Purity Oxide Ceramics

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These high performance oxide ceramics display superior characteristics both at elevated temperature and at high frequencies, and are resistant to corrosive liquids and gases. Oxide ceramics are also inert to oxidation and are not subject to radiation damage.

Advanced oxide ceramics such as described in this catalog use raw materials which have gone through a succession of purification and processing steps before they can be pressed into their respective shapes. Alfa Aesar's line of ceramics includes tubes, multibore tubes, rods, beads, tubes for heating coils, insulating powders, crucibles, boats, combustion trays, etc.

Alfa Aesar's line of Friatec-Degussit® alumina ceramics have superior wear resistance and can exhibit excellent hardness properties (i.e. Al-23). They also provide superb insulation resistance at elevated temperatures. The compressive strength of alumina ceramics is 7-10 times that of its flexural strength which provides significant advantages when design or operating characteristics of end use applications involve compression. Because alumina provides excellent thermal conductivity, these ceramics perform extremely well as heat dissipating materials. Our line of zirconia and magnesia ceramics provide increased working temperature characteristics and offer useful alternatives to alumina.

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Tolerances:

The accuracy of the size of the sintered parts depends essentially on the material and the method of manufacture.

In general:

Diameter: $\pm 5\%$ (but not less than $\pm 0.1\text{mm}$)

Length: $\pm 1\%$

Linearity: Typical deviation 0.5% of total length

For tubes and rods with diameter less than 3mm: Diameter $\pm 5\%$ (but not less than $\pm 0.05\text{mm}$); Length $\pm 1\%$ (Linearity: Maximum deviation 0.5% of total length).

For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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30069 Al-23 Tube (one end closed);OD (mm), 10;ID (mm), 6



30072 Al-23 Tube (one end closed);OD (mm), 11;ID (mm), 7



30073 Al-23 Tube (one end closed);OD (mm), 12;ID (mm), 8















30074 Al-23 Tube (one end closed);OD (mm), 15;ID (mm), 10



30076 Al-23 Tube (one end closed);OD (mm), 16;ID (mm), 12



30077 Al-23 Tube (one end closed);OD (mm), 20;ID (mm), 15

	30078	Al-23 Tube (one end closed);OD (mm), 24;ID (mm), 18
	30079	Al-23 Tube (one end closed);OD (mm), 25;ID (mm), 20
	30080	Al-23 Tube (one end closed);OD (mm), 30;ID (mm), 25
	30059	Al-23 Tube (one end closed);OD (mm), 3;ID (mm), 1.6
	30082	Al-23 Tube (one end closed);OD (mm), 40;ID (mm), 34
	30083	Al-23 Tube (one end closed);OD (mm), 45;ID (mm), 38
	30062	Al-23 Tube (one end closed);OD (mm), 4;ID (mm), 2
	30084	Al-23 Tube (one end closed);OD (mm), 50;ID (mm), 42
	30064	Al-23 Tube (one end closed);OD (mm), 6;ID (mm), 3
	30066	Al-23 Tube (one end closed);OD (mm), 7;ID (mm), 4
	30089	Al-23 Tube (one end closed);OD (mm), 80;ID (mm), 70
	30067	Al-23 Tube (one end closed);OD (mm), 8;ID (mm), 5

Ceramic Tubes, One End Closed, Al-24



High Purity Oxide Ceramics

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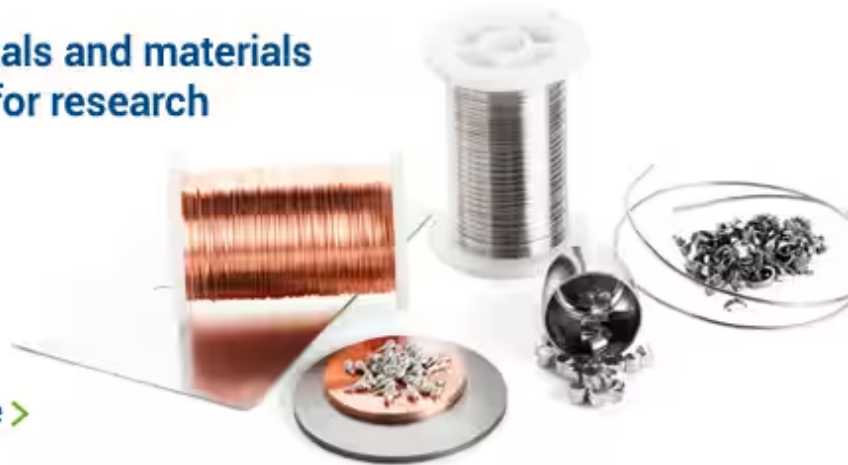
Linearity: Typical deviation 0.5% of total length

For tubes and rods with diameter less than 3mm: Diameter $\pm 5\%$ (but not less than $\pm 0.05\text{mm}$); Length $\pm 1\%$ (Linearity: Maximum deviation 0.5% of total length).

For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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30093 AI-24 Tube (one end closed);OD (mm), 24;ID (mm), 18

Ceramic Bars, Boron Nitride



High Purity Oxide Ceramics

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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45721

Boron Nitride Bar;Length (mm), 300;Width (mm), 12.7;Height (mm), 12.7



45541

Boron Nitride Bar;Length (mm), 300;Width (mm), 6.4;Height (mm), 6.4

Ceramic Crucibles, Conical, has Flat Bottom & Low Form, Al-23



High Purity Oxide Ceramics

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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	33042	Al-23 Crucible, Conical;Ht (mm), 20;Top OD (mm), 25;Top ID (mm), 22;Base OD (mm), 13;Volume (ml), 5
	33043	Al-23 Crucible, Conical;Ht (mm), 24;Top OD (mm), 30;Top ID (mm), 26;Base OD (mm), 15;Volume (ml), 8
	33044	Al-23 Crucible, Conical;Ht (mm), 32;Top OD (mm), 40;Top ID (mm), 36;Base OD (mm), 20;Volume (ml), 21
	33045	Al-23 Crucible, Conical;Ht (mm), 37;Top OD (mm), 43;Top ID (mm), 38;Base OD (mm), 22;Volume (ml), 26
	33046	Al-23 Crucible, Conical;Ht (mm), 40;Top OD (mm), 50;Top ID (mm), 45;Base OD (mm), 25;Volume (ml), 40
	33047	Al-23 Crucible, Conical;Ht (mm), 55;Top OD (mm), 65;Top ID (mm), 59;Base OD (mm), 33;Volume (ml), 80

Ceramic Crucibles, Conical, has Flat Bottom & Low Form, ZrO₂, 10% Y₂O₃ Stabilized



High Purity Oxide Ceramics

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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41285 Zirconium oxide, Ytria stabilized, crucible, conical, low form;Ht(mm),
44;Top OD(mm), 58;Base OD(mm), 41;Vol(ml), 50

Ceramic Crucibles, Tamman, Al-23



High Purity Oxide Ceramics

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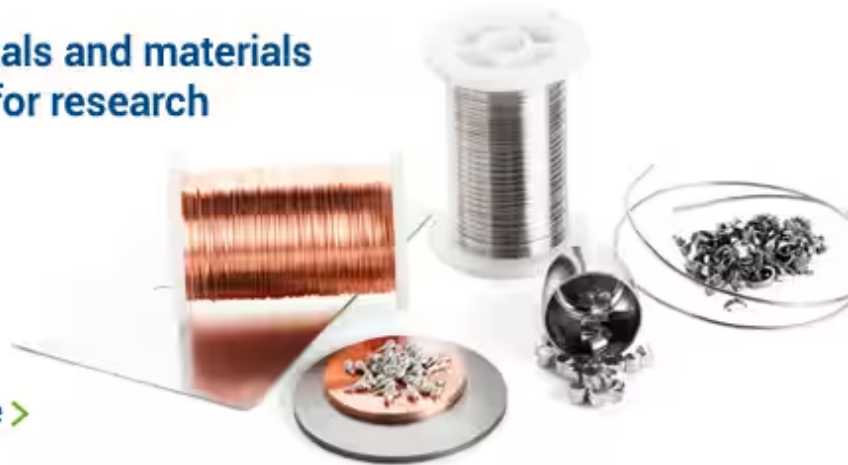
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	33055	Al-23 Crucible, Tammann; Height x OD x ID (mm), 100 x 12 x 8; Volume (ml), 5; Tammann #, -
	33056	Al-23 Crucible, Tammann; Height x OD x ID (mm), 100 x 15 x 10; Volume (ml), 8; Tammann #, -
	33058	Al-23 Crucible, Tammann; Height x OD x ID (mm), 100 x 20 x 15; Volume (ml), 17; Tammann #, -
	33061	Al-23 Crucible, Tammann; Height x OD x ID (mm), 100 x 25 x 20; Volume (ml), 30; Tammann #, -
	33057	Al-23 Crucible, Tammann; Height x OD x ID (mm), 190 x 16 x 12; Volume (ml), 22; Tammann #, 1a
	33052	Al-23 Crucible, Tammann; Height x OD x ID (mm), 30 x 6 x 3; Volume (ml), 0.2ml; Tammann #, -
	33053	Al-23 Crucible, Tammann; Height x OD x ID (mm), 50 x 8 x 5; Volume (ml), 1; Tammann #, -

Ceramic Insulating Beads, Al-23



High Purity Oxide Ceramics

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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32912

Al-23 Insulating Beads;# Bores, 2;OD (mm), 4;Bore (mm), 0.80;Length (mm), 10



32911

Al-23 Insulating Beads;# Bores, 2;OD (mm), 4;Bore (mm), 0.80;Length (mm), 4



32914

Al-23 Insulating Beads;# Bores, 4;OD (mm), 4;Bore (mm), 0.80;Length (mm), 4



32915

Al-23 Insulating Beads;# Bores, 4;OD (mm), 4;OD (mm), 4;Bore (mm), 0.80;Length (mm), 10

Ceramic Protective Tubes (One End Closed), Al-23



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30046

Al-23 Protective Tube (one end closed);OD (mm), 10;ID (mm), 6;Wall (mm), 2



30052

Al-23 Protective Tube (one end closed);OD (mm), 20;ID (mm), 15;Wall (mm), 2.5



30044

Al-23 Protective Tube (one end closed);OD (mm), 8;ID (mm), 5;Wall (mm), 1.5

Ceramic Tubes, Both Ends Open (Thin Insulating Tubes), Al-23



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	31475	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 0.5;ID (mm), 0.2
	31476	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 0.6;ID (mm), 0.3
	31477	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 0.8;ID (mm), 0.4
	31480	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 1.1;ID (mm), 0.6
	31482	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 1.2;ID (mm), 0.8
	31484	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 1.5;ID (mm), 1
	31485	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 1.6;ID (mm), 0.8

	31486	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 1.7;ID (mm), 1.1
	31478	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 1;ID (mm), 0.5
	31479	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 1;ID (mm), 0.6
	31490	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 2.5;ID (mm), 1.3
	31492	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 2.7;ID (mm), 1.7
	31487	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 2;ID (mm), 1
	31488	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 2;ID (mm), 1.2
	31489	Al-23 Insulating Tube, Both Ends Open (Thin Wall);OD (mm), 2;ID (mm), 1.5

Ceramic Boats, Al-23



High Purity Oxide Ceramics

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Tolerances:

The accuracy of the size of the sintered parts depends essentially on the material and the method of manufacture.

In general:

Diameter: $\pm 5\%$ (but not less than $\pm 0.1\text{mm}$)

Length: $\pm 1\%$

Linearity: Typical deviation 0.5% of total length

For tubes and rods with diameter less than 3mm: Diameter $\pm 5\%$ (but not less than $\pm 0.05\text{mm}$); Length $\pm 1\%$ (Linearity: Maximum deviation 0.5% of total length).

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	33178	Al-23 Boat;L1 (mm), 102;L2 (mm), 88;B1 (mm), 31;B2 (mm), 27;H (mm), 17;W (mm), 3;Vol, 19.0
	33179	Al-23 Boat;L1 (mm), 112;L2 (mm), 98;B1 (mm), 15;B2 (mm), 13;H (mm), 8;W (mm), 2.5;Vol, 4.7
	33180	Al-23 Boat;L1 (mm), 118;L2 (mm), 102;B1 (mm), 18;B2 (mm), 16;H (mm), 10;W (mm), 3;Vol, 7.5
	33181	Al-23 Boat;L1 (mm), 124;L2 (mm), 106;B1 (mm), 23;B2 (mm), 19;H (mm), 13;W (mm), 3;Vol, 10.3
	33182	Al-23 Boat;L1 (mm), 130;L2 (mm), 116;B1 (mm), 31;B2 (mm), 27;H (mm), 17;W (mm), 3;Vol, 36.0
	33170	Al-23 Boat;L1 (mm), 32;L2 (mm), 22;B1 (mm), 9;B2 (mm), 8;H (mm), 6;W (mm), 2;Vol, 0.4
	33171	Al-23 Boat;L1 (mm), 48;L2 (mm), 46;B1 (mm), 9;B2 (mm), 8;H (mm), 6;W (mm), 2;Vol, 0.6
	33172	Al-23 Boat;L1 (mm), 50;L2 (mm), 38;B1 (mm), 15;B2 (mm), 13;H (mm), 8;W (mm), 2.5;Vol, 1.7

Ceramic Crucibles, Conical, has Round Bottom & High Form, ZrO₂, 10% Y₂O₃ Stabilized



High Purity Oxide Ceramics

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41297 Zirconium oxide, Ytria stabilized, crucible, round bottom, high form;Ht(mm),29;Top OD(mm),26;Base OD(mm),18;Vol(ml),5

41300 Zirconium oxide, Ytria stabilized, crucible, round bottom, high form;Ht(mm),68;Top OD(mm),56;Base OD(mm),35;Vol(ml),100

41301 Zirconium oxide, Ytria stabilized, crucible, round bottom, high form;Ht(mm),85;Top OD(mm),69;Base OD(mm),42;Vol(ml),200

Ceramic Discs, Round, Al-23 With Hole



High Purity Oxide Ceramics

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	33136	Al-23 Round Disc With Hole;OD (mm), 20;Thick (mm), 3;Hole Dia (mm), 6
	33137	Al-23 Round Disc With Hole;OD (mm), 25;Thick (mm), 4;Hole Dia (mm), 6
	33138	Al-23 Round Disc With Hole;OD (mm), 30;Thick (mm), 5;Hole Dia (mm), 6
	33139	Al-23 Round Disc With Hole;OD (mm), 35;Thick (mm), 5;Hole Dia (mm), 6
	33140	Al-23 Round Disc With Hole;OD (mm), 40;Thick (mm), 6;Hole Dia (mm), 8
	33141	Al-23 Round Disc With Hole;OD (mm), 45;Thick (mm), 6;Hole Dia (mm), 8
	33142	Al-23 Round Disc With Hole;OD (mm), 50;Thick (mm), 6;Hole Dia (mm), 10
	33143	Al-23 Round Disc With Hole;OD (mm), 52;Thick (mm), 6;Hole Dia (mm), 10

Ceramic Discs, Round, Al-23 Without Hole



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33107 Al-23 Round Disc Without Hole;OD (mm), 10;Thick (mm), 3



33109 Al-23 Round Disc Without Hole;OD (mm), 20;Thick (mm), 3



33110 Al-23 Round Disc Without Hole;OD (mm), 25;Thick (mm), 4



33111 Al-23 Round Disc Without Hole;OD (mm), 30;Thick (mm), 5



33112 Al-23 Round Disc Without Hole;OD (mm), 35;Thick (mm), 5



33113 Al-23 Round Disc Without Hole;OD (mm), 40;Thick (mm), 6



33114 Al-23 Round Disc Without Hole;OD (mm), 45;Thick (mm), 6



33115 Al-23 Round Disc Without Hole;OD (mm), 50;Thick (mm), 6

Ceramic Discs, Round, Al-25 Without Hole



High Purity Oxide Ceramics

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

Ceramic Multibore Insulating Tubes, Al-23



High Purity Oxide Ceramics

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For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

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32550 Al-23 Multibore Insulating Tube;OD (mm), 4;# Bores, 2;Bore (mm), 0.8



32552 Al-23 Multibore Insulating Tube;OD (mm), 4;# Bores, 4;Bore (mm), 0.8



32554 Al-23 Multibore Insulating Tube;OD (mm), 5.5;# Bores, 4;Bore (mm), 1.2



32556 Al-23 Multibore Insulating Tube;OD (mm), 6;# Bores, 2;Bore (mm), 1.5



32560 Al-23 Multibore Insulating Tube;OD (mm), 8.5;# Bores, 4;Bore (mm), 1.5



32558 Al-23 Multibore Insulating Tube;OD (mm), 8;# Bores, 2;Bore (mm), 1.6

Ceramic Rectangular Trays, MgO



High Purity Oxide Ceramics

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	45791	Magnesium Oxide Rectangular Tray;Length (mm), 100;Width (mm), 100;Height (mm), 25.4
	45634	Magnesium Oxide Rectangular Tray;Length (mm), 100;Width (mm), 25;Height (mm), 12.7
	45827	Magnesium Oxide Rectangular Tray;Length (mm), 100;Width (mm), 50;Height (mm), 12.7
	45699	Magnesium Oxide Rectangular Tray;Length (mm), 150;Width (mm), 100;Height (mm), 25.4
	45865	Magnesium Oxide Rectangular Tray;Length (mm), 150;Width (mm), 75;Height (mm), 25.4
	45749	Magnesium Oxide Rectangular Tray;Length (mm), 50;Width (mm), 50;Height (mm), 12.7
	45954	Magnesium Oxide Rectangular Tray;Length (mm), 75;Width (mm), 75;Height (mm), 25.4

Ceramic Tubes, Both Ends Open (Thin Walls), Al-23



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31709 Al-23 Tube, Both Ends Open (Thin Wall);OD (mm), 10;ID (mm), 9



31710 Al-23 Tube, Both Ends Open (Thin Wall);OD (mm), 12;ID (mm), 11



31711 Al-23 Tube, Both Ends Open (Thin Wall);OD (mm), 16;ID (mm), 15



31712 Al-23 Tube, Both Ends Open (Thin Wall);OD (mm), 20;ID (mm), 19



31704 Al-23 Tube, Both Ends Open (Thin Wall);OD (mm), 4;ID (mm), 3



31705 Al-23 Tube, Both Ends Open (Thin Wall);OD (mm), 5;ID (mm), 4



31706 Al-23 Tube, Both Ends Open (Thin Wall);OD (mm), 6;ID (mm), 5



31707 Al-23 Tube, Both Ends Open (Thin Wall);OD (mm), 7;ID (mm), 6

Ceramic Combustion Trays, Al-23



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33186

Al-23 Combustion Tray;L1 (mm), 100;L2 (mm), 98;B1 (mm), 50;B2 (mm), 48;H (mm), 30;W (mm), 4;Vol, 100.0



33183

Al-23 Combustion Tray;L1 (mm), 50;L2 (mm), 48;B1 (mm), 25;B2 (mm), 23;H (mm), 20;W (mm), 3;Vol, 14.0



33184

Al-23 Combustion Tray;L1 (mm), 50;L2 (mm), 48;B1 (mm), 50;B2 (mm), 48;H (mm), 20;W (mm), 3;Vol, 33.0



33185

Al-23 Combustion Tray;L1 (mm), 75;L2 (mm), 73;B1 (mm), 50;B2 (mm), 48;H (mm), 20;W (mm), 4;Vol, 45.0

Ceramic Combustion Trays, Al-24



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All dimensions are given in mm.

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33187

Al-24 Combustion Tray;L (mm), 145;L2 (mm), 138;B (mm), 85;B2 (mm), 80;H (mm), 30;W (mm), 5;Vol, 240

Ceramic Combustion Trays, Al-25



High Purity Oxide Ceramics

Alfa Aesar is pleased to offer this broad line of oxide ceramic shapes comprised of high purity alumina (Al_2O_3), zirconia (ZrO_2), or magnesia (MgO). While ceramics are generally defined as inorganic, nonmetallic materials that are processed or consolidated at high temperatures, oxide ceramics is the designation given to materials manufactured of pure metal oxides without the admixtures of silicates during the ceramic process.

These high performance oxide ceramics display superior characteristics both at elevated temperature and at high frequencies, and are resistant to corrosive liquids and gases. Oxide ceramics are also inert to oxidation and are not subject to radiation damage.

Advanced oxide ceramics such as described in this catalog use raw materials which have gone through a succession of purification and processing steps before they can be pressed into their respective shapes. Alfa Aesar's line of ceramics includes tubes, multibore tubes, rods, beads, tubes for heating coils, insulating powders, crucibles, boats, combustion trays, etc.

Alfa Aesar's line of Friatec-Degussit® alumina ceramics have superior wear resistance and can exhibit excellent hardness properties (i.e. Al-23). They also provide superb insulation resistance at elevated temperatures. The compressive strength of alumina ceramics is 7-10 times that of its flexural strength which provides significant advantages when design or operating characteristics of end use applications involve compression. Because alumina provides excellent thermal conductivity, these ceramics perform extremely well as heat dissipating materials. Our line of zirconia and magnesia ceramics provide increased working temperature characteristics and offer useful alternatives to alumina.

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Tolerances:

The accuracy of the size of the sintered parts depends essentially on the material and the method of manufacture.

In general:

Diameter: $\pm 5\%$ (but not less than $\pm 0.1\text{mm}$)

Length: $\pm 1\%$

Linearity: Typical deviation 0.5% of total length

For tubes and rods with diameter less than 3mm: Diameter $\pm 5\%$ (but not less than $\pm 0.05\text{mm}$); Length $\pm 1\%$ (Linearity: Maximum deviation 0.5% of total length).

For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

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33188

33188

Al-25 Combustion Tray;L1 (mm), 205;L2 (mm), 205;B1 (mm), 125;B2 (mm), 125;H (mm), 50;W (mm), 10;Vol, 820

Ceramic Crucibles, Conical, has Round Bottom & Low Form, ZrO₂, 10% Y₂O₃ Stabilized



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All dimensions are given in mm.

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41296

Zirconium oxide, Ytria stabilized, crucible, round bottom, low form;Ht(mm),63;Top OD(mm),82;Base OD(mm),42;Vol(ml),200

Ceramic Fish Spine Beads, Al-23



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Length: $\pm 1\%$

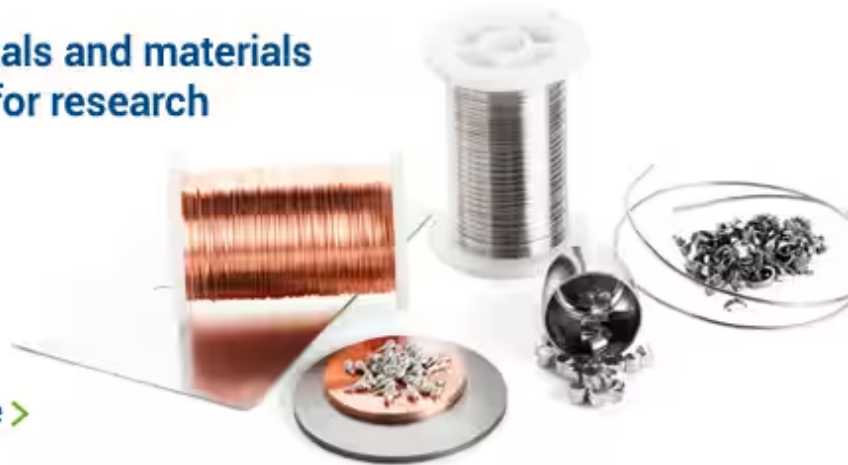
Linearity: Typical deviation 0.5% of total length

For tubes and rods with diameter less than 3mm: Diameter $\pm 5\%$ (but not less than $\pm 0.05\text{mm}$); Length $\pm 1\%$ (Linearity: Maximum deviation 0.5% of total length).

For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

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32905

Al-23 Fish Spine Beads;OD (mm), 3.5;Bore (mm), 1.0;Length (mm), 3.0



32906

Al-23 Fish Spine Beads;OD (mm), 4.0;Bore (mm), 1.5;Length (mm), 4.7



32907

Al-23 Fish Spine Beads;OD (mm), 5.0;Bore (mm), 2.5;Length (mm), 5.0



32908

Al-23 Fish Spine Beads;OD (mm), 7.0;Bore (mm), 3.8;Length (mm), 7.0



32909

Al-23 Fish Spine Beads;OD (mm), 8.5;Bore (mm), 5.0;Length (mm), 10.0

Ceramic Multibore Tubes, Round, Al-23



High Purity Oxide Ceramics

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In general:

Diameter: $\pm 5\%$ (but not less than $\pm 0.1\text{mm}$)

Length: $\pm 1\%$

Linearity: Typical deviation 0.5% of total length

For tubes and rods with diameter less than 3mm: Diameter $\pm 5\%$ (but not less than $\pm 0.05\text{mm}$); Length $\pm 1\%$ (Linearity: Maximum deviation 0.5% of total length).

For insulating beads: Tolerances $\pm 3\%$ (but not less than $\pm 0.1\text{mm}$).

All dimensions are given in mm.

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	32564	Al-23 Multibore Tube, Round;# Bores, 2;OD (mm), 0.90;Bore (mm), 0.20
	32565	Al-23 Multibore Tube, Round;# Bores, 2;OD (mm), 1.20;Bore (mm), 0.30
	32566	Al-23 Multibore Tube, Round;# Bores, 2;OD (mm), 1.55;Bore (mm), 0.40
	32567	Al-23 Multibore Tube, Round;# Bores, 2;OD (mm), 2.00;Bore (mm), 0.50
	32568	Al-23 Multibore Tube, Round;# Bores, 2;OD (mm), 2.50;Bore (mm), 0.70
	32648	Al-23 Multibore Tube, Round;# Bores, 2;OD (mm), 3.00;Bore (mm), 0.80
	32650	Al-23 Multibore Tube, Round;# Bores, 2;OD (mm), 4.00;Bore (mm), 0.80
	32652	Al-23 Multibore Tube, Round;# Bores, 2;OD (mm), 4.00;Bore (mm), 1.20

32654	Al-23 Multibore Tube, Round;# Bores, 2;OD (mm), 5.00;Bore (mm), 1.20
32656	Al-23 Multibore Tube, Round;# Bores, 2;OD (mm), 6.00;Bore (mm), 1.50
32600	Al-23 Multibore Tube, Round;# Bores, 4;OD (mm), 1.20;Bore (mm), 0.20
32602	Al-23 Multibore Tube, Round;# Bores, 4;OD (mm), 2.35;Bore (mm), 0.50
32603	Al-23 Multibore Tube, Round;# Bores, 4;OD (mm), 2.80;Bore (mm), 0.70
32708	Al-23 Multibore Tube, Round;# Bores, 4;OD (mm), 4.00;Bore (mm), 0.80
32710	Al-23 Multibore Tube, Round;# Bores, 4;OD (mm), 5.00;Bore (mm), 1.00
32712	Al-23 Multibore Tube, Round;# Bores, 4;OD (mm), 5.50;Bore (mm), 1.20
32718	Al-23 Multibore Tube, Round;# Bores, 4;OD (mm), 8.50;Bore (mm), 1.50
32601	Al-23 Multibore Tube, Round;# Bores, 6;OD (mm), 2.00;Bore (mm), 0.40
32714	Al-23 Multibore Tube, Round;# Bores, 6;OD (mm), 8.00;Bore (mm), 0.80
32716	Al-23 Multibore Tube, Round;# Bores, 8;OD (mm), 8.00;Bore (mm), 0.80

Ceramic Solid Rods, Round, Al-23



High Purity Oxide Ceramics

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In general:

Diameter: $\pm 5\%$ (but not less than $\pm 0.1\text{mm}$)

Length: $\pm 1\%$

Linearity: Typical deviation 0.5% of total length

For tubes and rods with diameter less than 3mm: Diameter $\pm 5\%$ (but not less than $\pm 0.05\text{mm}$); Length $\pm 1\%$ (Linearity: Maximum deviation 0.5% of total length).

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All dimensions are given in mm.

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Round

32920 Al-23 Solid Rod, Round;Diameter (mm), 0.5

Round

32921 Al-23 Solid Rod, Round;Diameter (mm), 0.6

Round

32922 Al-23 Solid Rod, Round;Diameter (mm), 0.8

Round

32937 Al-23 Solid Rod, Round;Diameter (mm), 10

Round

32923 Al-23 Solid Rod, Round;Diameter (mm), 1.0

Round

32939 Al-23 Solid Rod, Round;Diameter (mm), 12

Round

32924 Al-23 Solid Rod, Round;Diameter (mm), 1.2

Round

32925 Al-23 Solid Rod, Round;Diameter (mm), 1.5

Round

32926 Al-23 Solid Rod, Round;Diameter (mm), 2

Round

32927 Al-23 Solid Rod, Round;Diameter (mm), 3

Round

32929 Al-23 Solid Rod, Round;Diameter (mm), 4

Round

32931 Al-23 Solid Rod, Round;Diameter (mm), 5

Round

32933 Al-23 Solid Rod, Round;Diameter (mm), 6

Round

32935 Al-23 Solid Rod, Round;Diameter (mm), 8

Ceramic Solid Rods, Round, Boron Nitride



High Purity Oxide Ceramics

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45912

Boron Nitride Rod;Diameter (mm), 12.7;Length (mm), 300

45850

Boron Nitride Rod;Diameter (mm), 6.4;Length (mm), 300

Ceramic Solid Rods, Round, Glass Ceramic



High Purity Oxide Ceramics

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45762 Glass Ceramic Rod;Diameter (mm), 6.4;Length (mm), 300

Ceramic Tubes for Heating Coils, Al-23



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	33204	Al-23 Tube for Heating Coils;OD (mm), 21;ID (mm), 15;Breadth, 1.0;Depth, 1.0;Pitch, 1.5
	33205	Al-23 Tube for Heating Coils;OD (mm), 27;ID (mm), 20;Breadth, 1.0; Depth, 1.0;Pitch, 1.5
	33206	Al-23 Tube for Heating Coils;OD (mm), 33;ID (mm), 25;Breadth, 1.0;Depth, 1.0;Pitch, 1.5
	33208	Al-23 Tube for Heating Coils;OD (mm), 44;ID (mm), 34;Breadth, 2.0;Depth, 1.6;Pitch, 2.5

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