Square plate forms: outline, thickness and functional faces are drawing-defined. Illustrative product view.

Alumina Ceramic Plates

Product reference: alumina-ceramic-plates-discs

Material: Alumina

Product type: Structural Ceramic Plate or Disc

Alumina ceramic plates and discs provide electrically insulating supports and hard wear-contact surfaces for industrial equipment, laboratory fixtures and thermal processing.

Alumina Typical Material Properties

Property	95% Al_2O_3	99% Al_2O_3	99.5% Al_2O_3	99.8% Al_2O_3	Condition / basis
Density (g/cm³)	3.65	3.85	3.90	3.92	-
Fracture toughness (MPa·m½)	3-4	3-4	4	4	-
Young’s modulus (GPa)	320	340	370	390	-
Flexural strength (MPa)	300	330	375	390	25°C
Compressive strength (MPa)	2200	2350	2450	2500	25°C
Thermal conductivity (W/(m·K))	18-22	27	29	32	25°C
Linear thermal expansion coefficient (10^{-6}/K)	8	8	8	8	25-1000°C
Dielectric strength (kV/mm)	16	20	22	22	-
Volume resistivity (Ω·cm)	10^{14}	10^{14}	10^{14}	10^{14}	25°C
Relative permittivity	9	9.7	9.7	9.8	1MHz, 25°C
Dielectric loss	0.0004	0.0002	0.0002	0.0001	1MHz, 25°C
Vickers hardness (HV)	>1300	1700	1750	1800	-
Material thermal-shock temperature difference, ΔT (°C)	220	180-200	180-200	180-200	-

Property	95% Al_2O_3	99% Al_2O_3	99.5% Al_2O_3	99.8% Al_2O_3	Condition / basis
Typical maximum material temperature (°C)	1500	1650	1700	1700	-

Product Geometry & Configuration

Product parameter	Configuration	Function
Part form	Rectangular plate, circular disc or annular spacer	Provides a flat support, insulating barrier or contact surface
Main dimensions	Length/width or diameter, bore and thickness	Defines installation envelope and load path
Functional faces	As-fired, ground or polished surface requirement	Flatness, parallelism and roughness follow contact or insulation duty
Locating features	Holes, recesses, slots, chamfers and radii	Defines mounting and reduces vulnerable sharp-edge contact
Material selection	Alumina grade with specified purity and microstructure	Balances insulation, wear, thermal duty and contamination requirements