Porous Ceramic (PC) — Properties by Grade

ALUMINA-BASED (PA SERIES) & SIC-BASED (PS SERIES) · 多孔陶瓷特性表

LONGYI Precision Technology
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Typical values from LONGYI internal testing (2026-09 data set), by base material and pore size. Grade codes (PA/PS + pore size) are LONGYI reference codes assigned for this page, not yet official part numbers.

Alumina-based Porous Ceramic — PA Series

PROPERTY	ALUMINA CERAMICS (Al_2O_3)						
	PA03 1–3 μm	**PA05** 5 μm	**PA10** 10 μm	**PA20** 20 μm	**PA30** 30 μm	**PA50** 50 μm	**PA100** 100 μm
Bulk Density g/cm³	2.7	2.6	2.5	2.5	2.4	2.4	2.4
Hardness HRA>	56	52	52	52	52	50	45
Flexural Strength MPa	300	280	280	260	260	260	260
Max Service Temperature °C	1300	1300	1300	1300	1300	1300	1300
Linear Thermal Expansion $\times10^{-6}$/°C	7.5	7.6	7.8	7.8	8.2	8.2	8.2
Dielectric Constant εr @20°C 1MHz	9.0	9.0	9.0	9.0	9.2	9.2	9.2
Filtration Vacuum Degree MPa	**≥-0.08**	**≥-0.08**	**≥-0.08**	**≥-0.08**	**≥-0.08**	**≥-0.08**	**≥-0.08**
Volume Resistivity Ω·cm @20°C	10^{13}	10^{13}	10^{13}	10^{13}	10^{14}	10^{14}	10^{14}
Breakdown Strength KV/mm DC	12	12	12	12	12	12	12
Acid Resistance mg/cm²	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Alkali Resistance mg/cm²	0.2	0.2	0.2	0.2	0.1	0.1	0.1
Wear Resistance g/cm²	0.2	0.2	0.2	0.2	0.1	0.1	0.1
Compressive Strength MPa	**1800**	**1800**	**1800**	**1500**	**1500**	**1200**	**1200**
Bending Strength MPa≥	200	200	200	200	180	180	180
Modulus of Elasticity GPa	**300**	**300**	**300**	**280**	**250**	**250**	**250**
Porosity %	35	35	35	40	40	40	40
Thermal Conductivity W/(m·K) @20°C	20	20	20	20	25	25	25

Silicon Carbide-based Porous Ceramic — PS Series

PROPERTY	SILICON CARBIDE POROUS CERAMICS (SIC)			
	PS03 1–3 μm	PS05 5 μm	PS15 15 μm	PS30 30 μm
Bulk Density g/cm³	2.8	2.8	2.6	2.5
Hardness HRA>	65	60	58	58
Flexural Strength MPa	280	280	260	260
Max Service Temperature °C	1400 – 1500	1400 – 1500	1400 – 1500	1400 – 1500
Linear Thermal Expansion $\times 10^{-6}$/°C	5.6	5.6	5.6	5.8
Dielectric Constant εr @20°C 1MHz	8.7	8.7	8.7	8.7
Filtration Vacuum Degree MPa	**≥-0.08**	**≥-0.08**	**≥-0.08**	**≥-0.08**
Volume Resistivity Ω·cm @20°C	**10^7**	**10^7**	**10^7**	**10^7**
Breakdown Strength KV/mm DC	16	16	16	16
Acid Resistance mg/cm²	0.3	0.3	0.3	0.3
Alkali Resistance mg/cm²	0.05	0.05	0.05	0.05
Wear Resistance g/cm²	0.05	0.05	0.05	0.05
Compressive Strength MPa	**2500**	**2500**	**2300**	**2300**
Bending Strength MPa≥	230	230	230	230
Modulus of Elasticity GPa	**280**	**280**	**260**	**260**
Porosity %	35	35	40	40
Thermal Conductivity W/(m·K) @20°C	1.3 – 2.7	2.2	2.3	2.3

Values are typical, by grade, from LONGYI internal testing (2026-09 data set). Not covered by this data set — water absorption, Poisson's ratio, fracture toughness, specific heat, surface resistivity (Ω/sq), chemical-resistance-by-acid-type beyond the rows above: left blank rather than carried over from the retired SED90 figures. Standard plate sizes and lead times (100×100 mm – 520×510 mm, custom sizes available; 10–45 days after order confirmation, EXW Taiwan or FOB, terms negotiable) are from LONGYI's separate porous ceramic datasheet, which is unaffected by this update. Final part specification is governed by the approved drawing and order confirmation.