

FOYO VALVE CO., LIMITED

Sicer Series of High-tech Ceramic Material Performance Data (2017)

Grade	Volume Density	Bending Strength	Fracture Toughness	Vickers Hardness	Thermal Expansion Coefficient	Thermal Conductivity	Remarks	Material Series
Unit	(g/cm ³)	(Mpa)	(Mpa.m ^{1/2})	(kg/mm ²)	(10 ⁻⁶ /°C)	w/m.k	—	—
Sicer-219	3.65-3.75	320-380	4.0-5.0	1350-1450	7.0-8.0	18-20	95% Al ₂ O ₃	Al ₂ O ₃ Ceramics
Sicer-310	3.72-3.85	360-400	4.0-5.0	1350-1450	7.0-8.0	18-20	97% Al ₂ O ₃	
Sicer-312	3.86-3.88	380-420	5.0-6.5	1450-1530	7.0-8.0	20-25	99% Al ₂ O ₃	
Sicer-313	3.88-3.96	400-480	5.0-6.0	1480-1650	7.0-8.0	18-20	99.8% Al ₂ O ₃	
Sicer-315	4.25-4.30	550-650	6.0-8.0	1450-1600	8.0-9.0	12-15	20% ZrO ₂ Toughed Al ₂ O ₃	ZrO ₂ Ceramics
Sicer-317	5.65-5.75	850-1100	9.0-10.0	1350-1450	9.0-11.0	3-4	Reforced ZrO ₂	
Sicer-319	6.00-6.05	900-1200	9.0-10.0	1200-1250	9.0-11.0	2-3	Y-TZP	
Sicer-320	5.70-5.75	600-700	8.0-9.0	1250 ~ 1350	9.0-10.0	1-2	Ce-TZP	
Sicer-412	3.05-3.10	350-400	4.0-4.5	2000 ~ 2400	4.0-4.5	80--90	Pressureless sintered SSiC	Silicon Carbide
Sicer-413	2.95-3.00	250-300	3.0-4.0	1750-1850	4.0-4.5	40--60	Reaction bonded SSiC	
Sicer-512	3.05-3.10	700-850	5.0-6.0	1650-1750	3.0-3.5	30--50	Pressureless sintered Si ₃ N ₄	Silicon Nitride
Sicer-513	2.50-2.60	210-260	2.0-4.0	700-850	2.2-2.9	10-15	Reaction bonded Si ₃ N ₄	