

Ceramics and Metal Matrix Composites

CERAGUARD®

Performance ceramics for today's most demanding industrial applications



Broad Portfolio of Patented Technology

THERMADITE®

SiSiC + Diamond for applications requiring ultimate thermal and mechanical stability

COGENTUM®

Next generation Aluminum MMC's, the clear choice for advanced machine design

MESA®

Intelligent flatness control when working with advanced materials

OPTIMUM®

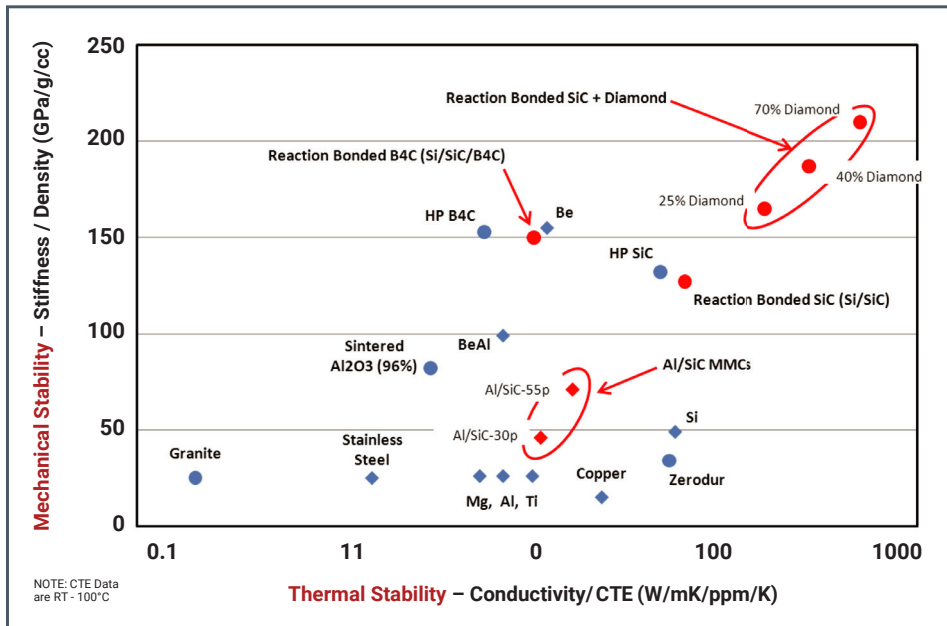
Directly polishable silicon carbide for mirror applications

COHERENT

Large size capability(meter class)

Complex features

Tailorable properties



Monolithic Structures with Internal Channels

Advanced materials provide excellent wear resistance and dimensional stability across wide temperature ranges.

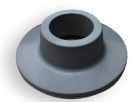
Property		SSC-702	SSC-802	SSC-902	SSC-852S	SSC-FG	HSC-702	TSC-15	RBBC-751	THERMA-DITE® NZ
		(SiSiC) 70% SiC	(SiSiC) 80% SiC	(SiSiC) 90% SiC	(SiSiC) 88% SiC	(Fine-Grained SiSiC)	(SiSiC + Al)	(SiSiC + Ti)	(B4C+ SiSiC)	(SiSiC + Diamond)
Density	g/cc (ρ)	2.95	3.00	3.12	3.07	2.94	3.01	3.13	2.56	3.40
Possion's Ratio		0.18	0.18	0.18	0.18	0.18	0.19	0.19	0.18	0.14
Young's Modulus	GPa [E]	350	380	410	392	330	330	390	400	700
CTE avg 20–100°C	(ppm/K) [α]	2.9	2.9	2.7	2.8	3.0	4.4	3.0	4.8	1.4
Thermal Conductivity	(W/m-K) [k]	170	180	190	185	150	200	210	52	550
Specific Heat	(J/kg-K)	680	670	660	665	680	700	670	890	600
Flexural Strength	(MPa)	270	280	295	294	350	275	225	280	280
Fracture Toughness	(MPa-m ^{1/2})	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	4.5
Specific Stiffness	(E/ ρ)	119	127	131	128	112	109	125	156	206
Thermal Stability	(k/ α)	59	62	70	66	50	45	70	11	393



Blast Nozzles



Large Scale Furnace Liners
(1m diameter x 5m length x 15mm sidewall)



Choke Inserts



Intricate Seal Geometries



Bunner Nozzles



Blast Nozzles