



HMT ARMOR CERAMICS

Hard Material Technologies GmbH (HMT) is a manufacturer and contractor of SiC, B₄C and composite as well as their powder, manufacturing parts and powders used in high-end wear resistance, shock absorption and armour applications globally.

With its international staff of experts in non-oxide ceramics, HMT remains the supplier of choice for technology leaders in the petrochemical, armor, mining and surface treatment industries globally through outstanding quality and state-of-the-art after-sales service and solutions to the toughest customer challenges.

Through extensive R&D and manufacturing capabilities, operational excellence and unsurpassed partnership with manufacturing and technology leaders, HMT continues to provide outstanding value to its continuously expanding customer base worldwide.

Specifications

Index	Unit	SSiC	SB ₄ C (BC15®)	SiC+B ₄ C (BCS50®)
Density	g/cm ³	≥ 3.14	≥ 2.62	≥ 2.82
Hardness	HV1	2480	3050	3000
Flexural Strength	MPa	380	442	420
Compressive Strength	MPa	3910	3890	4100
Modulus of Elasticity	GPa	420	470	480
Weibull Modulus		8	9	9.2
Poisson Ratio		0.14	0.15	0.16
Fracture Toughness	Mpa/m	4.7	4.8	4.92
Coefficient of Thermal Expansion	x10 ⁻⁶ mm/mm°K	4.02	5.1	4.9
Max Service Temp	°C	1650	1060	1200
Emissivity		0.9	0.96	0.85

HMT ballistic ceramic systems offer required ballistic protection with the lowest possible weight. For more than a decade, our B₄C solutions have proven superior to conventional materials, through:

- High Hardness
- Low weight
- Uniformity
- Dimensional stability over large temperature ranges
- Compatibility for use in standard armor systems with proven ballistic performance for N.I.J. and other international design standards.

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Our line includes:

- Self-sintered Silicon Carbide (SSiC) Ceramics
- Self-sintered Boron Carbide (SB_4C) Ceramics
- SiC- B_4C Composite Ceramics

Body Protection

HMT offers ultra-lightweight, superior-quality mosaic and monolithic torso plates in a wide variety of shapes, sizes and thicknesses. Complex shapes and configurations are possible for the most demanding protective systems of all body parts. Their highest ballistic protection characteristics combined with significant weight savings are unmatched by conventional solutions.



Vehicle Protection

HMT offers standardized ceramic components such as pellets, hexagons and tiles in both metric and imperial measurements. Customized shapes, thicknesses and configurations can be manufactured upon request. HMT B_4C offers maximum protection while guaranteeing overall weight requirements.



Aircraft Protection

HMT B_4C based composite armor systems offer an excellent lightweight/ballistic protection performance ratio. Tiles and complex geometry parts and panels are available in our product portfolio.

