

# Diamond Drill Bit Mold Materials

World Renowned Graphite Expertise and Service

GrafTech is the world leader in Diamond Drill Bit (DDB) mold components, offering the technical support, service and global reach required in this demanding application. GrafTech has years of machining expertise for DDB mold components, and GrafTech's consistent reliability has been proven throughout the years.



## Features

- High thermal shock resistance
- Strength increases with temperature
- Performs at high temperatures
- Superior oxidation resistance

## Benefits

- Global reach
- Local machining
- Unmatched expertise and service
- Broad size range of graphite



# Typical Properties at Room Temperature\*

## DBX™ Graphite

Characteristic	Unit	WG	AG	Unit	WG	AG
Density	lbs/ft <sup>3</sup>	108		g/cm <sup>3</sup>	1.73	
Maximum Particle Size	inches	0.030		mm	0.76	
Specific Resistance	10 <sup>-4</sup> Ω in	2.7	3.5	μΩm	6.5	9.0
Flexural Strength: 4-point bending	psi	3200	2400	MPa	22	16
Young's Modulus	10 <sup>6</sup> psi	1.5	1.3	GPa	10	8.9
Tensile Strength	psi	2300	1700	MPa	15	12
Compressive Strength	psi	6600	6600	MPa	46	46
C.T.E. (RT to 100 °C)	10 <sup>-6</sup> /°F	1.4	2.0	10 <sup>-6</sup> /°C	2.5	3.5
Hardness	Rockwell "R"	83		Rockwell "R"	83	
Porosity	%	14		%	14	
Thermal Conductivity	BTU-ft/hr ft <sup>2</sup> °F	100	85	W/mK	175	150
Ash Content	%	0.12		%	0.12	

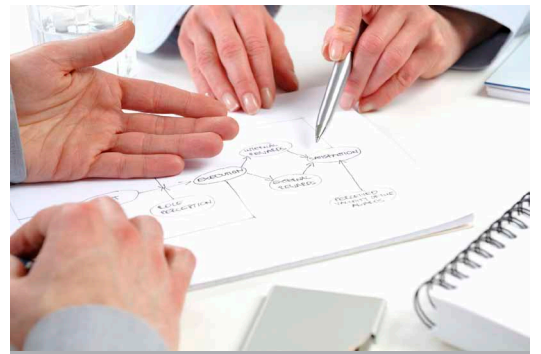
## DBZ™ Graphite

Characteristic	Unit	WG	AG	Unit	WG	AG
Density	lbs/ft <sup>3</sup>	103		g/cm <sup>3</sup>	1.65	
Maximum Particle Size	inches	0.030		mm	0.76	
Specific Resistance	10 <sup>-4</sup> Ω in	2.8	3.6	μΩm	6.8	9.4
Flexural Strength: 4-point bending	psi	2400	1900	MPa	17	13
Young's Modulus	10 <sup>6</sup> psi	1.4	1.0	GPa	9.6	7.5
Tensile Strength	psi	2000	1300	MPa	13	8.9
Compressive Strength	psi	6600	6600	MPa	46	46
C.T.E. (RT to 100 °C)	10 <sup>-6</sup> /°F	1.4	2.0	10 <sup>-6</sup> /°C	2.5	3.5
Hardness	Rockwell "R"	70		Rockwell "R"	70	
Porosity	%	18		%	18	
Thermal Conductivity	BTU-ft/hr ft <sup>2</sup> °F	95	80	W/mK	145	130
Ash Content	%	0.12		%	0.12	

\* Properties listed are typical and cannot be used as accept/reject specifications

Our global team of Applications Engineers are knowledgeable about graphite and applications spanning multiple industries. These include metallurgical casting, electronics, chemical, nuclear, defense/aerospace, solar, LED, semiconductor, and other high temperature processes.

Regardless of your product design phase (concept, prototyping, or mass production), we offer technical answers to some of your most challenging problems with a fast response time.



Please contact a GrafTech Applications Engineer today at [applicationsengineering@graftech.com](mailto:applicationsengineering@graftech.com)

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**Redefining limits**