



Sectioning or cutting can be the most important step in microstructural preparation. Diamond wafer sectioning is most commonly used for delicate materials requiring a precise cut. Examples include microelectronics, engineering ceramics and composites. The most important factors for choosing the appropriate diamond wafering blade are diamond concentration (low or high), diamond bond, diamond size (fine or medium), blade diameter and blade thickness. In addition, proper cutting speeds and loads are required to minimize specimen damage and to obtain a timely cut.



Material	Characteristic	Speed (rpm)	Load (grams)	Blade (grit/conc.)
Silicon substrate	soft/brittle	<300	<100	Fine/low
Gallium arsenide	soft/brittle	<200	<100	Fine/low
Boron composites	very brittle	500	250	Fine/low
Ceramic fiber composites	very brittle	1000	500	Fine/low
Glasses	brittle	1000	500	Fine/low
Minerals	friable/brittle	>1500	>500	Fine/low
Alumina ceramic	hard/tough	>1500	>500	Medium / low
Zirconia (PSZ)	hard/tough	>3500	>800	Medium/low
Silicon nitride	hard/tough	>3500	>800	Medium/low
Metal matrix composites		>3500	>500	Medium/high
General purpose		variable	variable	Medium/high

4" Diameter (102 mm) Wafering Blade, 1/2" (12.7 mm) Arbor

Application	Concentration	Diamond size	Thickness	Part Number
Brittle materials (microelectronic materials, friable ceramics, minerals)	Low	Fine	0.015"	WB-0040LC
Hard/tougher ceramics (Si ₃ N ₄ , ZrO ₂)	Low	Medium	0.015"	WB-0045LC
Most metal samples	High	Medium	0.015"	WB-0045HC

5" Diameter (127 mm) Wafering Blade, 1/2" (12.7 mm) Arbor

Application	Concentration	Diamond size	Thickness	Part Number
Brittle materials (microelectronic materials, friable ceramics, minerals)	Low	Fine	0.015"	WB-0050LC
Hard/tougher ceramics (Si ₃ N ₄ , ZrO ₂)	Low	Medium	0.015"	WB-0055LC
Most metal samples	High	Medium	0.015"	WB-0055HC

6" Diameter (153 mm) Wafering Blade, 1/2" (12.7 mm) Arbor

Application	Concentration	Diamond size	Thickness	Part Number
Brittle materials (microelectronic materials, friable ceramics, minerals)	Low	Fine	0.017"	WB-0060LC
Hard/tougher ceramics (Si ₃ N ₄ , ZrO ₂)	Low	Medium	0.017"	WB-0065LC
Most metal samples	High	Medium	0.017"	WB-0065HC

7" Diameter (178 mm) Wafering Blade, 1/2" (12.7 mm) Arbor

Application	Concentration	Diamond size	Thickness	Part Number
Brittle materials (microelectronic materials, friable ceramics, minerals)	Low	Fine	0.022"	WB-0070LC
Hard/tougher ceramics (Si ₃ N ₄ , ZrO ₂)	Low	Medium	0.022"	WB-0075LC
Most metal samples	High	Medium	0.022"	WB-0045HC

8" Diameter (203 mm) Wafering Blade, 1/2" (12.7 mm) Arbor

Application	Concentration	Diamond size	Thickness	Part Number
Brittle materials (microelectronic materials, friable ceramics, minerals)	Low	Fine	0.045"	WB-0080LC
Hard/tougher ceramics (Si ₃ N ₄ , ZrO ₂)	Low	Medium	0.045"	WB-0085LC
Most metal samples	High	Medium	0.045"	WB-0085HC

Diamond Wafer Cutting Accessories

Description	Quantity	Part Number
DIACUT™ water based diamond wafer cutting fluid	8 oz (0.24l) 16 oz (0.47l)	WL-3000-08 WL-3000-16
DIACUT™ Dressing sticks (fine grit) DIACUT™ Dressing sticks (medium grit)	each each	DRESS-0010 DRESS-0050
Porometric mounting pads	24/pkg	PAD-0010



FINOCUT Low Speed Saw



MIRACUT High Speed Precision Saw