



## Dicing Blade Selection Criteria

ADVANCED TECHNOLOGY FOR  
RESEARCH & INDUSTRY

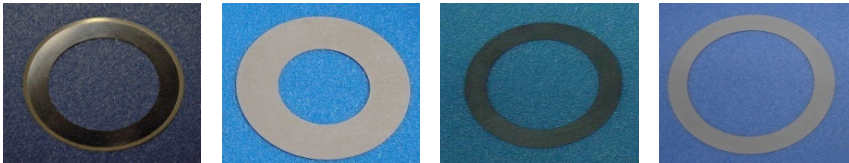
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- Choosing the right blade for your application is crucial to the success of your dicing process the following information will help you understand the key parameters for selecting the correct dicing

Key parameters for blade selection are :

**Blade Type**: Hub Mounted or Annular blades .

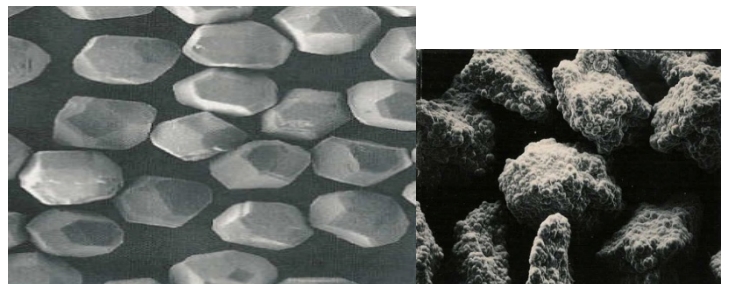
**Binder material** : Nickel , Resin , Sintered Metal or Steel Cored



**Blade Dimensions**: Inner Diameter , Outer Diameter and Thickness

**Edge Geometry**: Standard , Serrated or Shaped

**Abrasive Compound** : Diamond, SiC, CBN, Grit size and Concentration



**Matrix**: Hard, Medium or Soft

### **Nickel Blades:**

The nickel binder provides longer blade life and lower wear rate and combined with the abrasive makes nickel-bond blades a perfect choice for soft material applications such as: PCB, PZT, Silicon and BGA (Tape process).

Nickel blades consist of a uniform mixture of nickel and diamonds.

Blade thickness varies from 20 microns (0.8 mil) to 500 microns (20 mil) (depending on diamond grit size and blade OD).

Diamond grit size ranges from 2-4 microns to 70 microns (depending on blade thickness)

### **Resin Blades:**

Resin as binder allows for blade wear management rendering resin-bond blades an excellent choice for hard and brittle materials such as: QFN/MLF, Thick Ceramic Substrates, HTCC and Glass.

Blade thickness varies from 75 microns (3 mil) to 2500 microns (100 mil) (depending on diamond grit size and blade OD).

Diamond grit size ranges from 3 microns to 250 microns (depending on blade thickness).

### **Sintered Metal Blades**

With slower wear rate than resin but faster than nickel, sintered blades are best suited for retaining package shape and size in applications such as: BGA, Soft Alumina, LTCC and HTCC.

Blade thickness varies from 100 microns (4 mil) to 1500 microns (60 mil) (depending on diamond grit size and blade OD).

Diamond grit size ranges from 2 microns to 70 microns (depending on blade thickness)

For more detailed information on any of these topics, e-mail [enquiries@inseto.co.uk](mailto:enquiries@inseto.co.uk)

## Blade by Application Chart

Blade Type	Diamond size Micron	Product	Material
Nickel Blade	30,50,70 10,13,17 3-6,4-8,10,17 2-4,3-6,10,15 2-4,4-8,10 1-3,2-4 4-8 2-4,4-8,10 2-4,4-6,4-8	PBGA PCB Tape Heads Magnetic Heads Ultrasound Sensors Active Devices ( Discrete ) SAW Devices Ink Jet Print Head IC's	FR4, Plastic & BT Resin FR4 / Epoxy & Copper Ferrite TiC PZT GaAs LiNbO3, LiTaO3 PZT Silicon
Steel Core Ni Blades	30,50,70 30,50	MLC ( Multi Layer Capacitors ) PBGA (Tape application)	Green Ceramic FR4, Plastic & BT Resin
Resinoid Blades	45,53,63 45,53,63,88 45,53,63,75,88,105 25,30,45,53 9,15,20,30 9,15,20,30 15,25,30,45,53 15,20,30,35 20,25,30,35,40,45 45,53,63	CBGA Ceramic Packages, Sensors QFN/MLP ( F/C & H/E ) SAW Devices SAW Devices Tape Heads Ink Jet Print Heads, Fiber Optics CCD SAW Devices, RF LED, Optical & electro Optical Components	Alumina & Molding Alumina Copper (Coated) & Resin Molding Quartz LiNbO3, LiTaO3 Ferrite Glass, Quartz Glass HTCC Sapphire
Sintered Blades	10,17,20 30,40,50 9,10,15 50,70 20,25,30,35 30,35,40,45 13,17,20,25 20,30,40	Magnetic Heads PBGA (Tape & Tape-less applications) Fiber Optics QFN/MLP ( H/E ) Passive & Active Devices. Communication Modules SAW Devices, RF CCD Ceramic Packages	TiC FR4, Plastic & BT Resin Glass, Quartz Copper (Coated) + Resin Molding LTCC HTCC Glass Alumina

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