



Annular Dicing Blade Selection Criteria

ADVANCED TECHNOLOGY FOR
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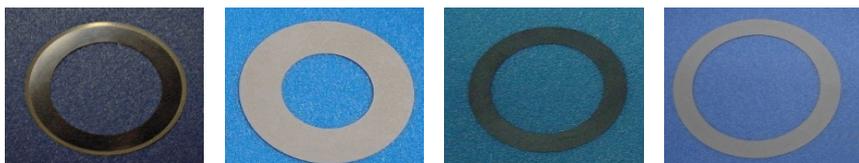
KNOWLEDGE BASE
FACT SHEET

- Annular Dicing Blade Selection: 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 blade.

This document focuses on the "annular" (also known as hubless) blade type; key parameters for 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

Blade by Application Chart

Blade Type	Grit sizes in microns	Product	Material
Nickel	30,50,70	PBGA	FR4 ,Plastic & BT Resin
	10,13,17	PCB	FR4 ,Epoxy & Copper
	3-6 ,4-8, 10, 17	Tape Heads	Ferrite
	2-4, 3-6 ,10,15	Magnetic Heads	TiC
	2-4,4-8, 10	Ultrasound sensors	PZT
	1-3, 2-4	Active Devices (Discrettes)	GaAs
	4-8,	SAW Devices	LiNbO3, LiTaO3
	2-4,4-8,10	Ink Jet Print Heads	PZT
	2-4, 4-6, 4-8	IC's, MEMS	Silicon
Resinoid	45,53,63	CBGA	Alumina
	45,53,63,88	Ceramic Packages	Alumina
	45,53,63,75,88,105	QFN/MLP	Copper & Resin Molding
	25,30,45,53	SAW Devices	Quartz
	9,15,20,30	SAW Devices	LiNbO3, LiTaO3
	9,15,20,30	Tape Heads	Ferrite
	15,25,30,45,53	Ink Jet Print Heads , Fibre Optics	Glass , Quartz
	15,20.30,35	CCD	Glass
	20,25,30,35,40,45	SAW Devices RF	HTCC
	40,53,63	LED, Optical Components	Sapphire
Sintered	10,17,20	Magnetic Heads	TiC
	30,40,50	PBGA	FR4,Plastic & Bt resin
	9,10,15	Fibre Optics	Glass, Quartz
	50,70	QFN , MLP	Copper & Resin Molding
	20,25,30,35	Passive Devices	LTCC
	30,35,40,45	SAW Devices RF	HTCC
	13,17,20,25	CCD	Glass, Quartz
	20,30,40	Ceramic Packages	Alumina

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