

**A WIDE SELECTION OF BLADES FOR
A VARIETY OF DICING APPLICATIONS**

Metal Sintered Blades

Highly versatile blades for a variety of soft and hard material applications

A Comprehensive Dicing Solution

- The widest variety of matrixes for a broad range of applications
- Less wear/higher blade life
- Highly accurate blade dimensions
- High precision dicing
- Attractive cost-of-ownership



ADT = *Dicing*
Advanced Dicing Technologies

Metal - Sintered Blades Standard Sizes

| BLADE I.D. | | BLADE O.D. | | | |
|---------------------------|-------|---|--|---------------|--|
| inches | mm | inches (mm) | | | |
| 1.575 | 40.0 | 2.000 (50.8) | | 2.250 (57.2) | |
| | | 2.047 (52.0) | | 2.283 (58.0) | |
| | | 2.126 (54.0) | | 2.362 (60.0) | |
| | | 2.188 (55.6) | | 2.500 (63.5) | |
| | | 2.204 (56.0) | | 2.750 (69.9) | |
| 1.575 | 40.0 | 2.913 (74.0) | | 3.031 (77.0) | |
| | | 2.953 (75.0) | | 3.071 (78.0) | |
| | | 2.972 (75.5) | | 3.110 (79.0) | |
| | | 3.000 (76.2) | | 3.228 (82.0) | |
| 2.750 | 69.8 | 4.000 (101.6) | | 4.400 (111.8) | |
| | | 4.256 (108.1) | | 4.500 (114.3) | |
| | | 4.300 (109.2) | | 4.600 (116.8) | |
| 3.000 | 76.2 | 4.000 (101.6) | | 4.400 (111.8) | |
| | | 4.256 (108.1) | | 4.500 (114.3) | |
| | | 4.300 (109.2) | | 4.600 (116.8) | |
| 3.500 | 88.9 | 4.256 (108.1) | | 4.500 (116.8) | |
| | | 4.300 (109.2) | | 4.700 (119.4) | |
| 3.000 | 88.82 | 4.400 (111.8) | | 4.800 (121.9) | |
| | | 4.500 (114.3) | | 5.000 (127.0) | |
| THICKNESS | | .0030" .0040" .0050" .0080" .0600" | | | |
| STANDARD TOLERANCE | | [Yellow bar] | | | |
| TIGHT TOLERANCE | | [Orange bar] | | | |
| GRIT SIZE | | 2-4 μm▶ 3-6 μm▶ 10 μm 2-4 μm▶ 17 μm▶ 20 μm▶ 25 μm 2-4 μm▶ 30 μm▶ 50 μm▶ 70 μm | | | |

Design: STUDIO BAHIR

1. Locate your desired blade diameter (O.D. and I.D.) in any one of the gray shaded bars at the top of the chart. The horizontal length of the shaded bar, in comparison to the red bar indicates the range of thickness in which blades in the gray bar are available. For example, 4" O.D. blades are only available (as standard) in thickness range from .0080" to .0600"

2. Make sure that the desired blade diameter is available in the desired thickness.

3. All of the colored options bars below the red bar indicate the range of thickness, where that option is available. For example, blades with 50 μm grit size are only available (as standard) in thickness range from .0080" to .0600".

* Blade thickness options ranging from .0030" to .0080" are available depending on matrix type, and diamond grit size.

After you have determined (using the chart above) that your blades' O.D., I.D, thickness and grit size are available, please refer to the Metal Sintered Blades Part Number Description table for ordering information.

Please note: Other diameters, grit sizes and thickness options are available upon request.



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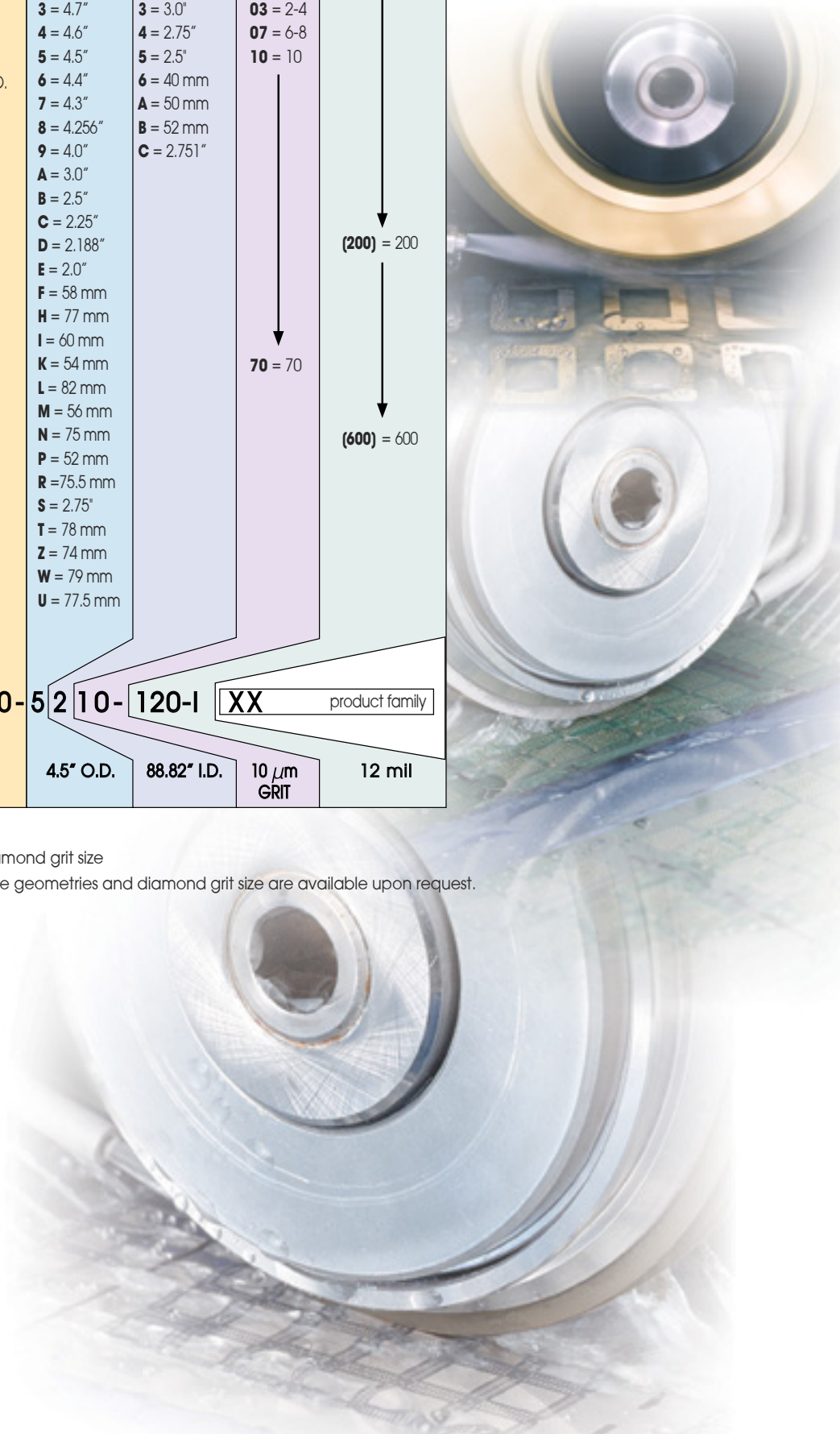
Metal Sintered Blades Part Number Description

| THICKNESS TOLERANCE* | EDGE GEOMETRY** | O.D. | I.D. | GRIT SIZE (μm) | THICKNESS* M=mm I=tenths |
|--|---|---|---|--|--|
| 2 = ±.0001" 3 = ±.0002" 4 = ±.0005" B = ±.0003" | 0 = Standard A = Serrated serration x16 x40 x60 depending on blade O.D. N = Non Standard | 1 = 5.0" 2 = 4.8" 3 = 4.7" 4 = 4.6" 5 = 4.5" 6 = 4.4" 7 = 4.3" 8 = 4.256" 9 = 4.0" A = 3.0" B = 2.5" C = 2.25" D = 2.188" E = 2.0" F = 58 mm H = 77 mm I = 60 mm K = 54 mm L = 82 mm M = 56 mm N = 75 mm P = 52 mm R = 75.5 mm S = 2.75" T = 78 mm Z = 74 mm W = 79 mm U = 77.5 mm | 1 = 3.5" 2 = 88.82 mm 3 = 3.0" 4 = 2.75" 5 = 2.5" 6 = 40 mm A = 50 mm B = 52 mm C = 2.751" | 0A = 3-6 02 = 1-2 03 = 2-4 07 = 6-8 10 = 10 70 = 70 | (050) = 050 (200) = 200 (600) = 600 |
| EXAMPLE PART NUMBER | 450 | 30-5 | 210-120-I | XX | product family |
| ±.0002* | STANDARD | 4.5" O.D. | 88.82" I.D. | 10 μm GRIT | 12 mil |

* Depends on diamond grit size

** Depends on blade thickness and diamond grit size

Other thickness options, diameters, edge geometries and diamond grit size are available upon request.



NG APPLICATIONS

NEW!

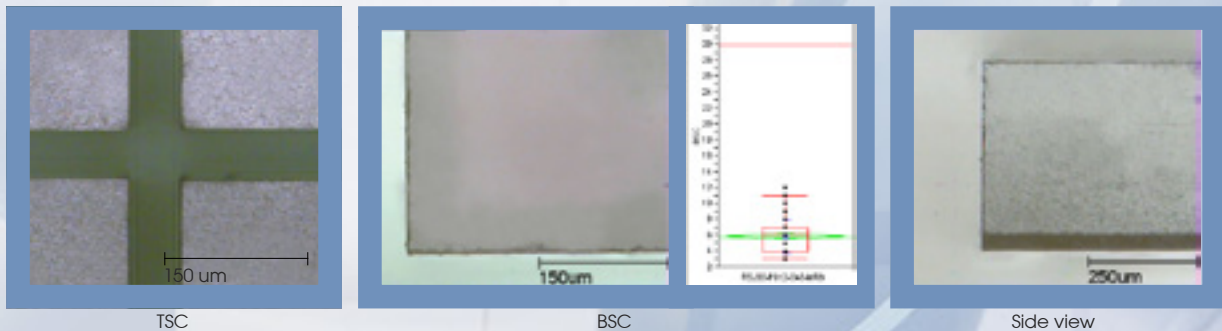
Technology for Thin blade

Keeping our commitments to constantly improve our products and our customers' CoO, ADT is introducing the latest technology for manufacturing thin blades at the range of 50 -100 μ m thickness.

This new technology is designed to meet the strict requirements of perpendicularity, quality and package size at high feed rate.

These thin blades family is designed for Glass and soft Ceramic applications.

Dicing results of 300mm \varnothing Image Sensor wafer with 48 μ m blade thickness at cut speed of 6mm/sec:



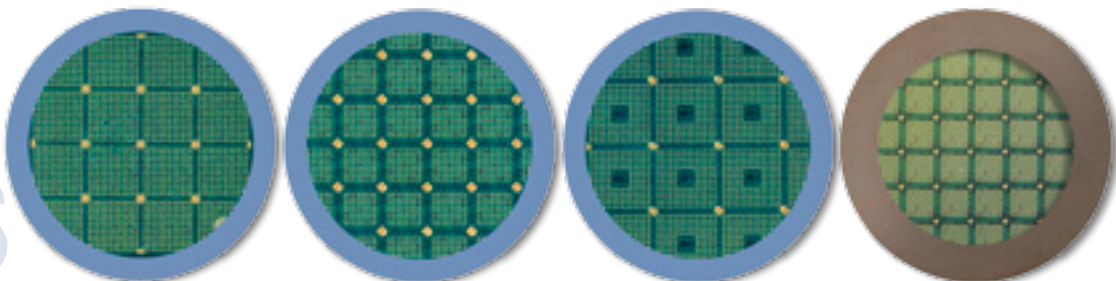
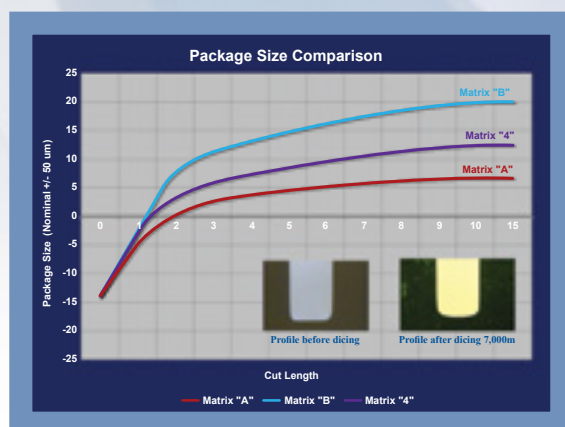
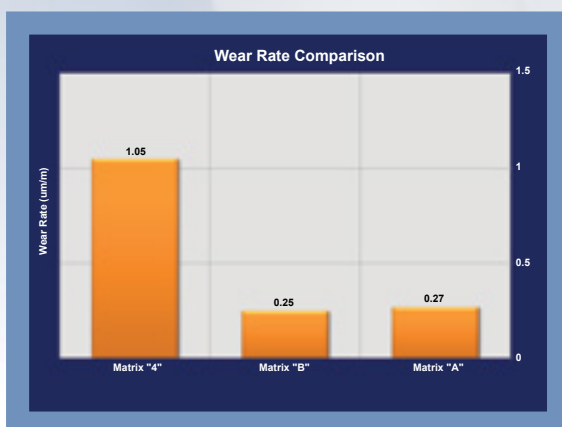
NEW!

Matrix "A" for dicing BGA application

As part of ADT commitment for ongoing improvement, we would like to introduce our new matrix "A" for various BGA applications. The unique proprietary of matrix composition, provides a significant lower radial wear, maintaining a stable package size.

These improvements provide:

- Exceptionally long blade life
- Superior cut quality
- Attractive cost-of-ownership



Metal Sintered Blades

Highly versatile blades for a variety of soft and hard material applications

In a unique, close-mold sintering process, diamond grit size, diamond concentration and metal binder are optimized to meet the precision and blade life requirements of your specific application. The metal binder provides a very stable, stress-free blade matrix and can be custom tailored to meet the required hardness and load resistance for dicing a variety of applications.

With slower wear rate than Resin but faster than Nickel, **Metal-bond (Sintered) Blades** are best suited for retaining package shape and size in applications such as:

| Application | Recommended Grit Size | | |
|--|---|---|---|
| BGA FR4 and Resin | 35 μm , 40 μm , 45 μm , 50 μm , 55 μm |  |  |
| Magnetic Heads TiC | 3-6 μm , 10 μm , 17 μm |  |  |
| Optical Sensors, Communication Glass | 10 μm , 15 μm , 17 μm , 20 μm 25 μm , 30 μm , 45 μm |  |  |
| MEC Alumina, LTCC | 17 μm , 20 μm , 25 μm , 30 μm , 35 μm |  |  |
| QFN Copper + Epoxy Molding | 40 μm , 45 μm , 50 μm |  |  |

A WIDE SELECTION OF BLADES

A wide selection of annular blades

Our blade selection is comprised of three product families distinguished by the type of binder: Resin-bond Blades, Nickel-bond Blades and Metal-bond (Sintered) Blades. Nickel-bond and Metal-bond (Sintered) Blades are characterized by long blade life and endurance, while Resin-bond Blades wear off faster and create less heat & friction. Resin-bond Blades are therefore best suited for hard and brittle materials such as alumina, glass and quartz, whereas Nickel-bond and Metal-bond (Sintered) Blades are an excellent choice for softer materials/substrates such as: PCB, Silicon and BGA.

30 years of experience in tailoring solutions to specific applications

ADT's Dicing Saws, the NextStep Laser Scriber System, Annular Blades and Peripheral Equipment manifest a wealth of dicing know-how and experience accumulated over three decades. We offer our customers a comprehensive solution - a unique blend of research, development, process mastery and skill.



State-of-the-Art Manufacturing Technology

Our blades are composed of abrasive materials embedded in a resin or metal matrix. Resin-bond Blades are cured under pressure and high temperature, Metal-bond Blades are sintered and Nickel bond Blades are manufactured using a tightly controlled electroforming process.

The highest standards of quality assurance & process control

Strict monitoring at each critical stage of the production process insures that each ADT blade meets the desired specifications and dimensional tolerances. Our blades are tested extensively on the latest platforms, simulating the customer's operating conditions and process parameters.

A 100% final inspection is conducted on all products leaving the factory.

"FAST" and Easy Blade Selection



There is nothing trivial about choosing the right blade composition for your process. The task requires taking into consideration: geometry, diamond size & concentration, binder hardness and many more variables. With our Selection Tool, you can enjoy the benefit of our 30 years of process experience.

Our "FAST" will walk you through the selection process taking your particular requirements into consideration and producing an educated ADT recommendation for a first trial, part number.

In addition, as always, our engineers are available to assess your needs and assist you in the blade selection process.

Contact information is available on ADT website.

Attractive cost-of-ownership

By continuously lowering the cost of manufacturing, improving the quality and longevity of our products and maintaining a competitive, premium pricing policy, we lower the total cost-of-ownership and add value to your dicing operation.

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