LR

HUBLESS RESIN DICING BLADE

Resin diamond blades are specifically designed for high-precision cutting applications in the semiconductor industry. Thanks to their optimized structure, they offer a smooth and controlled cutting action, minimizing mechanical stress on components while ensuring excellent surface finish quality.

Particularly suited to fragile materials and thin wafers, they produce clean cuts with minimal chipping and micro-cracks.

The resin bond ensures constant renewal of the diamond grains during the cutting operation, guaranteeing an excellent balance between performance, surface finish quality, and wear control. This technology is especially recommended when the quality of the cutting edge and component protection are critical requirements.

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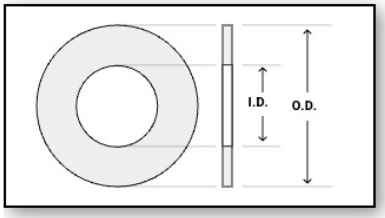
2” hubless resin blades:



Diameter Designation (inches)	Dimensions (inches) O.D.	x I.D.	Diameter Designation (metric)	Dimensions (metric) O.D.	x I.D.
2.050	2.050	1.575	52	52	40
2.187	2.187	1.575	56	56	40
2.250	2.250	1.500	57	57	38
2.25M	2.250	1.575	57	57	40

Thickness tolerance	Levels (inches) +/-	Minimum blade thickness (inches)	Levels (metric) +/-	Minimum blade thickness (metric)
AA	0.0001	0.0120	0.0025	0.3048
A	0.0002	0.0015	0.0051	0.0381
B	0.0003	0.0015	0.0076	0.0381
C	0.0004	0.0015	0.0102	0.0381
D	0.0005	0.0150	0.0127	0.3810

2.187 – **5** **A** – **46** **R7-3** — Resin Bond (matrix) varies according to each application

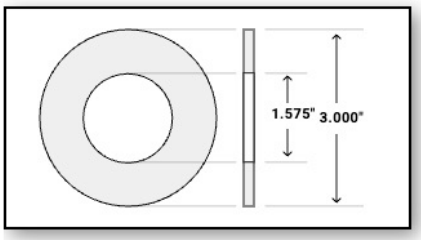
Blade Thickness (inches)	(mils)	(metric)
0.0015	1.5	0.038
0.002	2	0.051
0.003	3	0.076
0.004	4	0.102
0.005	5	0.127
0.006	6	0.152
0.007	7	0.178
0.008	8	0.203
0.009	9	0.229
0.010	10	0.254
0.011	11	0.279
0.012	12	0.305
0.013	13	0.330
0.014	14	0.356
0.015	15	0.381
0.016	16	0.406
0.017	17	0.432
0.018	18	0.457
0.019	19	0.483
0.020	20	0.508
0.021	21	0.533
0.022	22	0.559
0.023	23	0.584
0.024	24	0.610
0.025	25	0.635

Mesh size equivalent	Diamond particle size in microns	Minimum blade thickness (inches)
28000	.5	0.0015
14000	1	0.0015
8000	3	0.0015
3000	6	0.0015
1800	9	0.0015
1200	15	0.0020
1000	22	0.0030
500/600	30	0.0030
400/500	40	0.0040
325/400	46	0.0050
270/325	54	0.0060
230/270	64	0.0070
200/230	76	0.0080
170/200	91	0.0090
140/170	107	0.0100
120/140	126	0.0120
100/120	151	0.0140

[1]Standard thicknesses are available up to .250" in .0001" increments. Other sizes available upon request.

[2]Thinner blades below the minimum thickness for a given diamond size are available upon request.

3” hubless resin blades:



Diameter Designation (inches)	Dimensions (inches) O.D.	x I.D.	Diameter Designation (metric)	Dimensions (metric) O.D.	x I.D.
3M	3.000	1.575	76.2	76.2	40.0

Thickness tolerance	Levels (inches) +/-	Minimum blade thickness (inches)	Levels (metric) +/-	Minimum blade thickness (metric)
AA	0.0001	0.012	0.0025	0.3048
A	0.0002	0.004	0.0051	0.1016
B	0.0003	0.004	0.0076	0.1016
C	0.0004	0.004	0.0102	0.1016
D	0.0005	0.015	0.0127	0.3810

3M – **6** **A** – **46** **R7-3** – Resin Bond (matrix) varies according to each application

Blade Thickness (inches)	(mils)	(metric)
0.004	4	0.102
0.005	5	0.127
0.006	6	0.152
0.007	7	0.178
0.008	8	0.203
0.009	9	0.229
0.010	10	0.254
0.011	11	0.279
0.012	12	0.305
0.013	13	0.330
0.014	14	0.356
0.015	15	0.381
0.016	16	0.406
0.017	17	0.432
0.018	18	0.457
0.019	19	0.483
0.020	20	0.508
0.021	21	0.533
0.022	22	0.559
0.023	23	0.584
0.024	24	0.610
0.025	25	0.635

Mesh size equivalent	Diamond particle size in microns	Minimum blade thickness (inches)	Minimum blade thickness (meters)
28000	0.5	0.004	0.102
14000	1	0.004	0.102
8000	3	0.004	0.102
3000	6	0.004	0.102
1800	9	0.004	0.102
1200	15	0.004	0.102
1000	22	0.004	0.102
500/600	30	0.004	0.102
400/500	40	0.004	0.102
325/400	46	0.0050	0.127
270/325	54	0.0060	0.152
230/270	64	0.0070	0.178
200/230	76	0.0080	0.203
170/200	91	0.0090	0.229
140/170	107	0.0100	0.254
120/140	126	0.0120	0.305
100/120	151	0.0140	0.356

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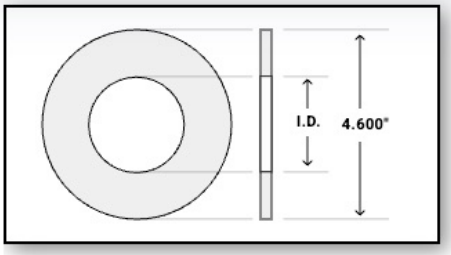
[2]Thinner blades below the minimum thickness for a given diamond size are available upon request.

4” hubless resin blades:



Diameter Designation (inches)	Dimensions (inches) O.D. x I.D.		Diameter Designation (metric)	Dimensions (metric) O.D. x I.D.	
4.6	4.600	3.500	117	117	88.9
4.6H	4.600	3.497	117	117	88.8

Thickness tolerance	Levels (inches) +/-	Minimum blade thickness (inches)	Levels (metric) +/-	Minimum blade thickness (metric)
AA	0.0001	0.0120	0.0025	0.3048
A	0.0002	0.0030	0.0051	0.0762
B	0.0003	0.0030	0.0076	0.0762
C	0.0004	0.0004	0.0102	0.0762
D	0.0005	0.0150	0.0127	0.3810

4.6 – **3** **A** – **15** **R7-3** — Resin Bond (matrix) varies according to each application

Blade Thickness (inches)	(mils)	(metric)
0.003	3	0.076
0.004	4	0.102
0.005	5	0.127
0.006	6	0.152
0.007	7	0.178
0.008	8	0.203
0.009	9	0.229
0.010	10	0.254
0.011	11	0.279
0.012	12	0.305
0.013	13	0.330
0.014	14	0.356
0.015	15	0.381
0.016	16	0.406
0.017	17	0.432
0.018	18	0.457
0.019	19	0.483
0.020	20	0.508
0.021	21	0.533
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Mesh size equivalent	Diamond particle size in microns	Minimum blade thickness (inches)	Minimum blade thickness (meters)
28000	0.5	0.003	0.076
14000	1	0.003	0.076
8000	3	0.003	0.076
3000	6	0.003	0.076
1800	9	0.003	0.076
1200	15	0.003	0.076
1000	22	0.003	0.076
500/600	30	0.003	0.076
400/500	40	0.004	0.102
325/400	46	0.0050	0.127
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[2]Thinner blades below the minimum thickness for a given diamond size are available upon request.

Matrix	General Usage and Characteristics
R-3	Strong bonding of abrasives and the latest derivative of the first computer-designed R7-3 matrix exhibiting 20% to 30% longer blade life and improved cut quality. Designed for materials such as ceramics and crystalline materials where high throughput is desired.
R-3A	Newest generation of the R-3 series. Slightly modified to run cooler increasing blade life in some applications.
D-3A	This matrix is like the R-3A and R-3 series, but with a slightly stronger bond.
RU-3	Weaker bonding of abrasives for where high cut quality is desired as in materials such as glass, sapphire, Pyrex, lithium tantalite, lithium niobate, quartz, etc. Where the cutting forces during dicing consistently exposes sharp new diamond edges to maintain quality of cut. This matrix is the latest derivative of the RU7-3.
RU-3A	Newest generation of the RU-3 series. Slightly modified to run cooler thus increasing blade life in some applications.
RU-1	Same as the RU-3 bond except this matrix exhibits 1/3 of the diamond concentration. Best used where the highest quality of cut is desired and feed rates are not enough to guarantee the self-sharpening characteristics of the resin bonded blade due to light cutting forces on the individual diamond particles. This matrix is the latest derivative of the RU7-1.
RU-1A	Same as the RU-1 matrix and slightly modified to run cooler.
DH3	A stronger bond over the R-3 series blades exhibiting longer blade life in material types like PCB, BGA, and similar applications.
DH3A	Same as the DH3 matrix but designed to run cooler.
QFDH3	Like DH-3 Series but modified to cut QFN types of applications.
RA-3	Strong bonding of abrasives used primarily for metals utilizing boron nitride rather than diamond abrasives. This matrix replaces the AMR7-3.
RU-3S	Designed for materials such as LTCC type of materials, some ferrites, and material applications that demand extremely high-quality specifications.
QF	Developed for dicing substrates such as those used for QFN, DFN, MLF, etc... types of applications. This matrix exhibits long blade life and high throughput.
QF1R	Developed for QFN, DFN, MLF, etc... types of applications. This blade was designed to help overcome poor rigidity cutting conditions.
QX Series	Further development of the matrices for cutting QFN type materials with too many modifications to continue to call it part if the QF series. The new QX series exhibits superior blade life over the QF series but cutting conditions must be closely controlled to maintain quality over the life of the blade.
HD1	Developed for dicing QFN, DFN, MLF, etc... types of applications. In some dissimilar QFN epoxy types, this matrix can attain excellent blade life and quality over the QF series blades when used in the proper materials.
HQ1	The HQ1 matrix was also designed to cut dissimilar materials such as QFN, DFN, MLF, and other types of applications. This matrix was created by taking into account both the epoxy/ceramic type encapsulations and the actual copper leads for both life and quality. The HQ matrix is also stiffer than most matrices, making it more forgiving if overexposed.
AN1	The AN1 matrix is our latest generation of blades designed to cut dissimilar materials such as QFN, DFN, MLF, and other types of applications. This new AN1 matrix is designed to run cooler compared to the QF and HQ1 series, while maintaining excellent quality.

Related products

Metal dicing saw	Flange	Dresser plate	Dicing tape