



Diamond Sawn Part Tips & “Rules Of Thumb”

Don't FORGET to include saw kerf (alley) in part stepping dimensions when making parts.

Saw kerf (blade thickness) recommendations* and limitations:

Material thickness in inches	Blade thickness in inches
.010<thickness<.050	.010
.050<thickness<.060	.012
.060<thickness<.090	.015
.090<thickness<.200	.020
.025<thickness	.006 if necessary but not recommended

*Part design and material may affect choice of blade thickness and compound.

Typical blades (thickness in inches) in stock:

.006 .008 .010 .012 .015 .020

Delivery of special blades is typically 4 weeks.

Standard blade thickness tolerances: +/- .0005 inches.

Outside border waste perimeter: .100 inches minimum

Materials exhibiting cut problems:

Molybdenum: bends badly

Bismuth telluride: cut edge quality

Quartz: edge chips

.005 inch thick or less alumina: disintegrates

“Blue Nitto style tape” mount on rings available but avoid using on materials less than .025 inches thick.

Post exposure UV tape mounting is low “tack” for ease of part shipment and removal from tape. The UV de-bond tape is particularly useful for parts that cannot withstand acetone exposure.

UV de-bond type tape mount available but not viable for parts with backside patterns due to poor adhesion.

Both types of tape mountings may offer cost advantages if customer can use parts shipped back still mounted after sawing.

Size limitations: Up to 6 inch diameter, 5.5 inch x 5.5 inch and .215 inches thick.

Avoid mounting of parts with water-soluble adhesives.

Parts MUST be able to withstand immersion in both water and acetone (typically). This limits sawing of many organic materials.

Epoxy bonded (laminated) parts may delaminate in cutting and cleaning process.

Length and width tolerance capability: +/- .001 inches.

Alignment accuracy to pattern feature (excludes run-out in supplied pattern): +/- .001 inches.

Pattern must have sufficient contrast to allow optical alignment.

Smallest cut part size capability: .030 inches x .030 inches.

Alignment targets (features) should NOT be circles. Rectilinear target edges are best.

Typical edge chip limits:

92 to 96% alumina	<.001 inches
99% alumina	.001 inches
BEO	<.001 inches
Silicon	.001 inches
Aluminum nitride	.001 inches

Questech Services Corporation
2201 Executive Drive
Garland, Texas 75041 USA

800-736-1664
972-278-8006
Fax: 972-278-8036

e-mail: sales@questlaser.com
Website: www.questlaser.com