LEW TECHNIQUES

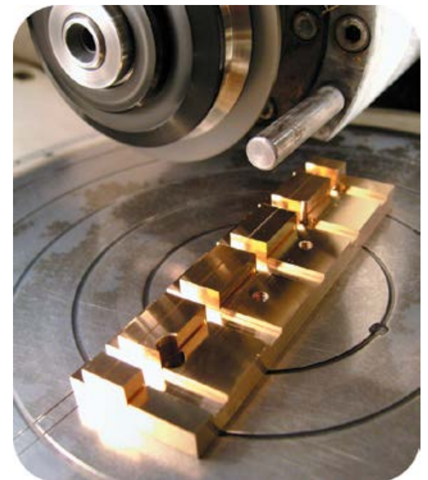
Dicing Services

LEW Techniques' high-precision machining facilities include state-of-the-art diamond dicing, available for subcontract to the microelectronic and miniature fabrication industries. Typical materials handled include ceramics, glass, metals and semiconductor wafers. Typically, items are diced from wafers or plates, using thin diamond-impregnated blades or wheels. In addition to standard dicing, items can be slotted, grooved, trenched, ground and chamfered to generate complex component profiles. Established for more than 20 years, our dedicated in-house facilities, with more than 10 high precision automatic dicing machines, allow us to offer a comprehensive range of dicing services covering prototypes though to large production volumes. Our expert technical staff are experienced in dicing a wide variety of materials to very high precision and consistent high quality.

Capability outline

Dicing of various substrate materials including ceramics, metals and glass to form:

Microcircuits
Heatsinks
Mounts
Windows
Spacers
Jumpers
Jigs
Alignment fixtures
Lenses
Filters
Frames
Semiconductors



Capacity

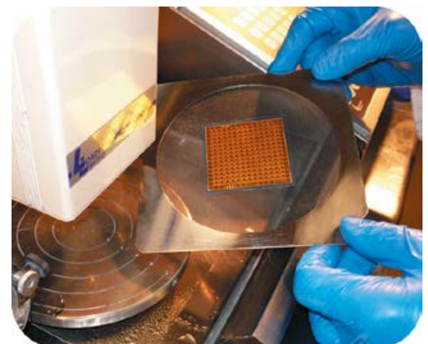
Up to 150 mm diameter or 120 mm square
Up to 10 mm thick
Cut depths up to 5 mm
2 µm step adjustment
1 µm depth adjustment

Tolerances

	Typical	High spec.
Diced parts	±50 µm	±20 µm
Slot widths	±20 µm	±10 µm
Slot depths	±50 µm	±10 µm
Alignment	±50 µm	±10 µm

Materials

Aluminium nitride
Borosilicate/soda glass
Alumina ceramic
Carbon
Copper
Ferrite
Sapphire
Kovar
Macor machinable ceramic
Silicon carbide
Silicon
Tungsten copper
Zirconium dioxide



Forms

Substrates
Sheets
Foils
Plates
Wafers
Rods
Strips
Tubes
Lenses
Discs

Diced Features

Slot, grooves, trenches

Slots can be machined into most materials using blades of the required width. Standard blades range from 0.070 mm wide to 1.30 mm wide and special widths can be procured where necessary.

Slots can have flat or rounded form and can typically be produced to within 70% of the material's thickness, or deeper if the item is supported by another material.

Images are not to scale

Trenches can be formed by stepping a suitable blade. Internal corner radii can be controlled to be as small as 0.030 mm as standard by flat dressing the blades.

Where sharp corners are required internal undercuts can be introduced using a thin blade to effectively produce zero radii.

Shallow grooves can have rounded or V-groove form.

Minimum slot/trench width is dependent on depth of cut and the characteristics of the material processed.

Chamfering

Chamfers along diced edges can be produced on non-metallic components.

Surface grinding

Material thickness can be reduced and flatness and surface finish improved by surface grinding.

Angled components

Components can be ground to provide angled faces.

Mounting options

Adhesive tapes	Hard wax
UV tapes	Synthetic wax

Carriers

Film frames	Glass/carbon/ceramic plates
Tape rings	

Shipping options

Parts can be shipped as diced on tape frames or plates, or dismounted and packed into waffle trays or bags.

Laser profiling

LEW Techniques also provides laser cutting, profiling and marking. Please contact us or visit our web site for further details.

Images are not to scale

LEW Techniques specialises in the manufacture of miniature components for the mounting of semiconductor devices. Our in-house capabilities include Thin Film, Thick Film and refractory metallising of ceramics and metals, electroplating, precision dicing, laser machining and marking, atmosphere/vacuum brazing and solder assembly.

To ensure end user compatibility, comprehensive in-house testing includes eutectic die bonding, Au wire bonding, shear strength, peel strength, coating thickness and surface finish measurement, heat testing and He leak detection.

To discuss your application in detail please contact our Technical Sales Department who will be pleased to assist you.

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