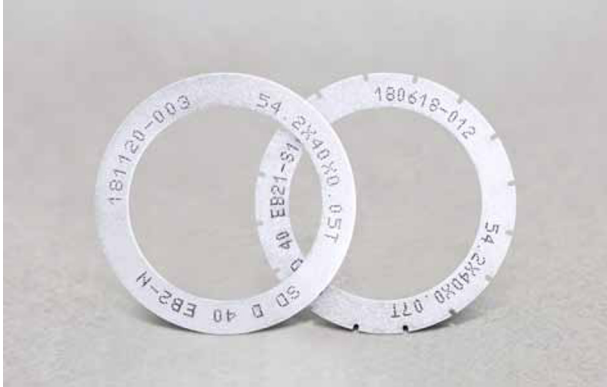


Dicing and microblades



Thin dicing tools

Precision cutting with a narrow kerf

EHWA presents thin diamond cutting tools for semiconductor singulation and for sawing and grooving technical substrates and packages. The cutting task combines material properties, required kerf and acceptable edge chipping. Assessment covers the backside and cut edge as well as the top surface.

The sources describe precise tool designs, controlled grit distribution and free-cutting performance. These characteristics can support limited chipping and productive feed rates. Bond and tool geometry are matched to the material structure and process conditions.

Match the material and tool

Source application	Tool relationship	Selection target
Silicon and compound semiconductors	Dicing blade	Precise singulation with limited top/backside chipping
QFN, FBGA, CSP and other packages	Microblade	Cutting quality across the material structure
Ferrite, ceramics, glass, quartz or sapphire	Microblade for sawing or grooving	Narrow kerf and matched bond
HTCC/LTCC ceramic packages, LED packages or PCB	Electroformed microblade	Thin kerf and useful tool life

Bonds and tool designs

The microblade document shows metal-bonded, resin-bonded and electroformed designs. Selection connects the required stiffness and wear behaviour with the material being cut. Grit distribution and bond also influence how the tool forms the cut edge.

The separate electroformed microblade document describes a nickel bond without pores in the illustrated microstructure. It presents a thin hubless tool for applications requiring a small kerf. Diamond retention and useful tool life are important features of the design.

The sources contain different designs and thickness statements. A purchasing or design decision therefore uses the complete tool type and drawing. One general thickness range would not adequately describe these differences or the required mounting arrangement.

Example: A ceramic package with a narrow kerf

EHWA lists HTCC and LTCC packages as applications for electroformed microblades. The thin tool design is associated with high bond strength and extended useful life. For this type of structure, kerf, chipping and behaviour at material transitions are assessed together.

In blade dicing, water at the processing point supports cooling and removal of cutting particles. This relationship was also checked against a primary DISCO process explanation. The cooling arrangement is matched to the machine, blade and workpiece. Topside and backside quality are separate assessment criteria; they do not automatically imply separate wet and dry operations.

Discuss your cutting task

Provide the material structure, substrate thickness, required kerf, machine and blade mounting. Existing feed and rotational-speed data, together with images of the cut edge and chipping, support tool design. State whether the task is sawing, grooving or full singulation. The available process information provides a useful basis for matching cutting quality and tool utilisation.

EHWA Europe: info@ehwadia.de · +49 6173 997780

[Request tool selection](#)

Sources and original documents

- [EHWA: Electroformed Micro Blade](#) · PDF pages 1-2.
- [EHWA: Dicing Blade](#) · PDF page 1.
- [EHWA: Micro Blade](#) · PDF pages 1-2.
- [DISCO: Blade dicing and cooling water](#) · Process explanation; no third-party tool dimensions or speeds adopted.