

The sharpness of a blade is a combination of the angle of the grind and the hardness of the material. For a razor, the grind angle of the edge is 15 Degrees and for an ax it is 45 degrees.

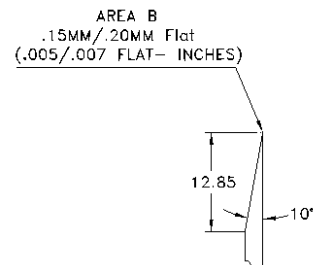
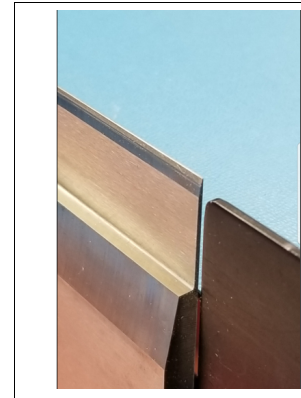
To get the best combination of sharp edge and durability it is necessary to balance the angle of the grind and the hardness of the material. In general, a harder material will have the problem of spalling, or chipping under repeated use and shock. This means a larger edge grind is less likely to be a problem. However, a larger angle will require more pressure to make a cut. Softer materials of course will not keep an edge long enough to make for a useful cutting blade.

Specifications for the edge sharpness of standard circular and linear blades on PCB depanelizers call for a .004" to .006" flat or rounded edge which is then honed to a 30 degree sharp edge. Score-line specifications for printed circuit boards specify an angle of 30 to 45 degrees. (Bigger is better)

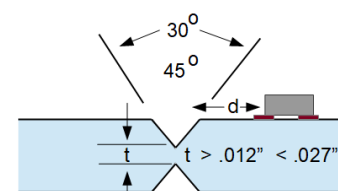
There are a variety of sharpness testers which involve measuring the force required to cut through a test material and setting the results to an arbitrary scale of sharpness. The industry standard scale for measuring sharpness is called the Brubacher edge sharpness (BESS) test. The scale of measurement is from zero to 2000, with a double edge razor blade clocking in at between zero and 100, and high end cutlery in the 300 range.

In general, the cutting edge of a PCB depaneling blade should be as sharp as a standard steak knife. Sharp as a razor for exposed blades would pose a safety issue for operators, (in addition to having a shorter useful life) so the edge of the blade is generally rounded as called for in the specifications.

In order to get a good and consistent result in the depaneling process, it is recommended that the blades should be sharpened or changed after 6 months of use, or earlier for higher volume use.



V Score Guidelines



Component distance from score-line (d)
 > .04" (1mm) for standard components
 > .08" (2mm) for sensitive components
 (e.g. ceramic chip capacitors.)

Sharpening Circular Blades requires measurement of run-out and wobble. Each should be under .001 inches.

Linear blades need to be sharp and level. FR4 is an abrasive material and the blades will wear at the point of use. This is often confined to the center of the blade and it is there that more wear will cause a dip in the blade level. As a result, sharpening these blades also requires that care is taken that the blade edge is straight from end to end.

Use our in house blade sharpening service to assure quality low run-out and wobble circular blades or for a precise and flat linear blade cutting edge.