

Technical Datasheet #53

How do I re-sharpen my curved spring steel blades?

Keeping your knife blade sharp is vital for optimum cut quality.

It might sound obvious, but a sharp knife blade is the key to successful cutting.

A sharp blade ensures a clean, swarf-free, cut edge. So remember to re-sharpen your blade!



1. Double-bevel cutting angle:

The bevel angle along the cutting edge of a blade is dictated by its intended use.

The optimum angle is a compromise between a high angle; for easier penetration & cutting, and a low angle that deters dulling & deformation caused by the impact force.

Generally, the harder the material to be cut, the lower the optimum bevel angle.

No list of optimum angles has been compiled, nor are there any ideal cutting angles.

For this reason, experience & empirical experimentation are the only guidelines available to find the optimum compromise that leads to long blade life & clean cuts.

We do however strongly recommend a double bevel over a single bevel.

2. Re-sharpening the blade:

The following is one method. Special tools or fixtures are not necessary.

- **Scribe a line** at a fixed dimension back from the cutting edge that follows the shape of the curved blade edge.
- **Using a belt sander**, grinding wheel or file, form a new bevel on each side of the blade using the scribe line as a guide. Carefully maintain the symmetry & the desired bevel angle.
- **Hone on a coarse stone**, but make sure you maintain the proper bevel angle (or angles). Follow with finer stones until the desired sharpness is reached.
- **To prevent the blade's edge from buckling** under initial impact, dull the knife slightly by lightly running a fine stone along its cutting edge.

There are two sharpening tips, however, that are both time-saving & helpful in producing cleaner cuts:

- **Streamlining:** This technique helps prevent the occurrence of dust and "hairs"; in other words, it helps produce a cleaner cut. Streamlining over the point where bevels meet on the sides of the blade is a small, sometimes tedious job, but it does pay off.
- **Changing the bevel:** Another worthwhile practice is to change the bevel along the blade's edge through changes in the angle of attack.

Where there is a high angle of attack for slow penetration, the blade can be bevelled at a sharp angle. As the angle of attack decreases, the bevel angle can be made broader to withstand the higher cutting force.