

## KNIVES "101"



With so many options, it's confusing selecting the right steel for the job. Wood Tech stocks the largest and widest selection in the industry. The choices you deserve at prices you can afford! M-2 High Speed Steel continues to be the industry standard. Not all M-2's are the same. Choose a steel that is cost effective; ***Cheaper is not always the most cost-effective.*** Determine the cost of machining versus the cost of the knife material. Pick a steel to best match your footage needs. Can you afford the downtime needed to regrind knives in the middle of a run?

### ***Some things to consider before choosing a knife steel:***

#### ***Heat Treating:***

This is very critical in maintaining product consistency. Steel that has hard and soft spots; or grinds differently each time, shows signs of being improperly heat treated.

#### ***Flatness:***

A bowed bar of steel indicates a problem in the heat treating, and will result in balance problems.

#### ***Corrugations:***

Corrugations must be true and parallel over the entire length of the bar. Crush ground corrugations are preferred to milled corrugations; they are 4 times more accurate. Corrugations should not come to a point to insure that the steel is held correctly in the head. Poor corrugations cause balance problems and inaccurate grinding. Most steel is 60°. This means that the corrugations are spaced 1/16" apart and have a 60° angle on them. Substituting 90° steel for use in a 60° head (or vice versa) is not recommended, and can result in damage to the head corrugations.

#### ***TOOL BALANCE:***

Balance is an inexpensive form of insurance and must not be overlooked. Even a slight mis-balance of ANY part of the tool causes vibration and the resulting finish problems; but even worse, premature bearing failure and other machine damage. Balance not only the knives, but check balance on gib wedges and gib screws as well. We recommend the use of a precision balance scale, as a difference in balance of only 1 gram at 6,000 RPM's results in a rotational force of a whopping 22 pounds! Keep your tools balanced, and clean: yes even built-up sawdust will adversely affect balance! A head that is dynamically balanced will run truer than head that is statically balanced. Wood Tech offers a cutterhead repair service that includes checking heads for proper dynamic balance.

## **HELPFUL HINTS:**

### ***PROFILE DEPTHS***

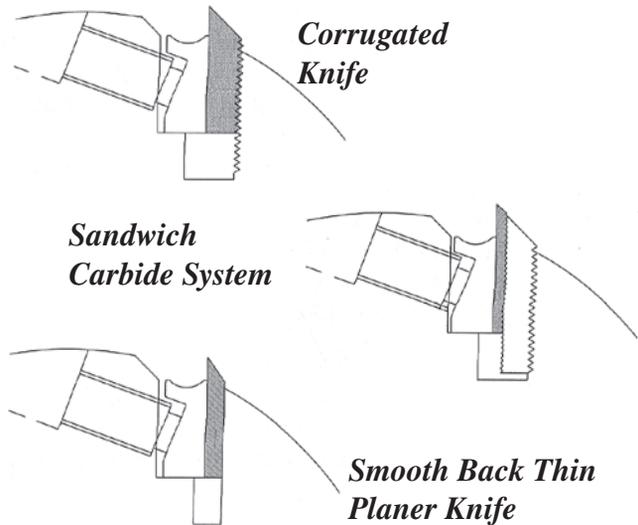
Profile depth should not exceed (3x) three times the thickness of the steel. For example: 5/16" thick steel should be ground no deeper than 15/16".



If x is the thickness of your knife NEVER grind a profile deeper than 3 X the knife thickness!

### ***MAXIMUM KNIFE PROJECTION***

1. Regardless of the knife you are using, never adjust the knife to a point higher than the bottom of the gib, and never adjust the knife to protrude more than three times the knife thickness. Refer to the illustrations for maximum knife adjustment.



### ***MACHINE RPM***

Be sure to properly install and secure the knives in your cutterheads. Never exceed 7200\* RPM for corrugated knife heads and never exceed 3600 RPM for heads that use smooth back knives. Sandwich type carbide knife sets should never run at more than 6000 RPM. When using Hydro-Lock cutterheads, always use a locking collar to guard against unexpected pressure loss that could lead to damage of the spindle and/or cutterhead.

\*Note: Some corrugated moulder heads may be run above 7200 RPM. Please check with the manufacturer before exceeding 7200 RPM.