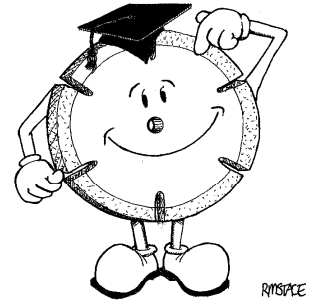


DIAMOND BLADEMAN

DIAMOND TIPS



BONDS AND MATRICES

Diamond blade bonds, sometimes known as matrices, are central to the diamond blade's performance. Many diamond blade performance secrets lie in this high tech area.

Some diamond blade manufacturers develop their bonds in house, others buy bonds from bond manufacturers, others use bonds under license, and some combine all three.

To perform well, a bond needs to hold the diamond teeth for as long as they are cutting efficiently, then let them go.

In wet cutting blades it may or may not be necessary for the bond to conduct heat efficiently as water aids the cooling process, but in a dry cutting diamond blade the bond must conduct heat very well. Some dry cutting bonds do this better than others.

Diamond blade bonds designed for cutting hard materials are usually less wear resistant than bonds designed for cutting softer, more abrasive materials.

There is no perfect bond for all diamond cutting operations, as the cutting operation has many factors that are interacting with each other. For the diamond blade to be self sharpening, the bond needs to wear away as fast as the diamonds are being worn out.

As a general rule a bond is doing it's job effectively when "comet tails" form behind the diamonds, these act as supports for the hard, but relatively fragile, diamond teeth.

Fast cutting, shorter life blades usually rely on softer bonds for speed. Longer life blades rely on harder more wear resistant bonds in the attempt to get as much wear from each diamond as possible.

Better bond performance contributes to diamond blade efficiency and is directly related to cost. Better bonds cost more, but save money in the long run.

Using diamond blades in a general purpose fashion puts great demands on bond and diamond selection by the diamond blade designer. In spite of best endeavours, general purpose use will always result in varying performances according to the many factors involved in the cutting process.

