

## Bonds - Matrix

### Soft Bond –Hard Material

Looking at **Figure #1**, if the material is extremely hard, such as granite, the exposed diamonds will wear away quickly (**see Figure #2**). Therefore the bond has to do so also so that the next layer of diamond grit will be exposed (**see Figure #3**). Thus when you cut hard materials, you need a quick or more releasing bond. Such a bond is called a “soft” bond. Soft bonds are then used to cut hard materials –a reciprocal terminology.

Figure 1

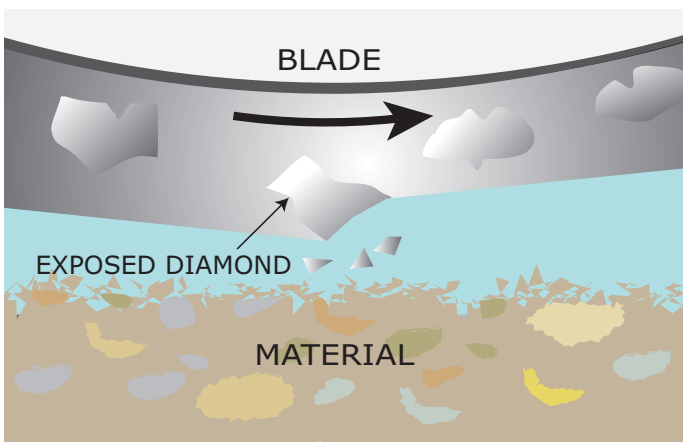
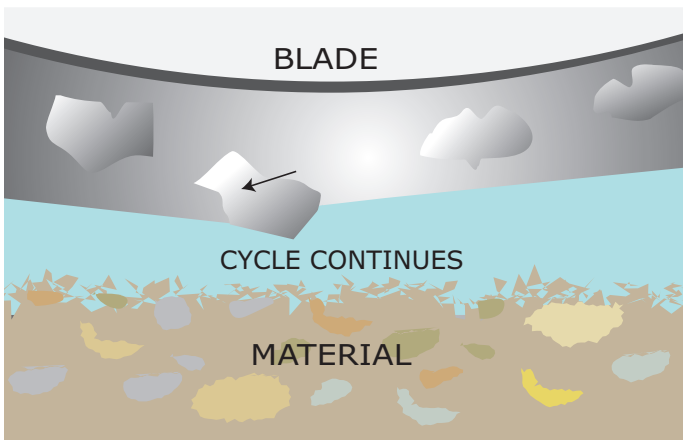
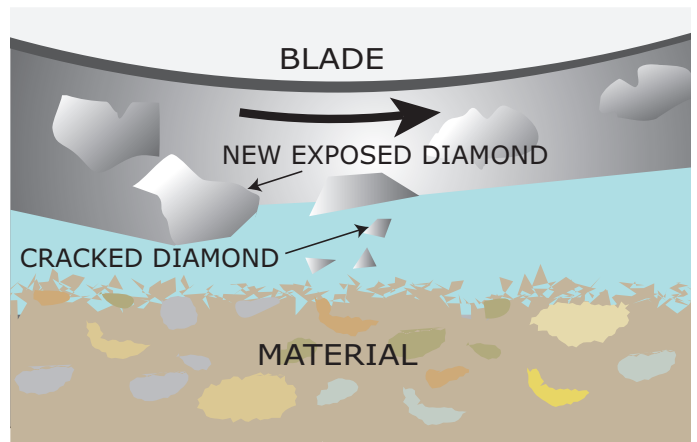


Figure 3



**Problem** – If the bond is not “soft” enough, when cutting a hard material, the diamond grit will wear out (#2) but the bond will not wear away, leaving no cutting points exposed. The blade will overheat and stop cutting. In the industry this is called “glazing over.” Usually, the diamonds can be re-exposed by making a number of cuts in an abrasive block or piece of asphalt. If this does not work, send back to the factory for re-dressing.

Figure 2

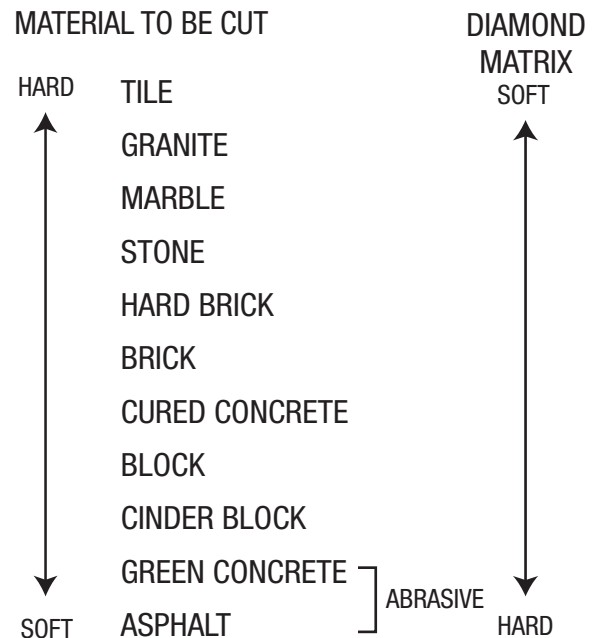
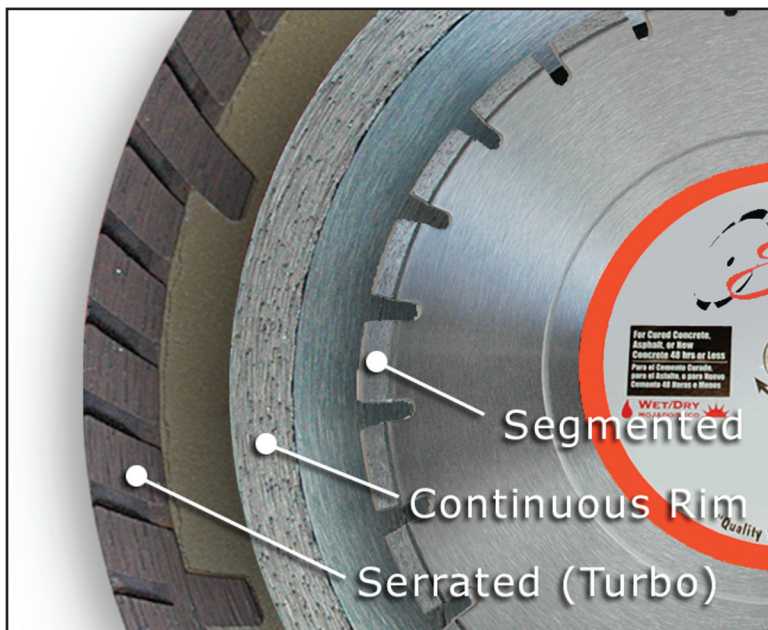


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## Soft Bond –Hard Material

If the material is soft, such as asphalt, it will take a much longer time for the exposed diamonds to wear away. Therefore, the bond needs to be tougher and able to hold the diamond grit in longer. Thus, when you cut soft material, you need a tough or long-lasting bond. Such a bond is called a “hard” bond. Hard bonds are used to cut soft materials –another reciprocal terminology.

**Problem** – If the bond is not “hard” enough or is too soft when cutting a soft material, the bond will release the exposed diamond grit prematurely, long before it is worn out. Therefore, the customer will get much less life than he would expect. For instance, if a blade is designed for granite was used to cut soft block, short life will occur. Recommending the correct spec for the job is important.



**Segmented Blades** – medium to hard bonds for medium-hard to general purpose to soft materials.

- Segmented blades are normally found in all diameters but dominate in diameters 12” and larger.

**Continuous Rim Blade** – softest bond for hardest material such as tile, granite, stone, etc.

- Continuous rim blades are thinner and contain finer grit size for chip free cutting.

**Turbo-Rim Blades** – medium-soft to medium bonds for hard materials to general purpose.

- Turbo blades generally cut faster than segmented blades but will not last as long on medium to soft materials.