



# *Diamond blademan*

*"Working Safer, Working Smarter"*

*High Performance Diamond Technology Ltd.*

## DIAMOND BLADES AND THE BASICS

Diamond blades are rapidly growing in popularity with tradesmen and hobbyists all over the world. They are a sensational tool and simply can't be beaten for many tasks such as cutting concrete, asphalt, stone, tile, glass, fibreglass, reinforced concrete, fibre cement board, cast iron pipe and many other construction materials.

Not only do diamond blades come in all diameters for virtually any saw imaginable, diamond blades also come in different types to achieve different cutting rates, thicknesses of cut, etc.

The most popular type of diamond saw blade these days is the segmented diamond blade. This tool is constructed using a steel core with slots cut in it and diamond impregnated metal segments. The diamond blade is either known as a brazed segmented diamond blade or laser welded segmented diamond blade.

Gaining in popularity with users of small hand tools such as circular saws, power cut off saws, tile saws, brick saws, drop saws grinders etc is the turbo or serrated diamond saw blade.

There are other types of diamond blades with continuous cutting rims, either electroplated with diamond or impregnated with diamond.

Hybrids of these basic types are also available for example the serrated segmented diamond blade which is a kind of combination of two popular blades and is popular on small saws.

Usually one of the first questions you will be asked when buying a diamond blade is- "what do you want to cut?" It is important to specify a suitable type of blade for the material in question because the bond that retains the diamond cutting teeth is matched to the cutting operation. It is very important.

Knowing what the diamond blade has to cut is one thing, but the engineer also needs a clear idea about the entire operation. The reason for this is that the diamond blade is usually a self sharpening tool and must therefore closely match the sawing task or it will become blunt or wear too quickly.

A hard to cut material usually requires a softer bond than an easy to cut material. This is because diamond wear will be higher per linear metre cut in hard materials due to the tougher work the diamond teeth have to do. The bond is made softer to allow the tool to self sharpen quicker.

Diamond blades vary in price too. Diamond teeth are actually carefully engineered, factory manufactured, synthetic diamonds. They can be large, medium, small, or very small; super tough, tough, medium tough, etc. The bigger and tougher the diamond, the higher the price. General Electric is a world leader in this technology.

Prior to laser welding, and the invention of the dry cutting turbo blade, diamond blades were usually segmented and brazed together with silver solder at about 700 degrees centigrade. This temperature could not be exceeded or the blade would self destruct. For this reason diamond blades were usually cooled with water.

Laser welded diamond saw blades allowed much higher temperatures to be reached without the segment joints being compromised, and so offered an opportunity to cut dry when heat conducting low friction bonds were used. They are usually tougher blades.

Although diamond blades can be used without water, air has a limited capacity to cool, and this must be considered by the operator. Cutting within the blade's capacity to dissipate heat is achieved by keeping the blade sharp and not allowing it to build up heat. Practically, this is done by cutting at no more than about 75% of the blade's maximum rate of cut. Frequent cooling off periods may also be made part of the operation to reduce the temperature.

Like most wearing parts, and diamond blades are no different, they will last longer when kept cool. Using water as a coolant, whenever possible, will return lower costs. It is a little known fact that many dry cutting diamond blades cut about 10% faster than their water cooled cousins.

Having discussed the proposed diamond sawing job with the engineer it will also be necessary to consider how clean the cut will need to be. The best cut finish is usually achieved with continuous rim diamond blades and these are particularly popular with glazed tiles and other easily chipped materials.

Remember the choice of diamond blade depends on many factors;- price and performance needs, durability and safety considerations, machine condition, materials to be cut, and operator experience. When these factors are understood, a wise satisfying choice is likely to be made.

Diamond blades are here to stay and represent amazing value for money. It is difficult to imagine how we got along without them. Probably there was a lot more noise and dust.

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