

Hi my name is Jarrod Eccles and I am with Myrdal Orthopedic Technologies. My presentation is on the different types of drill bits for Metal, Plastic and Acrylics.

METALS:

Now I am sure all of us at some point have used or are still using the High Speed Steel bits. I am also sure that we have all had the frustrations with drilling hard Stainless Steel, Spring Steel and Titanium with those bits.

Hopefully after this you will have a different outlook on which bits you use.

While there are a lot of different types of bits out there for us to choose from, it will be helpful to know some of the options we do have to make our lives easier.

First thing is there are 2 main degrees of drill bits which are the 118 degree pitch and the 135 degree pitch.

The 118 degree pitch is probably the first one to come into production. The set backs on this angle is there is a lot of walking on the surface and you have to use a centre punch pretty much every time you want to drill a hole into metal. This is because there is less surface contact with this angle.

The 135 degree pitch is the upgrade in terms of angles over the 118. With the split point it is self centering and does not walk on the surface because it is a less steep angle and there is more contact on the surface. It drills a much cleaner and nicer hole.

In all the 118 degree bits are probably good for the occasional home use at best in my opinion.

Next: There are a two different styles of drill bits which should be on every bench.

There is the Jobber length drill bits which are the most common type used. All Jobber bits are 10 x the diameter of the bit in length. This measurement is the length of the flute and does not include the shank. Example: A 1/2" bit has a flute length of 5" or another way to put it is a 1/2" bit will drill 10D deep.

These bits should be used for drilling into plastics, Acrylic Resins and Shoes. This is due to the length needed to clear the material being drilled into. With these materials you do not need a lot of pressure to drill through. The Jobber length bits are not likely to break.

Although depending on which bits you are used to using will determine the application.

If you are using SAE or Metric bits then you will have to use the jobber bits on Metals.

If you are using Gauge bits (Number or Letter Bits) for drilling holes for your attachment points then the next type is the way to go.

The Stub length bits. Or Screw Machine Length bits:

These bits are generally very short and very strong. The stub length bits are less likely to break due to that they can withstand more pressure and will not bend like the Jobber Length.

These bits should be used on Aluminum, Stainless, Spring Steel and Titanium.

Then the final thing to consider is the type material the bits are made from and there application.

There are of course the HSS bits, while they are not the optimum bit to use they will work best on soft metals like Aluminum.

There is the Tungsten Carbide bits which are more suited for harder metals such as Spring Steel, Stainless and Titanium. This is due to that they are a harder material and don't dull as fast as the HSS bits. You will get approx 8 - 10 times more holes before they need sharpening.

And then there is the Super Hi-Molybdenum tool steel bits which are accommodative for all metals. These bits are made to withstand heating up, are far less likely to chip weld, and like the Tungsten Carbide bits you will get 8 - 10 times more holes before they need re sharpening.

One of the main factors that set these two apart is the Molybdenum tool steel bits are more cost effective while not compromising quality and tool life.

PLASTIC AND ACRYLIC RESINS:

Now while you can use the above mentioned options, keep in mind that this is a totally different type of material your drilling into.

This requires a different bit that is more suited for these types of applications.

As we all know when we drill into plastic and resins, when we get part way through the material the drill bit begins to grab and you have no control over the bit.

If there is a liner involved it most likely will tear your liner and you are left with a good sized burr which we all know is some times hard to remove.

This doesn't have to be the case any more.

Here are some of the key features of this next bit.

It has a 60 degree angle

The steeper the angle the better control you will have over the bit. There is one I know of and it has a 60 degree angle and 0 degree rake.

I have found that drilling into these materials at lower speeds are the optimum. There are three main features I have noticed with these bits.

One, they do not grab into the plastic and you have total control over the bit.

Two, It does not tear your liners.

And last they will leave a lot less of a burr.