General Acrylic Information as of 14.08.2016

I have used a lot of acrylic in my model building, including turning on a metal working lathe.

This is just a piece of general information on Acrylic Sheet, there are a lot of variations available, but it has two main types, Cast & Extruded.

I prefer to use CAST, but I think a lot of the problems users are having with the cutter clogging is because they are using the softer EXTRUDED version, which tends to be more readily available.

There are specifically designed cutters for milling & routing hard plastics, they tend to be little more expensive, but I find they work so much better, it is worth paying a bit more.

These cutters are single flute and some are designed for both Aluminium & Hard Plastic cutting.

Because the Spindles we use are running at a faster RPM than a conventional Milling Machine, a single flute cutter helps to overcome the increased RPM speed we have to use, as a single flute can turn FOUR times faster than a four flute and still cut the same amount, so by using a good combination of RPM and feed rate the single flute is cutting well but not getting as hot, which reduces swarf melting, but make sure you keep the cut area clear of cut swarf, I am setting up a nozzle to blow away the swarf and help to keep the cutter cool.

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Cast – Is slightly harder than extruded, which I find is better for machining and being cast has far less inbuild stress so does not produce stress marks, (see extruded) BUT is not always very good on matching specific thickness (big tolerance).

So if you have a lot of critical thickness work to do, try to get one sheet for all the work.

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Extruded – Softer than cast and I find this gives problems when machining, being softer the swarf melts quickly and is more prone to forming long ribbon type swarf and can clog saw teeth, cutters etc.

The extrusion process builds in stress which can show as marks when drilled and or cut, (tiny cracks radiating from holes and edges, they may not appear when first cut, but show at a later time), it is much better on matching specified thickness (small tolerance), so is better if an exact thickness is required over several sheets.

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