

This graphic illustrates the "Sandwich" of the die, the metal and the urethane, between the upper and lower platens, uncontained (eg, not in a container box)
(Graphic by Phil Poirier, Bonny Doon Manufacturing LLC)

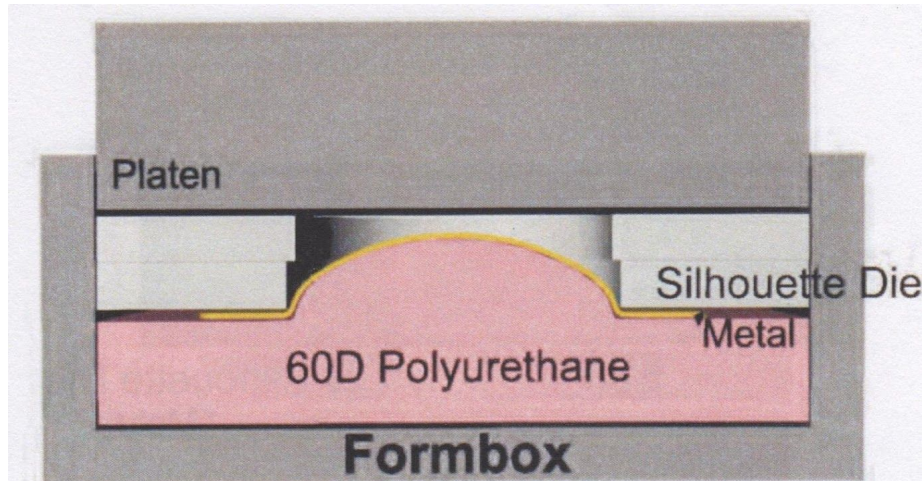
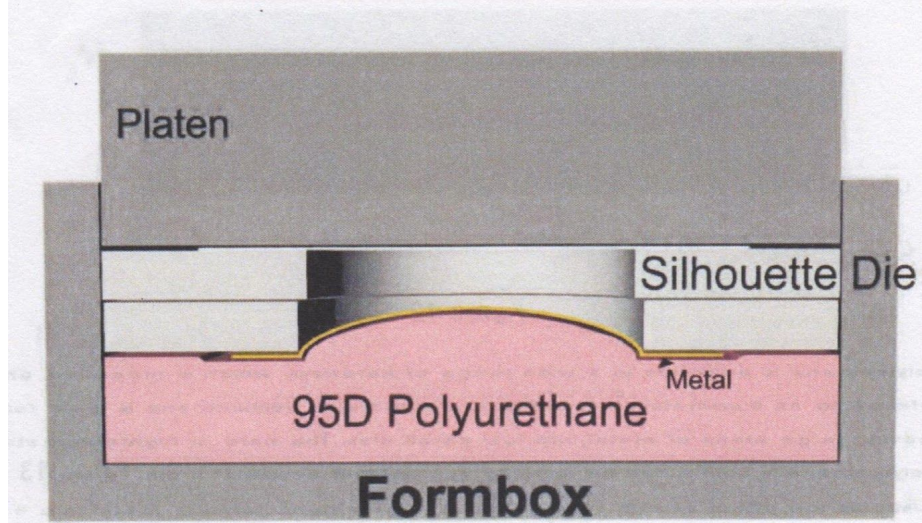


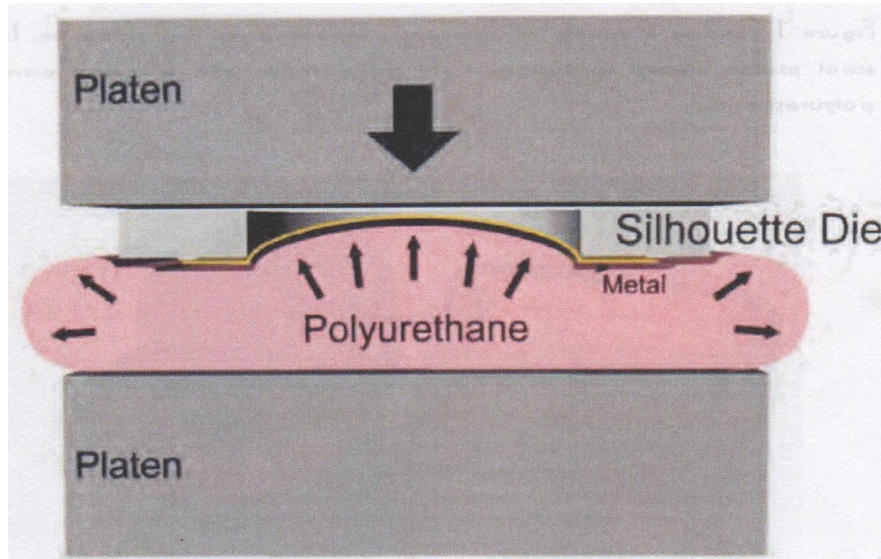
Figure 13



This graphic illustrates the fact that the softer 60 durometer urethane is better suited for moving large areas of metal into low detail dies. The hard 95 durometer is best suited to bringing out detail and defining edges. In the lower drawing the form is shallower but the edges are sharp.

It is not uncommon to use several different durometers of polyurethane in any particular die. You may start with 60D to move a lot of metal and finish with 95D to crisp up the edges

When polyurethane is under pressure, it seeks the path of least resistance. This is why the formbox is essential in concentrating the pressure into the die form rather than out either side when there is not formbox, as shown below.



Aspects of Polyurethane:

- It does not compress under pressure
- When under pressure it's shape changes while the volume stays constant
- Behaves like "solid fluid"
- Under pressure it transmits the force in all directions, extending high, uniform and continuous pressure
- When pressure is released it returns to its original shape
- It is reusable for thousands of pressings
- A general guideline when using urethane is to avoid pushing more deeply than 1/3 of the depth of the urethane. Surprisingly, this fluid material can shatter if over-stressed.