

What makes the KfM4 airfoil fly so fast?

There are several variations of the KfM airfoils. KfM1 with a step on the bottom at 40%. KfM2 with a step on the top at 50%. KfM3 with a step on the top at 50% and at 70%-75%. And, the KfM4 with a step on top and on the bottom both at 50%. There are several other variations as well.

Experts have stated that the KfM stepped airfoil produces too much drag although these airfoils do not seem to reveal high drag in RC models of all types. There was, however, one unexpected result. The KfM4 appears to fly much faster than the other versions. Why?

My theory, not fact, is as follows: the basic concept of the KfM airfoils is to create a place for some of the displaced air to fall into. By becoming part of the overall airfoil shape it takes the negative force of drag and turns it into a positive force through vortex attachment.

With a step on the top and on the bottom trapping two vortices, only 50% or the first half of the KfM4 airfoil comes in direct contact with the surrounding air, which produces some friction and drag when coming in contact with a surface.

The remaining 50% of the KfM4 airfoil does not come in any direct contact with the surrounding air because the attached vortex is air against air. I believe that this is why there is an increase in air speed.

