

What's the Big Deal About a Variable Thickness Face?

I began what has been a long fascination with clubface design back in 1994 when my engineering mentor talked me into buying him a combination package of Pro Engineer CAD and Pro Mechanica FEA software. And wow, let me tell you back then these modeling software programs were not cheap!!

But to use that same vernacular once more, wow, did that open both the door and my eyes to the potential for stretching the performance of the clubface to offer golfers the opportunity to be able to hit the ball off-center and not suffer as much of a loss of distance.

As a result of our early dynamic modeling work, I experimented with my first variable thickness face (VTF) design in 1995 – which if my memory serves me right was the first clubhead in the golf industry to offer this very different type of face design. What do I mean by variable thickness face? This is a face design in which typically a specific center area of the face is made to be thicker than its surrounding perimeter area.

The concept behind a VTF design is to try to increase the amount the clubface can flex inward from impact with the

ball for shots hit OFF the center of the face. In the science of high COR face design, the greater the face can flex inward without permanently deforming, the higher the COR will be, and the higher the ball speed will be in relation to the clubhead speed (aka, higher smash factor). Which plain and simple means more distance.

To make an analogy for how this works, think of a gymnast jumping on a trampoline. If the gymnast wants to make the trampoline flex down the greatest amount, he jumps right in the center of the mat. Jumping off the center to any side of the exact center of the mat results in less of a downward deflection of the mat. Now let's say we thicken the center area of the mat by securing a round board to the middle area of the mat. At the same time, we put weaker springs all around the mat.

Now if the gymnast jumps in an area off the very center of the mat, the combination of the thicker center with the weaker springs all around (like the thinner perimeter area of the face) will deflect the trampoline close to the same distance as when jumping in the center of the mat. Roughly speaking, this is about the same as the concept of the variable thickness face in a clubhead.

With now more than 25 years experience in high performance clubface design, I'm pleased to say that we've not only been able to develop a variable thickness face

design for each and every one of our Wishon Golf titanium driver designs, but we've also extended the technology into two of our iron designs as well. The result is when you hit one of these models even as much as 1" off the center of the face, the final distance of the shot is extremely close to the distance of a dead on center hit.

While a high MOI clubhead design certainly helps reduce distance loss from an off center hit, 16 years of face design experience has told us that a really well designed VFT offers better off center hit distance performance than a driver MOI in excess of 5,000 g/cm² or an iron MOI in excess of 3,000 g/cm².

And that's the what and why of a variable thickness face design.

Tom