

The PURE Thing

With the chance to help golf shafts perform to the best of their ability, Dick Weiss couldn't walk away from the PURE thing.

By John Meng

Reprinted from Golfsmith Clubmaker Magazine

May 2002

Since its 1999 approval by the U.S. Golf Association, PUREing has become one of the hottest topics in the clubmaking industry. Currently, more than 100 professional golfers on the PGA TOUR are using shafts which have undergone the PUREing process offered by Strategic Shaft Technologies, LC (SST). The man responsible for making this technology available is Dick Weiss, a Florida businessman and clubmaker who has developed this highly sophisticated, patented process through which a golf shaft can be analyzed and its most stable position identified.

Clubmaker Magazine caught up with Weiss during the week of The Players Championship and - not surprisingly - he had a few things to say about PUREing.

CM: For the clubmakers who are unfamiliar with SST's shaft orientation process, how do you describe PUREing?

DW: No shaft ever made is exactly round or exactly straight or possessive of equal stiffness around its circumference, and because of that, shafts are like snowflakes and fingerprints - each one has its own idiosyncrasies and irregularities.

PUREing analyses a shaft based on a series of formulas and tells us how round, how straight and how stiff the shaft is. Based upon that, PUREing identifies the area of the shaft that is the most consistent and allows us to mark that area of the shaft with an arrow. By installing a shaft so that the marked area is placed in a neutral position, every club within a set or every shaft that is computer-analyzed will have the same irregularity placed in the same exact position. This gives the golfer a uniformity and, regardless of what the results might be, the one thing you can't argue is that every shaft is aligned in exactly the same way whether it is club

to club within a set, set to set within a brand or just a regular club. That's what PUREing is.

CM: Many people mistakenly think of "spining" and PUREing as the same. How is PUREing different.

DW: I own the name SST PURE, and PURE stands for Plane of Uniform Repeatability. I never really understood the term spining. It's a generic term that came about in 1990 from a memo written by then-Technical Director of the U.S. Golf Association Frank Thomas. In the memo, Thomas told club and shaft manufacturers that it had been brought to the attention of the USGA that shafts were being built that possessed a spine. If that "spine" (which he didn't define) happened to enhance or influence performance, the USGA considered those shafts to be in non-conformance. He went on to say that he hoped the manufacturers would minimize or eliminate this "spine phenomenon."

That's where the word "spine" came along. The spine phenomenon stuck and became the term for people using it when they said, "I align a shaft."

Now what is aligning a shaft? Some people feel you align it toe up-toe down, which is also called vertical deviation, vertical deflection or droop. Other talk about the lead-lag position, (which, by the way, is different for left-handed golfers than right-handed golfers). In my mind, the term "spine" is a generic term that means to some type of movement from a shaft in some type of device in order to satisfy some process which a clubmaker may believe makes a club more consistent.

I don't believe that. I believe it's actually harmful. The correct word is "deleterious." If you align the shaft in a customer's golf club based solely on some back-and-forth or up-and-down movement of the shaft, that will not give you any consistency club-to-club within the set.

What we look for is not a perfect movement back and forth. We look for the most stable plane closest to the hardest point of the shaft in the hitting direction. You cannot just look for the highest cpm's (cycles per minute), which some people also call spining.

In addition, without a computer printout or computer verification that tells you that you've done every shaft exactly the same, you could end up with some shafts in a set with the hard-side forward, which we've seen produce lower launch angles and slower spin rates. You could also end up with some clubs with the soft-side forward, which we've seen provide a little more distance, but with a much wider dispersion pattern.

I don't feel this helps the customer. If I could do this with less than the few million dollars we've put into this project, if I could do this with a piece of PVC pipe out of my garage and if that worked for the customer, we'd be happy to do that. But we don't see that as possible.

PUREing is the ultimate way to analyze a shaft's irregularities. It's not done randomly. It's not done by "eye-balling." It's done by a sophisticated computer system which performs exactly the same way, regardless of the shaft manufacturer, and regardless of whether the shaft is made of steel or graphite.

CM: How is your patented process unique from others that claim to do the same thing?

DW: When I went before the USGA's Implements and Ball Committee, I told them: "Gentlemen, I didn't need to go through 17 months of trying to grab your attention other than the fact that I wanted this process to be conforming. The reason I came through the USGA - and it's a long way to go - is that I only want to do what the USGA feels is conforming with the Rules of Golf."

This is our third season on the PGA TOUR and we've taken PUREing to the finest players in the world, which is the toughest testing ground. Currently more than 100 TOUR pros are playing shafts that have been PUREd, and I am happy to test any method that any clubmaker - GCA, PCS or otherwise - has to offer for aligning irregularities that exist in the manufacturing of golf shafts.

The difference in PUREing is that every shaft is identically positioned with no real room for human error. The computer program gives us a printout of all the data. It doesn't make any difference who made the shaft, who's going to swing it or what

the shaft is made of. It doesn't make a difference whether it is a putter, a driver or an iron. And it's highly repetitive. Every single time.

CM: How does PUREing differ from frequency matching?

DW: I've always have frequency-matched clubs, but there is a difference. With a frequency-matched club, no one has gone into that shaft and identified the single-most stable position, and no identified that a particular shaft in a set plays to it highest cpm's. They simply pick a spot, place a logo on it, and that's how you're supposed to install it.

In PUREing, we find the single-most stable plane. We don't just go to an area of the shaft and say, "This will fit into a 4 cpm variation or a 7 cpm variation." Our machine says, "This is the spot!"

PUREing analyzes frequency and what we call the "frequency exposition" (aka, the lead-lag or hit position) which is on the Golfsmith printouts. We measure frequency in the "frequency wide position," which is the toe-up, toe-down position. We also measure out-of-plane vertical deviation which is the movement up and down and we are able to graphically show that on the printouts as well.

Then, we show the difference in what we call the Weiss Index of Frequency Fluctuation (WIFF), which is how stiff the shaft would have been if the shaft would have been installed logo up compared to how it would perform if assembled in the PURE position. Of course, the WIFF is just a number, but it is a guide for clubmakers to see that a shaft may play three percent or seven percent stiffer, for example, in one direction that another.

CM: How is PUREing beneficial to clubmakers?

DW: When a clubmaker buys a new, SST PUREd shaft from Golfsmith (and Golfsmith is the exclusive licensee for distributing brand new shafts that are PUREd before they are used), the clubmaker knows that the shaft has been analyzed to confirm that every shaft in the set they bought can be assembled with the same properties in the exact same position.

As clubmakers, we all live and die by the quality of the last club we put out, and PUREing assures you as a clubmaker that every club is made to perform to the best of that shaft's manufactured ability. And you have a guarantee to confirm it.

CM: You've brought a tremendous technology to golf, yet because PUREing wasn't introduced by an OEM, there was some resistance originally. Are most "experts" now acknowledging the benefits of PUREing?

DW: I can't tell you how many manufacturers have said to me that if I had been an insider to the industry, this would have been accepted right away because it makes sense.

I believe that we're the only Tour Van that is not affiliated with any particular brand of shafts, and because we don't show a preference for brands of shafts, the industry has accepted us. The industry knows the term now, and they know that during any given week we may put four or five different brands of shafts into the hands of players that the reps for those brands would otherwise not have gotten in.

That's because the players are coming to us. We have players using SST PURE technology who have cumulatively won 60 majors. I think that's great they have that confidence. What can be so bad about finding the irregularities in every shaft and putting it in exactly the same position in every club?

This is not smoke and mirrors. If it was, why would the best players in the world use it? Why wouldn't they have thrown us off the TOUR? Why have they come to our support to make sure we stay there?

CM: In 1999, PUREing received approval from the USGA. Some could compare your efforts to a David-vs.-Goliath scenario. How do you see your accomplishment of bringing PUREing to clubmakers and golfers?

DW: I've never thought it was fair to call the USGA "David." (laughs) Seriously, I learned from the USGA that they are protecting the industry and they don't do things whimsically. I think that's great. I never looked at it as "David-vs.-Goliath." Making clubs was a hobby for me long before it was a business, and I always

wondered how one club can perform differently from another club that is supposed to be exactly the same.

PUREing is bigger than SST. The entire world should have this. A former USGA executive committee member told me a few years ago that he believed that the USGA's decision (to permit PUREing) was the most pervasive rules relief in USGA history in that it affected every club ever made, currently being made or to be made in the foreseeable future.

CM: One of our former PGA professionals was always uncomfortable with one or two of his (frequency-matched) shafts in a set until we began PUREing the shafts. Have you seen similar examples?

DW: Every day. PUREing is an enhancement. In my mind, an SST PUREd, frequency-matched shaft is the best combination. In fact, I just made a set for a multiple major winner who is active on the Senior Tour today. He asked me if I would make him a "perfect set of irons." Of course, that meant taking his frequency-matched iron and orienting the shafts' irregularities to a neutral position.

CM: We have heard comments from some clubmakers that they can PURE their own shafts by using a laser attached to the end of a shaft and projecting movement of the flexed shaft on the wall. Are they getting the same results as PUREing?

DW: The fact that a shaft can vibrate back and forth or oscillate in a straight line (At SST, we call that a POP - Planar Oscillation Plane) in no way identifies that fact that there may be several points or planes around the shaft's circumference on which the shaft may react similarly. At SST we've never said we're looking for the shaft to oscillate back and forth perfectly; nor can anybody who buys an SST PURE aligned shaft check it in their clamp. The reason is that the chuck we use in PUREing is 6.5 inches deep and it does not apply constant pressure. A Precision clamp that is 3.5 inches long and Mitchell clamp that is five inches long use constant pressure throughout its clamping and overcomes the shaft a lot of times. We only apply pressure on the rear and the lower part of the shaft. So, unless a shaft is tested in a piece of SST equipment, a clubmaker can't get the right oscillation anyway.

Just because a club goes back and forth in a straight line does not mean it is PUREd, and it does not mean it will perform any more consistently than a random movement would indicate.

CM: Most people think that clubs used by TOUR professionals are finely tuned instruments provided by club manufacturers. Is that true?

DW: Actually, the clubs are not finitely tuned until they start playing with them. Then, they get finely tuned. PUREing is a part of that fine-tuning process, along with custom grinding, etc.

In the last two months, I had a PGA TOUR multiple winner call me after he won yet another tournament, and he said he was sending me his game driver. He said, "I hit this driver great." So I asked him if he was sure he wanted to send it down to have it PUREd. He said, "I can hit it better than great!"