

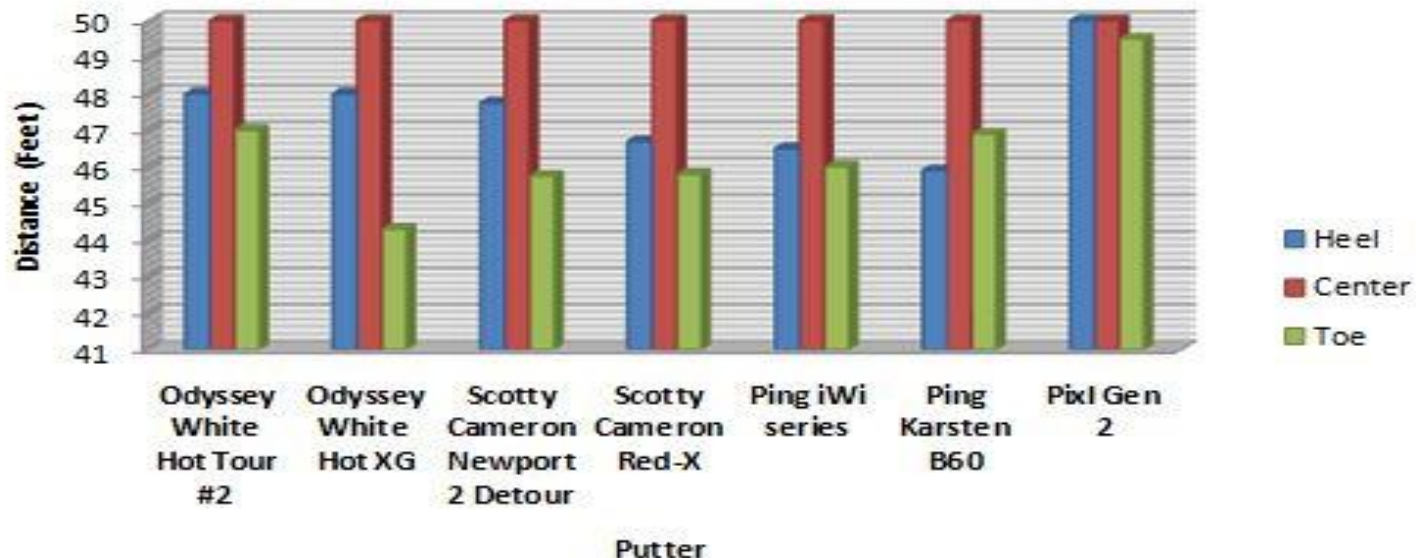
Beta Golf Technologies

Generation 2 and 3 Pixl Putter

- Golf Magazine Articles: Golf Magazine has partnered up with Hot Stix Golf Laboratories and published five articles on putter's off-center performance since early 2008. These putters include Scotty Cameron, Ping, Odyssey and many more. Their results from Hot Stix show that these leading putters lose up to 10% distance when hit off-center. Over the past 4 years our R&D team has created the Pixl Generation 2 and 3 putter line. Hot Stix has tested for Pixl.
- The result: Pixl putters Generation 2 loses 0-1% when hit off-center and Generation 3 hits 2-10% farther when hit off-center.
- When hitting a 60 foot putt, most people will strike the ball off-center due to the longer backswing. This means you will fall 6 feet short of the hole when using other putters. When you use your new Pixl putter and you hit off-center you will hit the same distance as if you hit on dead center. This is the difference between a 3-putt and a 2-putt.
- The following are the results from Tom Mase and Hot Stix for Golf Magazine compared to their other results with our Pixl Gen 2 and Gen 3 putters...

Pixl Gen 2 vs. Current Top Putters

Source: Golf Magazine and Dr. Tom Mase of Hot Stix Golf



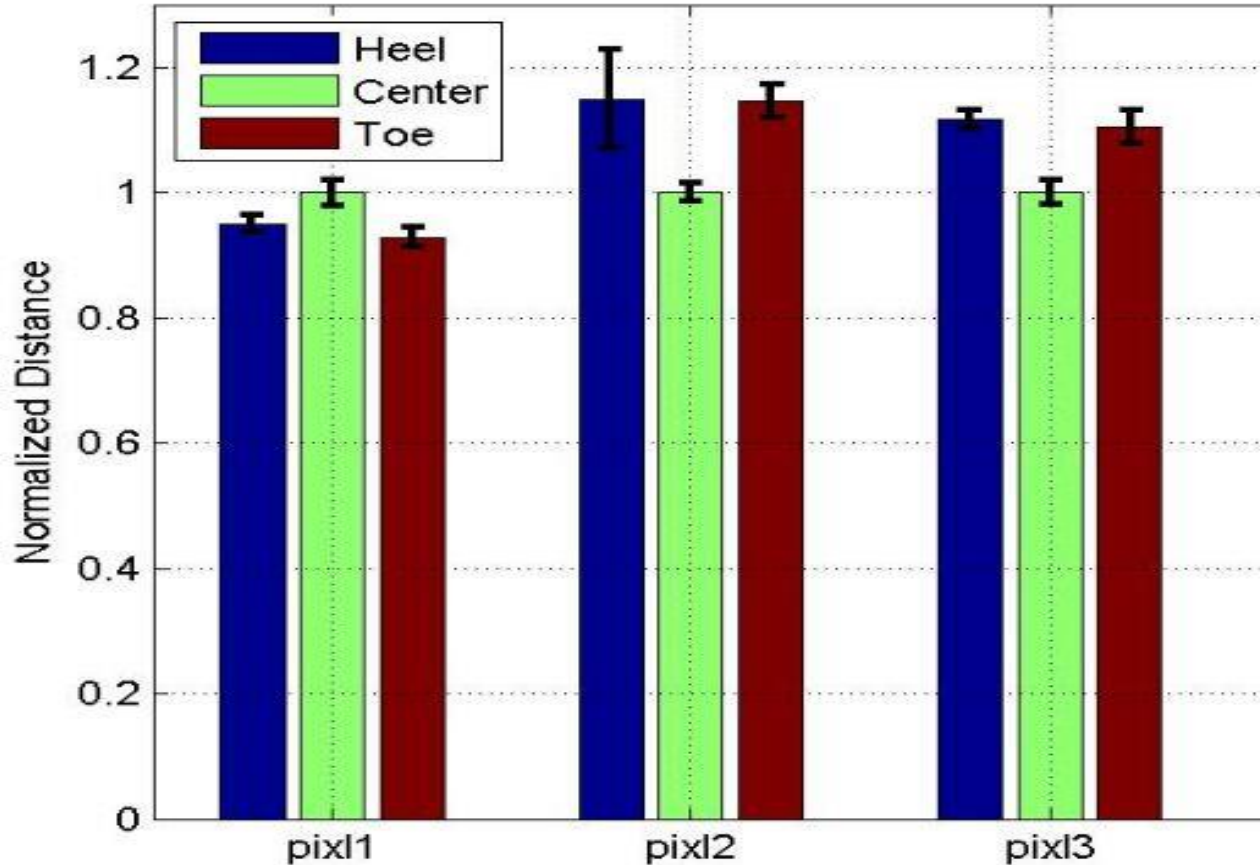
Distance loss in feet on a 50 foot putt

	Heel	Toe
<u>Odyssey White Hot #2:</u>	- 2 feet (4%)	- 3 feet (6%)
<u>Odyssey White Hot XG:</u>	- 2 feet (4%)	- 5.7 feet (11.6%)
<u>Cameron Newport 2:</u>	- 4.25 feet (8.5%)	- 4.25 feet (8.5%)
<u>Cameron RedX 3:</u>	- 3.3 feet (6.6%)	- 4.2 feet (8.8%)
<u>Ping iWi Series:</u>	- 3.5 feet (7%)	- 4 feet (8%)
<u>Ping Karsten B60:</u>	- 4.1 feet (8.2%)	- 5.1 feet (11.2%)
<u>Pixl Gen 2:</u>	- zero (0%)	- 6 inches (1%)

Pixl 1: year 2000 1st generation Pixl putter

Pixl 2/3: year 2010 3rd generation Pixl Putter

Test Results by: Tom Mase of HotStix



Tom Mase Newsletter to HotStix

- Hot Stix Golf Newsletter
- Title: Further with Off Center Hits?
- From: Tom Mase
- Most of us know that Karsten Solheim made the Ping Anser with heel-toe weighting to minimize the distance lost when the ball is not struck in the center of the face. We all accept the fact that if you hit the ball on the heel or the toe it will not go as far. However, recent testing of putters made by a Silicon Valley R&D group is showing us this doesn't have to be the case.
- Hot Stix Golf tests hundreds of putters a year for their performance on off center hits. This includes moment of inertial testing of the head as well as using robot testing to see how far the ball travels, relative to a center hit, when hit 3/4 inch towards the heel and toe. In the figure below are test results from four prototype putters we tested. This company is making a putter that is the ultimate in distance forgiveness. Imagine getting the distance right on you lag putts even it you miss the center of the face by 3/4 inch! While the plots below show the heel-toe putts going farther than a center hit, I'm sure an upcoming design will achieve a putter having a constant distance over a 1-1/2 inch width of the face.

Overview: Pixl Putters

- Now rather than loosing 2-3% on our 1st generation pixl putters (3/4" off-center hit), we now have the ability to loose only 0-1% or be able to hit anywhere from 2-10% farther when hitting off-center.

Temperature Compensated Putters/Irons



It's all about "feel"

Hitting Irons and Putting differs throughout the day! But Why?

- All golfers experience different extremes in their putters and irons as the day goes on. They may putt fantastically in the morning, and poorly later in the day, and vice versa.
- Why? It's not just the stroke influencing their putting. It is the ball and club itself influencing putts as the temperature changes. If golfers don't accommodate for the weather with their stroke, there will be a change in your putting performance.
- Putter with polymeric/urethane inserts amplify differences even more during temperature change. This typical insert, such as the Odyssey White Hot is made from material similar to the ball, thus amplifying the hardness/softness, feel and distance loss as the temperature changes.
- Metal face putters do not change significantly in the normal temperature ranges of golf, but the ball most certainly does.
- This means that that all putters require changes in the golfers stroke for both feel and performance as the temperature varies throughout the day!

Why is This Important?

Imagine hitting irons :

-Everyone knows what it feels like to hit an off-center shot/miss-hit in cold weather. This is because the polymers used inside the golf ball are very temperature sensitive, and as the temperature drops, the polymers harden changing both the feel and the performance upon impact.

- As shown on the distance chart of ball flight vs. temperature below, significant losses in ball distance occur when temperature drops. The same percentages are true for putting, as it is just a smaller impact but every bit as important.

	5 degrees 100% humidity	20 degrees 50% humidity	35 degrees 80% humidity
Driver	244 yd	250 yd	262 yd
5-iron	168 yd	175 yd	182 yd

What is TC Metal and its effects on putters/wedges/irons?

- This advanced material changes its modulus of elasticity, allowing the metal to soften up in cold weather and harden in hot weather.
- The outer layer material of the golf ball does the opposite, it gets harder in cold weather and softer in hot weather. Although most golfer's claim they hit by feel, temperature changes mask feel.
- This off-set between the club face and the golf ball, allows the golfer to have a consistent feel on hits throughout the entire day, whether it is 40 degrees in the a.m. or 80 degrees in the p.m.

TC Metal and its Origin

- Beta TC metal was developed by the same engineers who perfected the cardiovascular stents for Johnson & Johnson, and the Flexon Ophthalmic eyewear for VSP/Marchon(bendable eyeglass frames).
- This unique metal will give consistent feel and accuracy regardless of the temperature throughout the day.
- It counters the effect of the ball, giving increased confidence and reliability in putting.
- Try our test on with the nitinol metal provided. Place in cold water for 5 seconds, then drop on a hard surface. Then do the same but in hot water. The results are astounding.

Overview: TC nitinol metal

- Golf is a mental game that takes poise and patience.
- Knowing that your club face will give you the best adaptability to the weather to create the best feel when hitting the ball is a tremendous advantage to a golfer's mental focus.
- It's all about feel.

Pixl Blade Irons/Wedges



An Iron that has the forgiveness of a cavity back, and the workability of a blade

The World of Blade Irons

Problem: While less than 5% of golfer's use blade irons, more than 3x as many would like to play with blades but cannot due to the low forgiveness on off-center performance.

Solution: Golf needs a set of clubs that has the forgiveness of a cavity backed iron, and the workability of a blade.

Blade vs. Cavity Backed Irons

- All blade irons lose up to 10% distance on off-center hits while cavity backed irons only lose 5%.
- The difference in off-center performance and workability is what led cavity backed irons to take over 95% of the irons business with the introduction of the Ping Eye 2.
- Golfer's were willing to trade off "workability" of a blade in return for forgiveness and better off-center hit losses.
- Cavity backed irons are perimeter weighted which requires a more square swing, limiting a golfer's ability to turn the clubface like that of a blade iron.
- So, the cavity backed irons allowed a golfer to have the forgiveness they needed throughout the club face, but it did not have the workability of a blade iron.

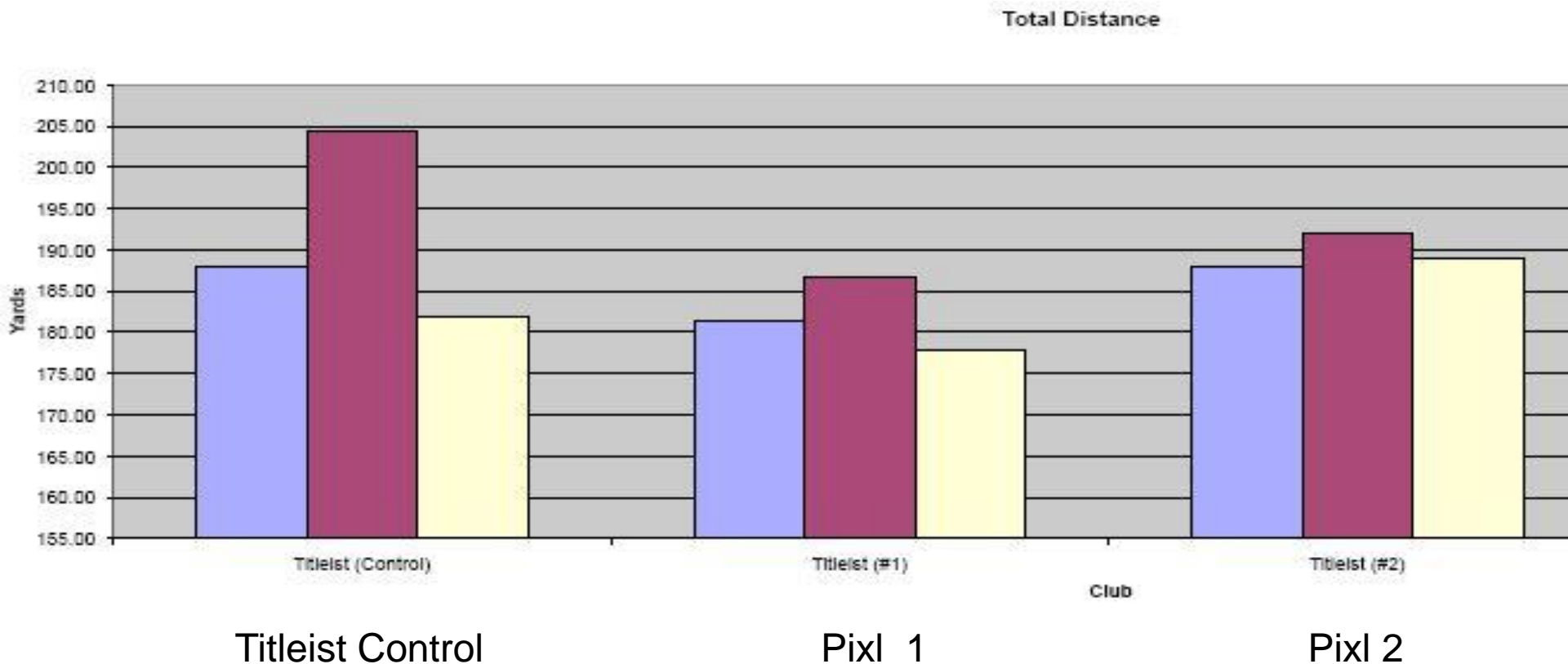
What is Special about Pixl Blade Irons?

- *The Benefit of the Pixl Blade*= “Finally, we have the forgiveness of a cavity back with the workability of a blade”
- *Problem Solved*: As with our putters, pixels produce a mattress, not a trampoline. Our Pixl blade irons reduce losses on off-center performance from 10% to less than 3% (shown on the next 2 pages), similar to cavity back performance.

Where is the Proof?

- Recent Golf Labs tests of Titleist blade irons showed that the production Titleist loses 10% distance on off-center hits.
- Our Pixel inserts were placed in the Titleist irons and our pixels inserts lost only 1.5%,
- The next page shows the graph of the Pixl blade irons tested against the Titleist production blade. However, there is a tradeoff which is explained.

- The Trade-off: The distance on center hits is shorter with Pixl blades, but off-center performance is much better. In essence the golfer needs to make the trade-off of using a 4-iron rather than a 5-iron in return for consistency across the face of the club.
- The benefit: When using the Generation 2 Pixl blade, a golfer is getting better forgiveness on off-center performance than a cavity backed iron, but he/she is also getting the workability of a blade iron.



Golf Test USA 2002

- Generation 1 Pixl blades received the Golf Test USA “seal of excellence” and were tested among 47 of the top cavity backed irons.
- Pixl G1 blades were within 0.1 point of the top irons.
- Ranked higher than most cavity backs, even though workability was not part of the test criteria.
- Hogan and Mizuno Blades = #42 and #43 on the list.

A New Design for Irons Golf Clubs: “Bars”



A Design that will provide Increased distance and spin rate for irons.

BACKGROUND ON THE IDEA

- Current Irons have to attain a minimum thickness to avoid deformation on impact, which limits their coefficient of restitution(COR- speed of golf ball after impact).
- The USGA Coefficient of Restitution limit is .083 for Drivers, a target all leading drivers attain.
- Irons do not attain that limit.
- However, bars, especially nitinol bars, may allow irons to reach that limit.

WHAT POTENTIAL DO BAR'S HAVE?

- Bar's hold the potential to provide increased COR (distance) and improved spin rates compared to traditional solid faced irons.
- By making independent beams/bar's of varying cross sections, we can potentially make irons that both go farther and have a higher spin rate.
- We can also use varying materials such as stainless steel and nitinol which will provide different outcomes.

NEXT STEPS?

- We have an issued patent.
- This is a development project.
- The bars do conform to USGA if there is an epoxy in the air pocket behind the bars.
- This is a development project: We need to develop a series of prototypes using different materials and cross sections.

Generation 1: PING and Pixl successes

PING IsoForce

- **1998:** Beta Golf Technologies (BGT) licensed the pixel technology to Ping for their Isoforce putters. Over 3 years, both Ping(Isoforce) and Taylor Made(nubbins) sold over \$100 million(retail) of pixel technology putters.
- PGA Tour players Chris DiMarco, Mark Calcavecchia were among the many that used the technology. The IsoForce putter is still used on the Tour today.

Pixl Golf

- With the success of PING and Taylor Made, Pixl Golf raised capital to enter the blade, wedge and cavity back irons market.
- The introduction of new face dynamics and improved off-center performance in putters, irons and wedges brought immediate attention for Pixl.
- Over the next few years (2000-2003), the putters and wedges won multiple awards and received rave reviews.

Awards and Reviews

Reviews

Pixl products have been in the news a lot lately, and winning rave reviews! Here is a sampling of recent coverage:

"Pixl - #1 Wedge - Best of the Best 2002"
-Rankmark (Top golf consumer testing organization)



"Pixl - Top Wedge - 2001 Best of the Best"
-PGATour.com (#1 Golf Website)



"Pixl - Putter of the Year 2001"
-eGolf Weekly



"Pixl - Top Putter - 2000 Best of the Best"
-PGATour.com



"Pixl 56 degree wedge - ***** ; Above average spin, incredible control"

-eGolf Weekly



"Pixl - Top Putter rating, Year 2000 Best of the Best Golden Tee Awards"

-PGATOUR.com (#1 golf website)



"...there is something about those pixels that feel great...this wedge is in the bag."

-Jaime Diaz, Sports Illustrated



"Rating: *****" (5 stars out of 5)

-GolfReview.com



"8 out of 10 of our testers experienced improved putting, saying that the putter did indeed reduce their 3-putts."

-BetterGolf.net "Worlds largest online golf publisher"



What Happened?

- Pixl Golf's undoing, however, came from a series of miss-steps with the attempt at pixel cavity backed irons. A series of design and manufacturing errors, led to exhausting their capital.
- Pixl Golf was wound down at retail at retail in a very professional manner, with no dumping or discounting.
- Since then, BGT has made significant improvements on what was already award winning performance. We now have a new generation of pixel technology and additional face technology to improve accuracy, feel, distance and spin.