N.J. company provides slow-motion cameras used in World Cup coverage

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The next time you see a slow-motion replay of U.S. goalkeeper Tim Howard diving at the feet of a World Cup foe, the chances are it will have been shot with a camera made in Wayne, N.J.

Vision Research Inc., which makes digital video cameras in a factory in Wayne, says 13 of its "ultra slow motion" cameras are in use by two European television companies at the global soccer competition.

Company cameras can shoot action at more than 1 million frames per second, compared with about 30 frames per second in a regular camera, providing a smoother, more detailed slow-motion picture.

At the Royal Bafokeng Stadium in South Africa on Saturday, for example, Vision Research cameras captured the agonizingly detailed image of Howard taking a boot in the chest from an English forward, recalled Rick Robinson, the company's vice president of marketing.

He cited the image, shot at up to 600 frames per second, as an example of the heightened detail available with his company's slow-motion cameras.

"What you could see in that shot was the foot of the other player and that the cleats of the guy had hit him," he said. "You kind of knew before they told you that the guy had received some cleats into his under arm."

Kate Bunnell, vice president for Inertia Unlimited Ltd., said the quality

and innovation of Vision Research cameras is the reason her company has used them for seven years.

Inertia, which owns 15 Vision Research cameras, rents them to companies shooting major football, baseball and golf events, as well as to the BBC, which shot bees and ants in slow motion for nature programs, Bunnell said.

Most recently, she said, the company provided several Vision Research cameras used to record Stephen Strasburg, the phenom starting pitcher for the Washington Nationals.

"At 500 frames per second, you can see things that you can't possibly see with the naked eye," she said. "So when he throws the baseball, you can actually see the stitching on the ball as it flies through the air."

Vision Research formerly made film cameras, but the second generation of the company's owners, the Jantzen family, began making digital slow-motion units in the early 1990s.

The company, which was bought in 2008 by Ametek, a Philadelphia-based global manufacturer of electronic instruments, makes about 800 cameras a year for rental and sale -- priced at $10,000 to $150,000. The private company declined to disclose revenue figures.

Vision Research is one of about four companies that provide high-speed cameras for the research industry and one of only two that make broadcast quality, high-speed cameras, the other being Japan-based Photon, said James Bales, assistant director of the MIT Edgerton Center in Cambridge, Mass.

Vision Research was quick to see how the arrival of high definition television would create demand for broadcast-quality slow-motion

cameras, and to redesign and upgrade their research cameras to meet that need, he said.

"They were pretty much ahead of everybody in that regard," Bales said. "Their cameras are used throughout the industry."

Revenue grew through the recession, Robinson said, fueled in part by the demands of the entertainment industry for improved images, especially for high definition television.

Demand from laboratories and universities, for cameras to use in research, also boosted sales and pushed the company to innovate, Robinson said. Much of that interest came from researchers studying spray patterns as they look for ways to design more fuel efficient vehicles, Robinson said.

Other clients have included NASA, for work after the Columbia space shuttle disaster, the U.S. Navy and Boeing.

The sports arena, however, is Vision Research's most high-profile market. For the World Cup, the cameras are being used by Live Motion Concept GmBH of Germany and Digital Video Sud of France, which provide slow motion footage that is cut into broadcast coverage when a replay is needed.

Vision Research is providing backup in case of problems, with two spare cameras in South Africa and a 24-hour help line, Robinson said.

Nine company cameras shot the Super Bowl this year, and others have shot the Olympics, Major League Baseball, boxing and horse racing, he said.

In the Super Bowl, an important fourth-quarter two-point conversion by

Lance Moore of the New Orleans Saints was ruled unsuccessful by an official who reversed his decision after repeatedly viewing slow-motion footage of the play. Robinson said a hand-held company camera, based on the goal line, provided the replay.

"There was no way with the normal eye or even with the other cameras that they had that you could tell" what actually happened in the play, he said.