

Focus on Manufacturing

Current Issue

Sign up for Focus Newsletters

Enterprise Innovation Institute home

Contact Us



Explosive Growth: Georgia Tech Helps Small Ammunition Maker Get on Track to Become Military Supplier

[◀ Back](#) | [Next ▶](#)

[Download/Print PDF](#)

Polywad Inc., a small central-Georgia ammunition manufacturer, is poised for some rapid growth thanks to a recent Department of Defense contract and broad-ranging assistance from Georgia Tech's Enterprise Innovation Institute. Polywad, maker of patented Spred-R ammunition and other shotgun products, is gearing up to make specialized rounds for the U.S. military. Critical to the move are a pair of Small Business Innovation Research (SBIR) grants totaling \$1.9 million.

That funding is helping Polywad build and equip a new manufacturing plant in Roberta, Ga., near Macon. Company officials expect to transfer operations to the new site soon and to increase their work force significantly.

"We're excited to be moving into a new purpose-built shop that's going to have all the safety and security features the Department of Defense requires," said Jay Menefee, Polywad's founder and president. "We expect to soon be making these custom loads in quantity, and we'll be employing more Macon-area workers to do it."

SBIR funding comes from federal agencies such as the Department of Defense; its purpose is to use small businesses to develop new technologies and products that the agencies need. In Polywad's case, the grants were facilitated by the Enterprise Innovation Institute, a business-assistance and economic development group based at the Georgia Institute of Technology. The Enterprise Innovation Institute has also supported Polywad by providing advisers in business planning, quality control and manufacturing technology.

"Polywad is among the Georgia companies that the Enterprise Innovation Institute has been able to assist on multiple levels," said John Mills, manager of the SBIR Assistance Program for the State of Georgia, a division of the Enterprise Innovation Institute that helps companies win SBIR grants. Mills and other Enterprise Innovation Institute staff members helped Polywad with SBIR applications and in developing the means to manufacture the company's innovative products.

Polywad's business began in 1985 when Menefee started selling a unique device he'd invented to people who reload ammunition by hand. The Spred-R, a plastic insert that makes shot pellets spread quickly, found a market with sportsmen.

Menefee ran the business out of his home until 1995, when he plunged full-time into making specialty shotgun rounds along with hand-loading supplies. Today Polywad manufactures many shot-shell products available to the public.

But the company also makes a special round, the Polyshok, that's available only to law



Georgia Tech assistance is helping Polywad become a military supplier.

enforcement and similar agencies. The unusual shell unites Polywad's shot-spreader device with a metal-powder slug, also known as an impact-reactor projectile, or IRP. The law-enforcement shell is sold through an associated company, Polyshok Inc.

The Polyshok round devastates its target, but only in a limited area. The metal-powder slug's energy disperses so quickly that it's usually harmless even to persons in close proximity or immediately behind the target, according to Menefee. Police sometimes even use the round to blast through doors because it's effective yet has minimal ricochet risk.

The Polyshok shell is the brainchild of Charles Glover, a North Carolina-based inventor who saw the Spred-R's potential in developing limited-damage rounds useful to law enforcement. Glover, Menefee and Jim Middleton, Menefee's brother-in-law, formed Polyshok Inc. in Panama City, Fla., in 1998. By 2001 they had perfected the Polyshok round and were manufacturing it at Polywad's Georgia site.

"If a Polyshok slug misses its intended target and hits a wall behind, it becomes non-lethal within two feet from the point where it penetrated the wall,," explains Middleton, who worked for many years as a DoD civilian manager. "It has as much power as a 12-gauge slug, but without the over-penetration problems."

Relatively light recoil and low cost add to its utility to law enforcement, he added.

Menefee and Middleton stress Georgia Tech's role in helping Polywad's progress.

John Mills provided extensive help in preparing Polyshok's SBIR Phase I and Phase II proposals, Menefee recalls. And several other Enterprise Innovation Institute employees have also provided key expertise and assistance.

George Lee, of the Macon Regional Office, provided noise measurement assistance and other help. Alan Barfoot, of the Dublin, Ga., Regional Office, helped Polywad find a new manufacturing site. And Don Betts helped develop a joint research project between Polywad and the Center of Innovation for Manufacturing Excellence.

On the technical side, Dennis Kelly of the Enterprise Innovation Institute's Industry Services Division is working with Polywad to develop a manufacturing quality-control system that will meet DoD requirements while Mark Heflin will help Polywad automate the manufacturing process. And the Center of Innovation for Manufacturing Excellence will support the automation process by supplying expertise in programmable logic controllers.

"We've got a year or so left to work on this project before we begin manufacturing," Menefee said. "It's going to be a really efficient setup for high-speed, flawless loading of a military cartridge."

--Rick Robinson
Enterprise Innovation Institute

[◀ Back](#) | [Next ▶](#)