

Smaller, Faster, and More Accurate

Advanced military technology relies on the ability for all components to survive the harshest environments

Military spending has remained relatively steady over the past few years, despite global economic challenges. The biggest investment in military forces is in the US, spending about 43 percent of the global total. But while spending remains constant, equipment is getting smaller and smaller. From the hummingbird-sized cameras and mine-blowing robots to drones engineered to find needles in haystacks, to communications equipment that must work in any situation, military organizations around the world are transforming and downsizing equipment and devices for Future Soldier Programs that connect previously disconnected military organizations, making them stronger.

Fischer Connectors is a preferred supplier for military contractors around the world. Recently, we sat down with two of their military experts: Dick Bickford in North America, and David Magni in Europe, to discuss how the move to smaller, lighter equipment has impacted the connectors they provide.

Q: Why is military equipment getting smaller?

Dick Bickford: Military contractors in the US, and for that matter, around the world know that every ounce that they put into their equipment is one less ounce that the soldier has for food or for ammunition. Organizations pay attention to what they call SWAP – size, weight and power. The details, and the size and weight of components such as connectors play an important role when it comes to SWAP. They have to be rugged enough to withstand dirt, liquid, grime and weather, but should be small, light, and easy to use in tense situations.

Our customers are demanding – rightly so. For instance, Asbury International group provides surveillance and weapons systems to US and allied military forces. They introduced a smaller, lighter rifle chassis system using Fischer connectors for its on-board battery power configuration. Now the sniper's rifle system itself is smaller, so the soldier is safer. We are proud to support companies like Asbury International in their mission to protect soldiers.

Q: What's different about connectors built for military devices?

Dick Bickford: Honestly, connections must be made in fractions of a second, sometimes in the dark or with gloves, or worst, under fire. When you think of that situation, it favors push-pull connector

designs like Fischer's that lock instantly rather than requiring twists. Our products are used when soldiers jump from planes, walk through mud or snow, exit submarines and fight the heat and dust of the desert. We have special shielding materials that defy corrosion simply because we know what conditions the connectors will be put into. And they have to work every time.

David Magni: Not only are military devices always changing, but we're seeing more computing devices than ever before. We make our products to help our prime contractors remain competitive in the market while keeping users safe. The companies we work with build all types of devices, from radios so soldiers can communicate, to remote control devices for robots that peek around corners and report back electronically. Our connectors are an important part of those designs, and we take that role seriously.

Q: How does concern for soldiers' welfare drive military product development at Fischer Connectors?

David Magni: We innovate as fast as the equipment manufacturers will let us. Many of the prime contractors are integrating electronics into areas they haven't before, and they don't want to add weight. So we work with them to build small, light, ▶



The Fischer UltiMate™ product line transforms again in 2012, with even smaller sizes available to accommodate smaller equipment. Still, the connectors can hold up to 42 pins in IP68/69K-rated configurations.

► rugged solutions. We cut out connectors when we can by using denser connections. We look at the cable solutions to see what we can do for the soldier there. And Fischer continues to bring new technology forward, such as our Rugged Flash Drive or the use of lighter materials such as Aluminum. And of course our quality control programs keep up with contemporary military standards.

For instance, it's well-known that we test our connectors for 10,000 mating cycles. We can use special potting material and techniques to ensure that a speck of dust or a grain of sand won't get in the way. We are determined to create the perfect connector for any military situation.

Dick Bickford: Military organizations are working to improve lethality, mobility, survivability, C4I and sustainability. Fischer plays a role in all of these areas, providing connectors for everything from frequency jammers to digital maps to night vision weapon sights and laser guided bombs, to simple battery charging systems.

Q: Tell me more about the Rugged Flash Drive

Dick Bickford: Well, it's not your regular USB stick. This flash drive has special connections, so it won't connect to just any USB port, and it is built to withstand dirt, dust, water and more. It has a rugged brass casing designed to provide full protection in extreme conditions. A lot of military personnel are banned from using a standard USB, but they've occasionally made exceptions for this product. It's a way to move sensitive data between non-connected devices with a high degree of data safety. And it allows the soldier to focus on the job without worrying about connecting equipment.

Q: Before we talk about some of the connectors and recent innovations, what is Fischer Connectors' background in meeting military requirements?

David Magni: We are long-standing partners in the U.S. Military's Future Force Warrior Program, the UK Ministry of Defence's Future Infantry Soldier Technology (FIST) Programme and France's FELIN equipment program. We've worked with some of the strongest, largest defense suppliers and contractors around the world. These partnerships have allowed us to create a huge array of interconnection products that people rely upon every single day.

Many of these programs bring the divisions together, so that armies, navies and air forces have common information to work with. We are proud of our ability to provide consistent trustworthy service in the most demanding and critical situations that help these types of programs.

Q: David, tell us what's new with the Fischer UltiMate™ line for military. What's different for 2012?

David Magni: The Fischer UltiMate™ was designed specifically to help soldiers in the heat of battle. It integrates features such as blind mating, emergency release, black chrome for reduced reflections, and push-pull locking. This year, we are releasing smaller versions

of the Fischer UltiMate™ line, extending it to accommodate the trend towards smaller equipment.

There are great solutions available today for small and strong military connectors.

Q: What are some of the other trends when it comes to connector technology?

Dick Bickford: Our contractors are asking for increased contact density in connectors to minimize the number of connectors needed, and our Fischer UltiMate™ address that need. We're seeing more requests for hybrid solutions as well, so we're providing designs that call for fiber optic and other unique approaches.

Q: Dick, What can you tell us about the cables and assembly services at Fischer Connectors?

Dick Bickford: We've found that our military contractors love how they can order the connectors and cables together. No one knows Fischer Connectors better than we do, so we like it when our team has the opportunity to design and engineer a great cable solution. We do in-house cable assembly in several countries. The one I know best is here in the US headquarters near Atlanta. The tools are here, the engineers are experienced, and they enjoy taking on challenges and supporting our military contractors in their missions.

One of the services we stress to our customers is something David mentioned earlier: that cable assembly design should be done in conjunction with machine design. We've found ways – especially with our new Fischer UltiMate™ line - to reduce the number of connections and cables used by looking at the machine early in the design cycle. We make sure the customer receives a rugged, IP68 sealed assembly with a high strength strain relief for a better price than assembling it themselves or through a subcontractor.

What this does for the military contractor is that they streamline their supply chain by dealing with one manufacturer for everything from engineering the connector to delivering the cable assembly. This is a simplified approach to procurement that leads to reducing costs and headaches that come with multiple vendors who may have varying quality standards.

Case Study: Asbury International Group

Asbury International provides state-of-the-art surveillance and weapons systems to the US and allied forces. They use Fischer Connectors on their Vectronix VECTOR 21 line. "It's the best connector made out there," according to Gary Vance, Engineering Services manager for Asbury International Group. "The product is so easily mated that the soldiers can connect and disconnect them blindfolded." In addition to the Core Series right-angle connector used for the Vector 21 line, Vance says Fischer Connectors is a "key innovation partner" in developing new systems for Future Soldier Programs. ■

fischer UltiMate™

Military Connectors Line

Secure Connections for UltiMate Protection

New Original Series Compact, Rugged, Lightweight

- Excellent sealing **IP68/69K** even unmated
- Rugged design for **harsh environment**
- Extremely **robust** mechanical keying
- **Miniature** and **ultralight** design
- Push-pull locking or emergency release system
- EMC 360° high performance shielding
- High shock and vibration resistance
- 10,000 mating cycles
- Wide range of configurations
- Easy Fischer **cable assembly solutions**



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