



## Spaceflight Research

### PROBLEM:

Space Shuttle astronauts discovered during testing of the Ukrainian Ion Beam welding System that during welding operations the welder caused EMI interference in the astronaut's spacesuit communication system. The application demanded EMI hardening of the welder cables to eliminate the noise but the solution could not reduce cable flexibility and had to yield high cycle flex life. The solution had to be rugged enough to survive repeated snagging and pulling, yet be easily installed and removed. All materials had to be space flight acceptable.

### SOLUTION:

#### Zipper-Mesh

A minor design modification to a Zippertubing standard EMI design provided excellent EMI shielding performance, the desired flexibility and ruggedness demanded by the space environment. The simple zip-on, zip-off nature of the jacket made it ideal for system disassembly and reassembly.

### MATERIAL:

Zippertubing's standard un-insulated Zipper-Mesh™, consisting of a flexible 4-layer knitted wire mesh EMI shield (SHX-4), with a custom brass toothed, Aramid spine mechanical zipper sewn together with Kevlar thread.

### CONCLUSION:

The customer benefited from Zippertubing's ability and willingness to customize a standard design for an extremely small production run of parts. Modification of an existing design and a very short lead time kept the program on schedule and yielded a very happy customer.

