



## EMI Shielding



### **Product:**

I.C. Tester Test Head Shield

### **Problem:**

An integrated circuit chip test equipment supplier utilized a remote floating test head with a large diameter umbilical cable extending from the mainframe tester to the test head. New CE requirements mandated that the interconnect cabling be EMI hardened to meet these new European requirements. The test head incorporated cooling fans to cool the internal electronics package and the EMI shielding solution had to provide a means of exhausting out the hot air while maintaining the required EMI shield integrity. The shield solution also had to utilize a mat black jacketing material which was standard in the IC test equipment industry.

### **Solution:**

A 10-12 inch diameter umbilical cable assembly with a flared test head end was fabricated. The jacket assembly provided excellent EMI shielding through the utilization of a soft, flexible EMI shielding cloth. The jacket assembly incorporated two knitted wire mesh shields of tinned coated, copper clad steel wire which were integrated into the cloth shielding at the test head end to provide exhaust air vents. A series of brass grommets and Nylon webbing straps were also incorporated into the jacket to allow for test head attachment. All grommets were installed in such a fashion that bolting the jacket to the test head created a grounding path from the head to the mainframe computer.

### **Material:**

The shielded assembly consisted of an outer jacket of Zippertubing's [FRC-15](#) fire retardant canvas material combined with an inner layer of [Z-3250-CN](#), a Nickel/Copper plated Polyester EMI shielding cloth. Zippertubing's standard [SHX-4](#) (SnCuFe) knitted EMI shield material was incorporated to function as the exhaust fan vents. The design utilized double headed Nylon zippers which allowed service access to either end of the umbilical cover without the need to remove the entire cover. Industry standard brass grommets and Nylon webbing straps completed the design.

### **Conclusion:**

The success of this design approach with respect to system EMI performance has led to numerous IC Test equipment suppliers utilizing several variants of this basic design. Designs with zippered breakout opening to allow cross talk between test heads in multiple head systems and variations in the outer jacket material colors to compliment system hardware colors have been created.