

**COLOR-CODED FIBER RIBBONS EASE “FIBER MANAGEMENT”  
FOR CABLE INSTALLERS**

**Fluid Coating Technology (FCT) has developed its own custom-designed method for producing color-coded ribbonized fiber. The FCT solution meets the twin needs of the end user: easy identification of multiple fibers packaged in a ribbon that’s lightweight and easy to handle.**

In the civil engineering business, they call it “induced traffic” – build more highways, and more cars will appear to clog them. Much the same has occurred in today’s communications networks. While optical fiber greatly increases the bandwidth available to users, demand has grown exponentially. As a result, larger numbers of individual fibers are being specified into the components found in today’s networks. In addition, with the adoption of technologies such as DWDM, increasingly large numbers of fibers are going into any one outlet.

The increase in fiber use at the point of connection has required better “fiber management” from installers. They are seeking the best methods for efficiently handling and storing these large numbers of fibers. One of the most common technical solutions to these problems is the use of fiber ribbons.

### **Why use fiber ribbons?**

- high fiber counts
- space savings
- ease of handling
- lightweight
- improved fiber management

In a fiber ribbon, several fibers are laid parallel to one another and fastened together. The design has several advantages:

- high fiber counts can be accommodated
- space is used more economically
- ribbons can be stacked for even larger amounts of fiber in small areas
- ribbons are easier to handle when compared to a dozens of loose fibers
- ribbons are lightweight
- ribbons are printable for further identification

- overall fiber management is maximized

However, the installation of ribbonized fiber in the field can be problematic. For the operator in the field, the challenge is to identify the correct connection for each fiber in the ribbon **and** to strip out and connect each fiber as quickly as possible.

Major fiber and cable suppliers do not offer custom-made solutions for the end user. Therefore, some component users have developed their own “retrofit” solutions to the problem of identifying and connecting ribbonized fibers. For example, they may purchase cabled ribbon and then go to the extra step of removing the cable coating before the ribbon is installed in the component. They perceive the extra time and labor required by these steps to be a necessary evil.

Recognizing this need, Fluid Coating Technology (FCT) has developed its own custom-designed method for producing **color-coded ribbonized fiber**. The FCT solution meets the twin needs of the end user: easy identification of multiple fibers packaged in a ribbon that’s lightweight and easy to handle.

### **The FCT Color-Coding Solution**

The process begins with color coding. Based on more than ten years of technical expertise in the fiber industry, FCT has developed an affordable process to color-code spools of fiber for use in your components. FCT applies permanent, UV-curable colored inks for quick and easy identification of each

fiber in the assembly. For your customer, it means savings in time and money. For you, it's an added value that plays a critical role in ensuring customer satisfaction and building long-term relationships.

### **Why use the FCT process to color-code fiber?**

- Easy to identify fibers
- Color-coding is permanent
- Coding *adds value* to the assemblies you sell

By designing the technology and investing in the capital equipment needed, FCT is able to supply color coding services in a process that is fast, flexible and cost-effective, even for small quantities.

FCT recognized a number of major advantages to color-coding of fiber:

- Color coding enables you to distinguish between fibers of different types, wavelengths, locations and performance characteristics.
- Color coding is permanent.
- Color coding is easy to understand because it is intuitive – in other words, people are accustomed to using color to identify things. They “get it” immediately.

## Industry Know-how Drives the FCT Process

FCT's unique process for color-coding optical fibers is based on decades of industry and engineering experience of the company's founders and technical staff. However, like many highly effective technological processes, it's remarkably simple.

Usually, customers have their fiber reels shipped directly to FCT's facility in Putnam, Conn. Because FCT does not make fiber and is not aligned with any one manufacturer, customers can control the specifications on the fiber they need. **FCT can color conventional single-mode or multimode fiber as well as the highly specialized fiber** required for some component manufacturers.

With the flexibility of the FCT process, orders can range in size from one reel to 300 or more. Customers can specify from 16 standard colors available in the FCT process.

FCT uses a "rewind process" in which the fiber is first paid off, and then passes through a coater, where a thin film of ink is applied. Next, the fiber passes through one or two UV lamps; the light energy from the lamps causes a chemical reaction that cures the coating. The fiber passes on to a take-up reel for inspection.

## **Ribbonizing Process Saves You Time and Effort**

Next, the fiber reels go to a ribbonizing station. FCT has tooling in place for all common ribbon configurations from two to 12 fibers. The FCT process was specifically designed for ease of use and time savings.

FCT's capabilities for both color-coding and ribbonizing enables a unique feature for two-fiber ribbons used in small form-factor connectors: **The matrix coating itself provides the necessary 750 micron spacing between each fiber.**

Other ribbonizing processes include a "dummy" fiber as the spacer; this dummy fiber must be removed by the user in a time-consuming break-out process. The FCT ribbon, on the other hand, is ready for installation immediately.

## **Each Fiber Is Inspected for Quality**

Throughout the FCT color coding process, a number of quality assurance steps are taken to ensure the quality and reliability of the color coding process. As orders come in, FCT measures every fiber – top and bottom. The company maintains coating dies in a number of sizes; the coater to be used for a particular order depends on the size of the fiber, ensuring that the correct ink thickness is applied.

Critical quality measurements include the industry-standard MEK (methyl ethyl ketone) rub test. FCT's high standards call for the ink on each fiber to withstand 400 strokes with no ink removal. (This is **twice the durability** recommended by coating manufacturers.) The test is done on a sampling basis.

For each order, FCT records and maintains a record of all critical process data including:

- inks and batch numbers used
- rub test results
- machine parameters
- maintenance schedules

The availability of this critical data ensures that results are traceable to each fiber processed through the system.

### **You Can Rely on FCT**

As the only independent fiber coloring house in North America, FCT has invested more than a decade in color-coding technology. It is their primary business, and they've enjoyed long-term relationships with all major cable manufacturers. The company's founders have more than 40 years' combined experience in the cable industry, working for major manufacturers in both telecom and datacom markets.

As a small, privately owned company, FCT can offer the fast turn-around and flexible service that is rapidly disappearing from the fiber industry. Custom configurations are possible, as well. Call FCT today for answers to your ribbonizing questions.

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**FCT customers include:**

Cable assembly houses

Coupler manufacturers

Optical switch manufacturers

Optical component manufacturers

**What can we do for you?**