



## Hunter Cable Assembly Ltd

a specialist manufacturer and distributor of

*cable assemblies, wiring looms, cable harnesses, box builds and connectors*

### Ribbon Cable and Ribbon Cable Assembly

The global consumer electronics industry is set to grow 5 per cent year on year up to 2013, fuelled by continued innovation and development of products such as laptops, flat screen TVs, smartphones and portable media devices. The growth in demand will increase many opportunities for those working in the consumer electronics industry, where demand for components is set to grow.

One such component that is commonly used in many consumer electronic products is ribbon cable, otherwise commonly referred to as flat ribbon cable.

In this White Paper we will look at what ribbon cable is, its uses in electrical manufacturing and issues to consider when choosing the right ribbon cable supplier.

Additionally this white paper will look at manufacturing considerations, such as what connector types are suitable for ribbon cable and why outsourcing your ribbon cable assembly is often the cheapest and best solution to meet growing demand.

#### What is Ribbon Cable?

Ribbon cable is typically flat and rectangular in shape and is essentially, just that: a flat cable made up of several conducting wires running next to each other. The main characteristic of ribbon cable is that it is flat and flexible and can hold many conductors. Large amounts of data can be rapidly transmitted via signals through ribbon cable and the connectors which join the cable to a system.

Due to its flexibility ribbon cable is extremely useful when there is limited space to connect two components together. For example, ribbon cable is commonly used within computer hardware to connect disk drives to a disk drive controller. In order to make installation easier and to align the cable conductors to certain pins, ribbon cable is typically colour coded, too.

#### Which industries is Ribbon Cable Used?

Ribbon cable is used in many electrical manufacturing industries, particularly consumer electronics manufacturing. Ribbon cable is essential in the design and build of many electrical products, with many manufacturers relying on the miniaturized version of ribbon cable, referred to as flexible flat cable or FFC, and a common component in laptops, mobile phones and many more consumer electronics products.

Ribbon cable is also often found in military and industrial equipment, too, including the automotive industry, aviation industry, military industry and even space exploration.

#### Choosing Ribbon Cable

Whatever your industry or final end design aims for ribbon cable, there are a number of issues to bear in mind. These include:



## Hunter Cable Assembly Ltd

a specialist manufacturer and distributor of

*cable assemblies, wiring looms, cable harnesses, box builds and connectors*

**Pitch:** Pitch refers to the spacing of the conductors contained within your ribbon cable. Common pitches are 0.5 mm, 1 mm, 1.25mm, 2 mm, but the spacing will depend on your exact ribbon cable requirements.

**Extreme Temperatures:** Standard ribbon cable will operate in normal temperatures, but if you need ribbon cable to operate seamlessly in extreme temperatures, you may need to consider protecting the cable with a silicon jacket.

**Flexibility:** Standard ribbon cable is extremely flexible, but if your design has extremely limited space or requires increased flexibility, you may need to purchase custom ribbon cable with greater flexibility for the specific job.

**Long Life:** As with most electrical components it is always advisable to choose ribbon cable that has been thoroughly tested and rated for a long life cycle.

**Fire Resistant:** Fire resistance is extremely important, not just for the successful operation of the electrical device, but for safety, too. Always choose ribbon cable that is compliant to the EU's Restriction of Hazardous Substances Directive (RoHS Directive) and thoroughly tested to meet stringent fire safety standards.

### Ribbon Cable Connectors: What you Need to Know

Another crucial point to consider when looking at ribbon cable is the different types of connectors available. If your ribbon cable assembly is custom built it will need to conform to the relevant connector type in order to work properly.

**Popular types of connectors available suitable for ribbon cable include:**

**BT224 Connector:** Also defined by BS9525-F0023, DIN41651, MIL-C-83503 standards. These connector types are used on ATA cables and are often simply called 'IDC connectors'. They mate with either a purpose-made plug or a two-row grid of header pins with 0.1 inch (2.54 mm) spacing.

**D-Subminiature Connector:** This type of connector is typically used for serial ports and printer ports.

**DIN41612 connector:** An example of where this type of connector is used is on Eurocard buses.

**PCB transition headers:** This type of connector has two rows of pins with the same spacings as BT244 connectors, however, it is designed and built with the intention of it been soldered directly into a Printed Circuit Board.

### Outsourcing Ribbon Assembly to the Experts

Manufacturers can benefit from specific, custom-made designs for their own ribbon assembly requirements when outsourcing. Just one benefit of outsourcing ribbon cable assembly to an external company is that you can benefit from in depth expertise and experience when it comes to building custom designs for your ribbon cable.

Outsourcing cable assembly to Asia is recognised as a cheap option in terms of price, but the associated costs can soon mount up. For example, issues such as language barriers, time differences, shipping and increased management time, as well as quality issues, can mean that outsourcing abroad can become more expensive than choosing a domestic expert.



## Hunter Cable Assembly Ltd

---

a specialist manufacturer and distributor of

*cable assemblies, wiring looms, cable harnesses, box builds and connectors*

---

### Conclusion

Ribbon cable and ribbon cable assembly demand is undoubtedly set to grow in the coming years and manufacturers should plan now how they intend to meet this growing demand.

In this White Paper we have looked briefly at what industries and sectors are set to see growth in demand for ribbon cable; what to consider when choosing ribbon cable and why outsourcing your ribbon cable assembly to a reputable domestic company, experienced in building complex ribbon assembly designs, should certainly be considered in order to meet growing industrial and consumer demand.

Hunter Cable Assembly Ltd, based in Berkshire, UK, has been manufacturing cable assemblies for over 30 years and with production facilities in the UK and is able to provide a complete service from design, drawing, prototyping through to full production volume. For more information visit: [www.hcal.co.uk](http://www.hcal.co.uk)