

## UL Listed or UL Recognized?

Underwriters Laboratories (UL) approval is important because it is accepted in both the US and Canadian markets. It can apply to an entire machine or more often to the components.

In the North American market various UL approvals are required for industry compliance. Approvals are complex and there are two main UL approvals which are very different:

**UL Listed** means the *product* meets the UL standard for the product to be used for a specific purpose.

**UL Recognized** refers to *components* used in combination with other components to create the finished product. These components have been tested for specific applications.

There are significant differences between UL Listed and UL Recognised approvals and their inspection processes. UL Inspectors are more familiar with the UL Listed requirements and encounter them repeatedly, making the acceptance process simpler. This saves a time and minimises testing costs.

The UL Recognized approval covers hundreds of Appliance Wiring Material (AWM) Styles. Detailed information is taken into account, such as voltage, flame retardant properties, operating temperature range etc. The product's mechanical properties are also tested and an existing AWM Style or a new AWM Style is issued.

The acceptance process can be tough and time-consuming. With a huge number of AWM Styles, investigation is often needed to determine the Style. A complex machine may have 50 or more different cables, taking a long time to verify. An individual cable might not fit into an existing AWM Style and not be accepted, in which case the machinery may need to be modified and the approval process restarted.

If problems occur it's often because it's the wrong type of approval applied to an individual cable. For example one Style of cable may be suitable for internal machinery wiring but it's not suitable for connecting outside the machine in a hazardous factory environment.

Another example is an industrial machine with the wiring between the machine and its control cabinet installed in a cable tray. UL Recognized wiring is commonly used within the machine and inside the control panel.

AWM is always considered a "Recognized" component approved for specific uses, designated by the Style number printed on the cable jacket. These cables are not intended for field installation but rather for internal, industrial or commercial use. In our example, the machine and its control cabinet will be listed with this particular type of wire installed.

### **For these reasons, use UL Listed cables wherever possible**

With UL Listed, it's easier to check the cable standard and acceptance is quicker as the inspector will not need to do any AWM research. If you can't find the appropriate standard, only then consider AWM Styles - not all applications fit the requirements of a UL Listed standard.

### **USA and European Standards**

It's worth pointing out that Europe focuses on the materials used in the cable, while the USA/Canada focuses on the flame retardant properties. North American and European approvals do not always line up. For example European approvals focus on the materials used, and cables installed inside buildings must be halogen-free with low toxicity and low smoke density characteristics. Flame retardant properties are the priority for UL approvals.