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Pick the right wire to avoid fire

By John Gavilanes Lapp USA Florham Park, N.J. | Sep 1, 2008 12:00 PM

Ten years ago, cable selection was often an afterthought, receiving little attention from machine builders and installers. Today it's a different story. With the increasing prevalence of lawsuits and insurance liability issues, choosing the proper cable ranks right up there with selecting drive, control, and safety components. New standards are trying to make it crystal clear too, including NFPA-79 from The National Fire Protection Association (NFPA).

Getting to know NFPA-79

NFPA-79 is the section of the National Electric Code (NEC) that focuses on electrical wiring standards used with industrial machinery. It applies to the electrical components installed in a variety of machines, as well as groups of machines working together, such as machine tools, injection molding machines, assembling machinery, and material handling equipment. The scope of NFPA-79 includes all electrical and electronic elements operating at 600 V or less.

In 2007, the NFPA-79 code underwent significant revisions in order to harmonize with its European counterpart, IEC-60204. One of the major changes involved cable selections required under Section 12.2.7.3. This section states that single conductor or multi-conductor AWM (Appliance Wiring Material) is not permitted, unless the completed assembly has been listed prior for such use.

The change was added because, in many cases, AWM was being used incorrectly during machinery installation. Some installers were running AWM from the main source of power (circuit breaker or fuse box) to the machine's control panel. That's a problem. In other cases, improper use of AWM was creating fire hazards. Machine Tool Wire (MTW), on the other hand, is one of the permissible options for wire and cable under the revised code.

Another requirement for machine cable is that it must be clearly labeled (on its jacket surface) with a UL symbol instead of the Recognized Cable Component (RU) logo, more commonly known as AWM. In cases where questions arise, the local inspector is the authority having jurisdiction in the area, and their interpretation of NEC code regulations is the final decision. It's their job to keep non-listed products out of industrial installations. And when an inspector shuts down a facility, no further installation work is permitted anywhere on site.

It's important to note that NEC code interpretations can vary greatly among inspectors; for example,

what's considered acceptable in New York State may not be acceptable in New York City. To ignore cable-specific requirements or consider them as secondary can be a costly mistake, or in worst-case scenarios, a hazardous and life-threatening decision.

Key definitions: Regulatory agencies, functions

NFPA - The National Fire Protection Association (NFPA) acts as the sponsor of the National Electrical Code (NEC). The NFPA has no power to enforce compliance with the NEC's contents. The NFPA does not list, certify, test, or inspect products, designs, or installations for compliance with the NEC, nor does it guarantee the accuracy of information published in the NEC.

NEC - The National Electrical Code (NEC) is considered purely advisory as far as the NFPA is concerned. It is made available for a variety of public and private uses in the interest of life and property protection. These include use in law and for regulatory purposes, as well as use in self-regulation and standardization activities such as insurance underwriting, building construction and management, and product testing and certification.

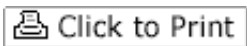
UL - Underwriters Laboratories Inc. (UL) is an independent, not-for-profit, product-safety testing and certification organization. No laws specify that a UL mark must be used. However, in the U.S., many municipalities have laws, codes, or regulations that require a product to be tested by a nationally recognized testing laboratory. UL does not, however, maintain a list of the jurisdictions having such regulations.

Authority having jurisdiction - The organization, office, or individual responsible for approving equipment, materials, installation, or a procedure.

Special thanks to John Gavilanes, Director of Engineering, for this standards update. For more information, visit www.lappusa.com or call (800) 774-3539.

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