

North America Regulatory & Safety Standard Agencies

Underwriters Laboratories, Inc., (UL) is chartered to establish, maintain, and operate laboratories for the examination and testing of devices, systems, and materials. UL determines hazards to life and property, and defines standards, classifications, and specifications for materials, devices, products, equipment, constructions, methods, and systems affecting such hazards.

UL Listed Wire and Cable Products



Wire and cable covered by this category are intended for use as fixed wiring for the three general building types: residential, commercial, and industrial. Listed wire and cable must not only comply with the applicable individual UL standards but also with requirements indicated under specific Articles of the National Electrical Code. The National Electrical Code defines specific end use application and where a particular listed wire or cable is installed.

Example of Listed wire and cable use: A UL Listed wire or cable can be used inside a building where a connection is required from a circuit breaker box to a wall outlet or externally as a coaxial cable when a connection is required from a satellite dish to a television wall receptacle. UL Listed cable can also be used to supply power to a UL Listed piece of equipment, such as the flexible cord used in the cord set of your computer or appliance.

cUL Listing Mark



This marking is represented by a lower case “c” appearing adjacent to the applicable UL symbol and indicate that a wire or cable has been tested by Underwriters Laboratories for conformance to standards from the Canadian Standards Association. These Marks are applied to products that are intended for use in the Canadian marketplace.

UL Listed Component Mark for Canada and the United States



This Listing Mark was introduced by UL in early 1998. This Mark indicates compliance with both US and Canadian requirements. The use of the combined Canada/US UL Mark is optional. UL encourages manufacturers with products certified for both countries to use this Mark, but they may continue using separate UL Marks for Canada and the United States.

UL AWM Recognized Components



Appliance Wiring Material (AWM) covers wire and cable intended for use as factory installed components of complete equipment. Appliance Wiring Material is not intended for use in direct separate installation in the field. Wire or cable indicating a UL AWM style marking is intended for applications that are unique to each individual style sheet. The usage statement of an individual style sheet will dictate specific end use limitations of the AWM wire or cable.

The NEC does not recognize AWM as an approved wiring method.

Example of AWM use: If a manufacturer desires to obtain UL Listing for their new piece of equipment they must submit their design to Underwriters Laboratories. The entire UL Listing process will move much more quickly and easily if all internal components used within the equipment design are UL Recognized. If the internal components are not UL Recognized then the UL Listing process will take much longer and cost more as the individual components now must be tested for compliance. AWM can also be used externally to interconnect two UL Listed components such as the data cable assembly that connects a computer to a printer.

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UL AWM Recognized Components



This Mark also covers Appliance Wiring Material and is applied to products that are intended for use in the Canadian market. Products that contain this Mark have been evaluated by UL for compliance to the applicable CSA standard for either internal or external use as designated by Class number and group type.

Recognized Component Mark for Canada and the United States



This new UL Recognized Component Mark, which became effective April 1, 1998, may be used on components certified by UL to both Canadian and US requirements. Although UL had not originally planned to introduce a combined Recognized Component Mark, the popularity of the Canada/US Listing and classification marks among clients with UL certifications for both Canada and the United States has led to the new Mark.

General Information

The local or state office of the electrical inspector dictates regulations governing cables that are installed in conduit. These regulations can vary or fluctuate depending upon interpretation of the National Electrical Code in different states and local municipalities.

Canadian Standards Association (CSA)



CSA is one of five accredited standards writing organizations in Canada. Unlike other foreign countries, Canada does not have separate standards and national testing agencies. The CSA Mark indicates that a product has been tested and approved for use in Canada. Lapp USA offers the following type of wire and cable certified by the Canadian Standards Association on a wide variety of different products.

Appliance Wiring Material (AWM) refers to wire and cable that is manufactured per the requirements specified in CSA Standard C22.2 No.210. AWM wire and cable is intended to be used internally within electrical and electronic equipment and can also be used for external interconnection between equipment. C22.2 No.210 defines AWM categories as follows:

Class I Internal

Group (A) – Where not subjected to mechanical abuse
 Group (B) – Where may be subjected to mechanical abuse
 (1) Wet Location
 (2) Oil Resistant

Class II External

Group (A) – Where not subjected to mechanical abuse
 Group (B) – Where may be subjected to mechanical abuse
 (1) Wet Location
 (2) Oil Resistant

International Regulatory Standard Agencies

International Safety Standards Agencies

Most countries have their own standards writing agencies. However, the basis for the majority of international standards are adaptations from, or exact duplication of, publications from the following safety standard agencies. These standards agencies are commissioned to create and publicize international safety standards. They are standards-setting agencies only. The enforcement of and testing to these standards is undertaken at the national level, but the final interpretation of design and approval of the product always lies with the national test agencies.

IEC (International Electrotechnical Commission)



The IEC is composed of representatives from manufacturers, users, and national testing labs from many of the European industrialized nations. Their primary directive is to publicize recommendations for safety standards. Although IEC publications do not have the force of law, in most cases new standards published by the National Testing Agencies in Europe and Australia have only minor deviations from IEC publications.

CEE (International Commission for Rules for the Approval of Electrical Equipment)



CEE was composed of representatives from European National Testing Labs. The CEE's work has been taken over by CENELEC.

CENELEC (European Committee for Electrotechnical Standardization)



The primary responsibility of CENELEC is to develop electrotechnical standards that represent a consensus among its European member countries. While IEC publications are generally the basis for European National Standards, CENELEC will cover matters that are not completely addressed by IEC documents.

International Testing & Approval Agencies

Although a product may have been designed to comply with individual standard agencies, or with IEC, CEE, or CENELEC, each product must be tested, approved, and marked by the National Testing Agency for each country the cords are to be sold in (such as VDE, SEMKO, DEMKO, etc.) In most cases it is illegal to sell non-approved products.

Australia: ETSA (Electricity Trust of South Australia)



There are six electrical testing agencies in Australia. Generally, an approval by one of the agencies is accepted by the others. The Standards Association of Australia (SAA) is the recognized association for the preparation of Australian standards. SAA's policy is to use IEC standards as its guidelines. The SAA mark molded into a plug or connector indicates that a product has been tested and approved by one of the Australian testing agencies and SAA. Australian agencies require that an approval number be molded into the plug and connector. The cordage itself is the same used in Europe.

Austria: ÖVE (Austrian Association for Electrical Technology)



ÖVE is the standards association and the National Testing Agency in Austria. IEC standards are the basis for ÖVE standards. The ÖVE mark molded into a plug or connector indicates that a product has been tested and approved for use in Austria.

Belgium: CEBEC (Belgium Electrotechnical Committee)



The recognized association for Belgian standards is the Belgium Electrotechnical Committee (CEB). The range of CEB standards is similar to that of the IEC. The CEBEC mark molded into a plug or connector indicates that a product has been tested and approved by CEBEC for use in Belgium. CEBEC approval in Belgium is voluntary.

Denmark: DEMKO (Danish Electrical Testing Station)



The recognized association for Danish standards is the Danish Electrotechnical Committee (DEK). DEK adopts CENELEC and IEC standards as their basis for standards. The DEMKO mark molded into a plug or connector indicates that a product has been tested and approved by DEMKO. Goods not bearing this mark cannot be sold in Denmark.

International Testing & Approval Agencies

Finland: SETI (Electrical Inspectorate)



The recognized association for Finnish standards is the Finnish Electrotechnical Standards Association (SESKO). Most of the standards set by SESKO are in accordance with IEC and CENELEC publications. The SETI mark molded into a plug or connector indicates that a product has been tested and approved by SESKO and SETI for use in Finland. Use of this mark is mandatory only on equipment used in homes, offices, shops, and other premises where the public is admitted.

Germany: VDE (Association of German Electrical Engineers)



The recognized association for German standards is the German Electrotechnical Commission of DIN & VDE (DKE). The DKE standards are identical to IEC standards. The VDE mark indicates that a product has been tested and approved by DKE and VDE.

Italy: IMQ (Italian Institute of the Mark of Quality)



The recognized association for the preparation of Italian standards is the Italian Electrotechnical Committee (CEI). The basis of CEI standards is the IEC and CENELEC standards. The IMQ mark on the plug or connector indicates that a product has been manufactured according to CEI standards. There is no legal authority for the mandatory application of standards in Italy.

Netherlands: KEMA



The recognized association for standards in the Netherlands is the Netherlands Electrotechnical Committee (NEC). The NEC adopts IEC standards with few deviations. The KEMA mark on the plug or connector indicates that a product has been tested and approved by NEC and KEMA. The use of electrotechnical standards is voluntary in the Netherlands.

Norway: NEMKO (Norwegian Board for Testing and Approval of Electrical Equipment)



The recognized association for Norwegian standards is the Norwegian Electrotechnical Committee (NEK). NEK standards are identical to IEC and CENELEC. The NEMKO mark molded into a plug or connector indicates that a product has been tested and approved by NEMKO.

Sweden: SEMKO (Swedish Institute for Testing and Approval of Electrical Equipment)



The recognized association for Swedish standards is the Swedish Electrical Commission (SEK). There are more than 800 Swedish electrical standards. Most of them are identical to IEC standards. Most of the standards are voluntary. However, domestic electrical equipment is subject to approval and cannot be sold unless approved by SEMKO. The SEMKO mark molded into a plug or connector indicates that a product has been tested and approved by SEMKO.

Switzerland: SEV (Swiss Electrotechnical Association)



The recognized association for Swiss standards is the Swiss Standards Association (SEV). The SEV has adopted IEC standards almost without exception. The SEV mark molded into a plug or connector indicates that a product has been tested and approved for use in Switzerland. All products to be sold in Switzerland must bear this mark.

Alternative Markings



European agencies require the agency marking to be molded into the plugs and connectors. There are two alternatives for marking cordage and wires. The manufacturer's name and the National Test Agency symbol are printed on the blue primary conductor. In addition to the primary conductor marking, "HAR", the symbol for CENELEC, can be printed on the outer jacket. According to CENELEC and the national approval agencies, the "HAR" symbol is not mandatory as long as a National Test Agency symbol is on the cordset. The product is fully approved for use in any continental European country as long as it is manufactured to CENELEC and foreign agency standards and carries one of the above markings.



TÜV SÜD Group is a global, independent testing laboratory. The range of services TÜV provides includes consulting, inspections, tests, and expert opinions, as well as certification and training on global norms.

Products with Russian Certification: Gost-R



Product	Product	Product
ÖLFLEX® CLASSIC 100/100 CY	SERVO cable acc. to LENZE® Standard	UNITRONIC® LiYCY (TP)
ÖLFLEX® CLASSIC 100 SY	SERVO cable acc. to SEW® Standard	UNITRONIC® 300/300 CY
ÖLFLEX® CLASSIC 110/110 CY	ÖLFLEX® FD CLASSIC 810/810 CY	UNITRONIC® PUR CP
ÖLFLEX® CLASSIC 110 SY	ÖLFLEX® FD 820 H/820 CH	UNITRONIC® PUR CP TP
ÖLFLEX® CLASSIC 110 BLACK	ÖLFLEX® FD CLASSIC 810 P/810 CP	UNITRONIC® LiHH/LiHCH
ÖLFLEX® CLASSIC 110 CY BLACK	ÖLFLEX® FD 855 P/855 CP	UNITRONIC® LiHCH (TP)
ÖLFLEX® CLASSIC 115 CW	ÖLFLEX® FD ROBUST	UNITRONIC® FD/FD CY
ÖLFLEX® EB/EB CY	ÖLFLEX® FD ROBUST C	UNITRONIC® FD P PROFIBUS HYBRID
ÖLFLEX® 150 QUATTRO/150 CY QUATTRO	ÖLFLEX® FD 90/90 CY	UNITRONIC® FD P plus A
ÖLFLEX® 191/191 CY	ÖLFLEX® FD 891/891 CY	UNITRONIC® FD CP plus A
ÖLFLEX® CONTROL TM/TM CY	ÖLFLEX® FD 891 P/891 CP	UNITRONIC® FD CP (TP) plus A
ÖLFLEX® TRAY II	ÖLFLEX® ROBOT 900 P	UNITRONIC® Li2YCY (TP)
ÖLFLEX® CLASSIC 100 H	ÖLFLEX® ROBOT 900 DP	UNITRONIC® Li2YCYv (TP)
ÖLFLEX® CLASSIC 110 H	ÖLFLEX® ROBOT F1	UNITRONIC® Li2YCY PIMF
ÖLFLEX® CLASSIC 110 CH	ÖLFLEX® SOLAR XL multi	UNITRONIC® LAN TYPE 1A 600 MHz
ÖLFLEX® 120 H/120 CH	ÖLFLEX® SOLAR XLS	UNITRONIC® LAN Twinax
ÖLFLEX® CLASSIC 130 H	ÖLFLEX® SOLAR XLV	UNITRONIC® BUS IBS
ÖLFLEX® CLASSIC 135 CH	ÖLFLEX® SOLAR V4A	UNITRONIC® BUS P COMBI IBS
ÖLFLEX® CLASSIC 130 H BLACK	ÖLFLEX® SOLAR plus	UNITRONIC® BUS FD P IBS
ÖLFLEX® CLASSIC 135 CH BLACK	ÖLFLEX® SOLAR XL	UNITRONIC® BUS FD P COMBI IBS
ÖLFLEX® ROBUST 200	ÖLFLEX® SOLAR XLR ST	UNITRONIC® BUS YV IBS
ÖLFLEX® ROBUST 210	ÖLFLEX® SOLAR SR	UNITRONIC® BUS YV COMBI IBS
ÖLFLEX® ROBUST 215 C	ÖLFLEX® SOLAR plus V4A	UNITRONIC® BUS PB A
ÖLFLEX® CLASSIC 400 P/400 CP	ÖLFLEX® CRANE NSHTÖU	UNITRONIC® BUS FD P L2/FIP
ÖLFLEX® 491 P/491 CP	ÖLFLEX® CRANE VS NSHTÖU	UNITRONIC® BUS PB FD P FC A
ÖLFLEX® CONTROL M	ÖLFLEX® CRANE PUR	UNITRONIC® BUS PB FD P COMBI
ÖLFLEX® 540 P/540 CP	ÖLFLEX® CRANE	UNITRONIC® BUS PB YV
H07RN8-F	ÖLFLEX® CRANE 2S	UNITRONIC® BUS DN THICK FRNC
H07BN4-F Wind	ÖLFLEX® LIFT	UNITRONIC® BUS DEVICENET THICK CABLE
ÖLFLEX® SERVO 700/700 CY	ÖLFLEX® LIFT T	FRNC, UL/CSA (CMG) (halogen-free)
ÖLFLEX® SERVO 720 CY	ÖLFLEX® LIFT S	UNITRONIC® BUS DN THIN FRNC
ÖLFLEX® SERVO 730/730 CY	ÖLFLEX® CRANE F	UNITRONIC® BUS DEVICENET THIN CABLE
ÖLFLEX® SERVO 2YSLCY-JB	ÖLFLEX® LIFT F	FRNC, UL/CSA (CMG) (halogen-free)
ÖLFLEX® 709 CY	ÖLFLEX® HEAT 105 SC/105 MC	UNITRONIC® BUS CAN
ÖLFLEX® SERVO 9YSLCY-JB	ÖLFLEX® HEAT 145 SC/145 MC	UNITRONIC® BUS CAN FD
SERVO cable acc. to SIEMENS® Standard 6FX 5008	ÖLFLEX® HEAT 180 SiHF	H05RR-F
ÖLFLEX® SERVO FD 750 P	ÖLFLEX® HEAT 180 SiF/GL	H05RN-F
ÖLFLEX® SERVO FD 755 P/755 CP	ÖLFLEX® HEAT 180 SiD	H07RN-F
ÖLFLEX® SERVO FD 755 CP DESINA®	ÖLFLEX® HEAT 180 SiZ	NSSHÖU
ÖLFLEX® SERVO FD 760 CP	ÖLFLEX® HEAT 180 FZLSi	H07ZZ-F
ÖLFLEX® SERVO FD 770 CP	ÖLFLEX® HEAT 180 H05SS-F EWKF	H01N2-D
ÖLFLEX® SERVO FD 770 CP DESINA®	ÖLFLEX® HEAT 180 MC	LiFY measurement cores
ÖLFLEX® SERVO FD 781 CY	ÖLFLEX® HEAT 180 GLS	LiFY highly flexible measurement cores
ÖLFLEX® SERVO FD 781 P/781 CP	ÖLFLEX® HEAT 205 SC/205 MC	ESUY copper earthing cable
ÖLFLEX® SERVO FD 785 P/785 CP	ÖLFLEX® HEAT 205 PTFE/FEP	H00V3-D copper earthing cable
ÖLFLEX® SERVO FD 790 CP	ÖLFLEX® HEAT 260 SC/260 MC	NSGAFÖU
ÖLFLEX® SERVO FD 795 P/795 CP	ÖLFLEX® HEAT 260 C MC	NSHXAÖ
SERVO cable acc. to SIEMENS® Standard 6FX 7008	ÖLFLEX® HEAT 260 GLS	NiCr/Ni PVC/PVC compensating cable
SERVO cable acc. to SIEMENS® Standard 6FX 8008	ÖLFLEX® HEAT 350 SC (Zero Flame 350 SC)	LiY stranded hook-up wire
SERVO cable acc. to INDRAMAT® Standard INX	ÖLFLEX® HEAT 350 MC (Zero Flame 350 SC)	H05V-K single core
	ÖLFLEX® HEAT 1565 SC (Zero Flame SC 1565)	H07V-K single core
	UNITRONIC® LiYY/LiYCY	H05Z-K single core
	UNITRONIC® LiYCY-CY	H07Z-K single core
	UNITRONIC® LiYY (TP)	

Environmental Standards: REACH & RoHS

The use of hazardous substances in products is subject to ever stricter international laws and restrictions. All products in this catalogue meet the following legal requirements (among others):

- **REACH directive 1907/2006/EC**
- **RoHS directive 2011/65/EU, or 2002/95/EC**

REACH:

Directive 1907/2006/EC represents the EU's standard system for the Registration, Evaluation, Authorization and Restriction of Chemicals, or REACH for short. The purpose of the directive is to ensure a high level of protection for human health and the environment.

REACH came into force on June 1, 2007 and replaced a number of former specifications relating to the material composition of products as previously governed, for example, by directive 76/769/EEC on the approximation of the laws, regulations, and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations. All Lapp Group products fall within the meaning of REACH. The following requirements of the REACH directive are therefore particularly significant:

1. Information requirement for manufacturers and importers of products containing a material on the Candidate List at a concentration in excess of 0.1% of the mass of the product.
2. Observance of substances requiring authorization in accordance with REACH Annex XIV.
3. Observance of the manufacturing, marketing, and use restrictions specified in REACH Annex XVII.

No duty of substance registration applies to the Lapp Group. The duty of registration is linked to specific conditions, such as the manufacture of substances or preparations, or the release of substances from products. The Lapp Group does not meet any of these conditions.

The Lapp Group has attributed great importance to the subject of safety and the environment from a very early stage. Our aim is to implement the REACH directive by keeping our products free from substances of very high concern (SVHC) or to replace such substances with non-hazardous materials. We therefore keep a very close eye on the Candidate List, in which the European Chemicals Agency lists these dangerous substances, continuously evaluate our products and implement any necessary substitution measures.

We observe all registration requirements for materials in accordance with REACH Annex XIV as well as the manufacturing, marketing, and use restrictions specified in REACH Annex XVII.

For further information on the subject of REACH, visit our website at www.lappusa.com or contact our competent REACH experts regarding specific substances.

RoHS:



The full title of the RoHS directive is as follows: "DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June

2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment". The new RoHS directive 2011/65/EC was published on July 1, 2011 and replaces the previous RoHS directive 2002/95/EC. Different transitional periods apply for the amendments introduced by the new RoHS directive.

In addition to the extended scope of the directive, which now also comprises other electrical and electronic equipment (EEE), one significant new feature is the obligation to assure compliance with the requirements of the RoHS directive by means of a conformity assessment procedure. Lapp certifies the RoHS conformity of EEE covered by the directive with a product-specific EC declaration of conformity and the application of the CE Mark.

Irrespective of the scope of the RoHS directive, all products in this catalogue meet the substance-specific requirements of RoHS. The exceptions detailed in the RoHS directive notwithstanding, our products do not contain any of the restricted substances specified in the RoHS directive or exceed the maximum concentrations stipulated therein.

Note:

All information is provided to the best of our knowledge and belief. This information provided is representative of current environmental standards. This is supported through continuous random testing of our products.

Given the vast number of our products, complete verification without exception is not possible. Therefore, the specifications above do not constitute a generally applicable guarantee in a legal or warranty sense.

WEEE Directive

The WEEE directive governs the disposal and recycling of electrical and electronic goods. A list of products from our range falling under the category of electrical and electronic tools and equipment is provided below, along with the relevant registration numbers:

Article Number	Registration Number
61806430	54158606
21700002, 21700012	39257114

The stated article/registration numbers are subject to change as a result of any modifications to the scope of the WEEE directive after printing of this catalogue.