

UL/CSA-APPROVED PRODUCTS

ÖLFLEX® Power- and control cables

Cable types with UL listing

Multi-Standard SC 2.1 - PVC single core cable, HAR H07V-K, UL AWM, UL MTW and CSA TEW listed.

Multi-Standard SC 2.2 - PVC single core cable, HAR H07V-K, UL AWM, UL MTW and CSA TEW listed.

ÖLFLEX® CONTROL TM - PVC control cable, OIL RES, UL/CSA AWM, UL TC-ER, MTW and WTTTC listed.

ÖLFLEX® CONTROL TM CY - PVC control cable, screened, OIL RES, UL/CSA AWM, UL TC-ER, MTW and WTTTC listed.

ÖLFLEX® TRAY II - PVC control cable, OIL RES, SUN RES, UL/CSA AWM, UL TC-ER, MTW and WTTTC listed.

ÖLFLEX® TRAY II CY - PVC control cable, screened, OIL RES, SUN RES, UL/CSA AWM, UL TC-ER, MTW and WTTTC listed.

Cable types with AWM style

ÖLFLEX® CLASSIC 110 H - halogen-free control cable, HFFR, oil-resistant, flexible and cold-resistant, UL AWM.

ÖLFLEX® CLASSIC 110 CH - halogen-free control cable, HFFR, oil-resistant, screened and cold-resistant, UL AWM.

ÖLFLEX® CLASSIC 130 H - halogen-free control cable, HFFR, flexible, UL AWM.

ÖLFLEX® CLASSIC 130 H BK 0.6/1kV - power cable, HFFR/LSOH for public buildings and outdoors, UL AWM.

ÖLFLEX® 150 CY - harmonised PVC control cable, oil-resistant and screened, UL/CSA AWM.

ÖLFLEX® 191 CY - PVC control cable, screened, oil-resistant and flexible, UL/CSA AWM.

ÖLFLEX® 491 P - PUR connecting cable, abrasion-resistant and notch-resistant, UL/cUL AWM.

ÖLFLEX® CHAIN 809 - PVC control cable for miscellaneous applications, UL/cUL AWM.

ÖLFLEX® FD 891 CY - PVC control cable, screened, for miscellaneous applications, UL/CSA AWM.

ÖLFLEX® CHAIN 896 P - PUR control cable for harsh conditions, UL/CSA AWM.

ÖLFLEX® CHAIN 809 SC - PVC single-core cable for miscellaneous applications, UL/cUL AWM.

ÖLFLEX® FD 90 - PVC single-core cable for miscellaneous applications, UL/cUL/CSA AWM.

ÖLFLEX® FD 90 CY - PVC single-core cable, screened for miscellaneous applications, UL/cUL/CSA AWM.

ÖLFLEX® TORSION - PVC power cable for applications with torsional load, UL/cUL AWM.

ÖLFLEX® TORSION FRNC - power cable for applications with torsional load, UL/cUL AWM.

ÖLFLEX® HEAT 180 MS - silicone power and control cable, UL/cUL AWM.

ÖLFLEX® HEAT 180 C MS - silicone power and control cable, screened, UL/cUL AWM.

ÖLFLEX® PETRO C HFFR - PUR connecting cable, screened, flexible at low temperatures, oil and abrasion-resistant, UL/cUL AWM.

ÖLFLEX® ROBOT F1 - PUR robot cable for bending and torsional load, UL/cUL AWM.

ÖLFLEX® SERVO 709 CY - PVC servo cable, screened and for fixed installation, UL/cUL AWM.

ÖLFLEX® SERVO 9YSLCY-JB - PVC motor cable, EMC-optimised and double screened, UL/cUL AWM.

ÖLFLEX® SERVO FD 796 P - PUR servo cable for continuous mobile use, UL/CSA AWM.

ÖLFLEX® SERVO FD 796 CP - PUR servo cable, screened, for continuous mobile use, UL/CSA AWM.

ÖLFLEX® SERVO FD 798 CP - PUR encoder cable, screened, for continuous mobile use, UL/CSA AWM.

UNITRONIC® Data communication systems

UNITRONIC® LIYCY A - PVC data network cable with DIN colour code, screened for use in the low frequency range, UL/CSA AWM.

UNITRONIC® LIYCY (TP) A - PVC data network cable with DIN colour code, twisted-pair and screened for use in the low frequency range, UL/CSA AWM.

UNITRONIC® 300 - PVC data network cable for use in the low frequency range, CMG PLTC UL/CSA listed.

UNITRONIC® 300 S - PVC data network cable, screened, for use in the low frequency range, CMG PLTC UL/CSA listed.

UNITRONIC® FD CP plus - PUR data network cable with DIN colour code, screened for continuous mobile use, CMX UL/CSA listed.

UNITRONIC® FD CP (TP) plus - PUR data network cable with DIN colour code, stranded in pairs and screened for continuous mobile use, CMX UL/CSA listed.

UNITRONIC® BUS PB FD P HYBRID - industrial bus cable suitable for PROFIBUS DP applications, for hybrid applications with data network cable and power supply.

UNITRONIC® BUS PB - industrial bus cable suitable for PROFIBUS DP applications, for fixed installation, flexible or highly flexible use.

UNITRONIC® BUS PB TORSION - industrial bus cable suitable for PROFIBUS DP applications, for applications with torsional loads.

UNITRONIC® DeviceNet - industrial bus cable for DeviceNet applications with long transmission paths, for fixed installation or highly flexible use.

UNITRONIC® BUS CAN - industrial bus cable for CAN applications, for fixed installation or highly flexible use.

UNITRONIC® BUS ASI - industrial bus cable suitable for AS Interface applications, for fixed installation or highly flexible use.

S/A box with M12 or M8 slots - robust sensor/actuator I/O distributor with fixed master cable connection, suitable for power chains, IP69K.

AS-Interface modules (IP67) - robust and compact AS-Interface I/O modules for tool-free assembly, with integrated LED diagnostics, IP67.

BUS modules (PROFIBUS, CANopen, DeviceNet) - robust and compact PROFIBUS I/O modules with M12 connection system, with integrated LED diagnostics, IP67.

EPIC® DATA PROFIBUS connector 35° screw connection - Sub-D data connector (9 pin) for PROFIBUS-DP.

EPIC® DATA PROFIBUS connector, 90° LED Fast Connect - Sub-D data connector (9 pin) for PROFIBUS-DP with LED diagnostics.

EPIC® DATA PROFIBUS connector, 90° M12 - Sub-D data connector (9 pin) for PROFIBUS-DP.

EPIC® DATA CAN bus connector 90° - Sub-D data connector (9 pin) for CAN, CANopen and DeviceNet.

S/A cable: Connector/socket M12 on free cable end - robust sensor/actuator cables, suitable for power chains, IP69K.

S/A cable: Straight Y connector M12 to 2x M12 socket - robust sensor/actuator Y cable, suitable for power chains, IP69K.

ETHERLINE® Data communication systems for ETHERNET-Technology

ETHERLINE® PN Cat. 5 - PROFINET-compliant 4-pair industrial Ethernet cables for fixed installation, flexible use or special applications.

ETHERLINE® PN Cat.6 - PROFINET-compliant 4-pair industrial Ethernet cables for fixed installation, flexible use or special applications.

M12 Industrial Ethernet PN A connecting cable - connecting or power cable for PROFINET (types A, B and C) with straight/angled M12 connector.

Easy Connect top-hat rail adapter Cat. 6 - (TH35 in compliance with DIN EN 60715) with field-configurable Industrial Ethernet module for 10 Gbit.

ETHERLINE® EC - Industrial Ethernet cable, suitable for EtherCat, for fixed installation, flexible use or in power chains.

ETHERLINE® Cat.5e Flex - Industrial Ethernet cable, Cat. 5e, 2 or 4-pair, for fixed installation, flexible use or in power chains.

EPIC® DATA RJ45 connector, Cat.6 - field-configurable Cat.6, compliant RJ45 connector, suitable for 10 Gbit/s, metal housing, also special design for 19-wire cores.

EPIC® Industrial connectors

EPIC® H-A - connector, small, compact and powerful for the power supply in an industrial environment and for outdoor use.

EPIC® H-BE - connector, universal for power supply and control, from 6 to 48 pins. Huge range of applications with screw, crimp and spring type connection.

EPIC® LS1 - power supply for electric motors. Huge power from small dimensions.

EPIC® M23 - the signal connector for all measuring, control and regulating units. EMC, vibration-proof and highly environmentally resistant.

EPIC® H-Q - for connection of electric motors, in standard or EMC protected version.

EPIC® Modular - power, signals, data, fibre optic cables and compressed air in one connector. Used in robot technology, industrial machinery or in switchgear racks.

SKINTOP® Cable glands

SKINTOP® ST-M - polyamide cable entry, large clamping range, wide range of standards, IP68/IP69K.

SKINTOP® MS-M ATEX BRUSH - brass cable entry with innovative brush system (360°), easy dismantling.

SKINTOP® MS-SC M/MS-SC NPT - optimum, low-resistance screen contact.

SKINTOP® SM-M - brass counter nuts for metric cable entries, for high mechanical stability.

SKINTOP® CLICK - with locking system, click in, tighten - done.

SKINTOP® MS-M BRUSH/MS NPT BRUSH EMV - brass cable entry with innovative brush system (360°), easy dismantling.

SKINTOP® MS-M - brass cable entry, for cable diameter up to 9.8 mm, protection rating IP68/IP69K.

SKINTOP® GMP-GL-M - polyamide counter nuts, glass fibre reinforced for high mechanical stability.

SKINTOP® NPT - polyamide cable entry with conical NPT thread, IP 68, wide range of standards.

SKINTOP® INOX - stainless steel gland in compact design for demanding requirements.

SKINTOP® MS-M ATEX - brass cable entry with worldwide ATEX approval (IEC).

SKINMATIC® QUICK SET 1 - assembly tool for metric cable entries, optionally with torque grip.

SKINTOP® BS-M - cable conserving and reliable bend and anti-kink protection for high operational safety.

SKINTOP® BRUSH ADD-ON - innovative EMC extension for SKINTOP® ST(R)-M - The world's first patented, active EMC counter nut.

SKINTOP® MS NPT - nickel-plated brass cable gland with NPT thread.

SKINTOP® CUBE - innovative multiple cable entry for pre-assembled cables, variable clamping ranges (UL in development).

SILVYN® Protective cable conduit- and cable carrier systems

SILVYN® RILL PA 6 - fine corrugated structure for high flexibility in installation.

SILVYN® KLICK-GM - polyamide conduit gland, IP68/IP69K, assembly with hand grip without tools.

SILVYN® EL - PVC sheathed protective conduit for internal Hart PVC spiral.

SILVYN® MPC-M - polyamide conduit gland, IP65.

SILVYN® HTDL - impermeable protective conduit made of single folded metal profile with PVC sheath.

SILVYN® AMG-M - brass conduit gland, IP67.

Cable Accessories

CMP shrink hose - with various approvals such as CSA and UL recognised.

TY-RAP® standard cable tie - quality cable tie with steel blade with improved pull-out values.

LS steel cable tie - for bundling cables in demanding environments.

Pipe cable lugs KR/KRT/KRF - also suitable for fine wire conductors, with inspection hole.

Insulated connector - for example conductor end sleeves and insulated cable lugs for secure electrical connection.

FLEXIMARK® perforated shrink hose - suitable for single core and cable marking, pre-cut to the relevant size.

FLEXIMARK® shrink hose - continuous shrink hose for cable labelling.

FLEXIMARK® Marking systems

FLEXIMARK® perforated shrink hose - suitable for single core and cable marking, pre-cut to the relevant size.

FLEXIMARK® shrink hose - continuous shrink hose for cable labelling.

Firmly established: the Lapp Group

3,150 employees worldwide, 17 production sites around the globe, 41 sales companies – when it comes to the size and importance of a company, numbers often speak louder than words.

Despite all this international growth, the consortium founded in 1959 is to this day family-owned and based in Stuttgart, where it was founded.

We are one of the leading providers of integrated solutions and branded products for cable and connection technology and in our portfolio you will find the right solution for virtually every application: whether in the form of high-tech energy cables, industrial connectors or new technology, customised system solutions, automation technology or technical accessories.

WE COME TO THE LAPP LAB
In the Lapp laboratory, newly developed products are tested in the most demanding conditions. Series products are also checked on the test bench. Lapp Group are carried out here in Stuttgart. Whether it be inspections on cables, cable glands or connectors.

Examples in order to ensure reliable use in drug chains or robots, our highly flexible cables are tested here for their suitability for continuous flexing uses.

You make demands – we provide the answer

RECIPE FOR SUCCESS - IN-HOUSE PRODUCTION

Our developments also belong to us. That's why we manufacture our products at Lapp production facilities - wherever in America, Europe or Asia.

FOR US, GOOD IS NOT GOOD ENOUGH
We ourselves are our shapeliest critics. Our products are therefore subjected to unique

Brand quality from Stuttgart



ÖLFLEX® Power- and control cables

The world's first brand cable is available in the most diverse variants.

Key features: Oil-resistant, flexible and available to match almost any requirement or environmental condition - also free of halogens. **Fields of application:** Multipurpose. Special variants are more and more in demand in the area of renewable energies.



EPIC® Industrial connectors

The brand for strong and reliable connections. Key features: For use in harsh environments.

Key features: Flexible system consisting of housings, inserts, contacts and accessories - for every requirement, the tailor-made solution. Similarly, EPIC® SOLAR plugs for photovoltaics are also part of the extensive product range. **Fields of application:** Mechanical and systems engineering, drive technology, Automation.



SKINTOP® Cable glands

The brand for multipurpose cable entries in line with the following: quickly fastened, centred and hermetically sealed.

Key features: Large clamping areas, optimum strain reliefs, the most diverse versions such as SKINTOP® C/UCD or CUBE. **Fields of application:** Everywhere, where cables must be fastened reliably and quickly.



UNITRONIC® Data communication systems

The ideal brand for fast, trend-setting and reliable data transfer.

Key features: UNITRONIC® are not only data lines, but also bus lines, which together with active sensor/actuator modules or gateways provide a perfect system for automation. **Fields of application:** Measurement, control, regulation, bus or LAN networks.



ETHERLINE® Data communication systems for ETHERNET-Technology

The brands for network solutions, safety systems and firewalls in the industrial networking sector.

Key features: Comprehensive range of products for industrial networking. **Fields of application:** Factory automation, Renewable Energy, Building technology, Structured cabling.



HITRONIC® Optical transmission systems

The brand for high-speed, interference-free data transport.

Key features: The HITRONIC® product range includes fibre optic cables in the most varied of versions, along with suitable accessories such as splice boxes, wall distributors or couplings. **Fields of application:** Office and industrial sector, Renewable Energy.



SILVYN® Protective cable conduit- and cable carrier systems

The brand for all-round cable protection. **Key features:** The product range includes SILVYN® cable protection systems for every application.

loads, along with SILVYN® CHAIN energy supply chains for highly-dynamic applications. **Fields of application:** Everywhere that cables have to be additionally protected or routed.



FLEXIMARK® Marking systems

The brand for permanent, clearly-arranged cable markings.

Key features: Comprehensive range - from manual labelling solutions onto digital identification. Withstands high chemical, thermal and mechanical loads. **Fields of application:** All cable, single cores, control cabinets.

UL testing marks for cables



UL LISTING MARK

The intended use of cables and wires in this category is for fixed wiring in residential buildings as well as for commercial and industrial use. Listed cables and wires not meet the requirements of the National Electrical Code (NEC), the NEC contains detailed specifications relating to the correct usage (UL) = UL Listing Mark.



UL RECOGNITION MARK

The UL Recognition Mark (abbrev. "RMT") comprises cables and wires intended for fully factory-wired electrical equipment, devices, appliances, control cabinets and industrial machinery.

AWM is not intended for direct on-site wiring (field wiring). Cables and wires with associated style description (www.ul.com).



UL approval

UL APPROVAL CERTIFICATES ONLINE

Any internet user can visit <http://database.ul.com/cgi-bin/XYV/template/LISEX/IFRAME/index.htm> to gain direct access to the Online Certification Directory of Underwriters Laboratories. The search options can be laboratory, product type, "UL name", "Lapp USA" in the "Company name" field, the individual File Numbers and Control Category Numbers (CCN) are also provided.



Trust is good. Testing is better.

WHAT WE'RE BEST AT TESTING:
Heat, cold and climate tests for aging resistance
IP Protection Rating tests
Static and dynamic pulling protection testing
Resistance tests
Application-related inspections
Carrying out electrical tests
Materials analysis
Climatic tests

Reliably connecting the world

We want to help you become even more productive and successful. Our products, cables, wires, connectors, and accessories are available for its application with 174 production facilities, you will benefit from our expertise in the development, design and manufacture of cables, system products and cable accessories. Thanks to this expertise, we can guarantee that Lapp will provide you with the quality that you require and that you demand.

No matter where you are - we are always by your side. Our plants, sales companies, partners and, above all, our competent teams of advisers ensure we offer you a comprehensive service on every continent. We do not simply distribute cable technology, we also

17 Production plants

1 Sales companies

3,150 Employees

Innovation after another

152 Countries

100 Sales partners



www.lappgroup.com/worldwide