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ESCHA



THE ECONOMIC CHAMPION

The most cost-effective alternative for fixed installation in dry and clean indoor environments (control cabinets, conveyor belts).

PVC €€€€€€€€€€€€€€
PUR €€€€€€€€€€
TPE €€€€€€€€€€
PTFE €



THE DYNAMIC & OIL EXPERT

For continuous motion (cable chains, robots) and rough contact with oils, metal chips, and industrial cooling lubricants (CNC machines, automotive manufacturing).

PVC
PUR
TPE
PTFE



THE WEATHER & HYGIENE SPECIALIST

For extreme outdoor temperatures (photovoltaics, agriculture) or in sensitive areas (food contact, medical technology).

PVC
PUR
TPE
PTFE



EXTREME PROBLEM SOLVER

When all else fails: In extreme heat (up to +260°C), extreme cold, in direct contact with corrosive acids or solvents, or during superheated steam sterilization.

PVC
PUR
TPE
PTFE

ESCHA CABLE WORLD – Features. Knowledge. Selection.

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POLYVINYL CHLORIDE (PVC)

Cables with a polyvinyl chloride (PVC) outer jacket are the most cost-effective standard solution for industrial automation.
They are primarily used in applications where mechanical stresses are moderate and there are no aggressive oils or continuous motion.

Mechanical properties of materials

PVC cables are optimized for fixed installations or temporary movement.

- **Good tensile strength:** Reliable protection during normal handling and installation.
- **Moderate flexibility:** The material is easily bendable at room temperature, but becomes stiff and brittle when cold.
- **Limited suitability for use with drag chains:** Not suitable for continuous, highly dynamic bending cycles or torsion.
- **Low abrasion resistance:** More susceptible to damage from sharp edges and rough surfaces than PUR.

Chemical resistance

The PVC jacket provides solid basic protection against many everyday substances.

- **Limited chemical resistance:** Suitable only for weak acids and bases, as well as aqueous salt solutions.
- **Limited oil resistance:** Resistant to mild cleaning agents and moisture; not suitable for permanent contact with aggressive drilling and cutting oils.
- **Hydrolysis and moisture resistance:** Generally permanently moisture-resistant and stable in environments with high humidity or wet conditions. Limitation: Unsuitable for permanent contact with hot water or direct steam.

Thermo-physical and environmental characteristics

- **Temperature resistance:** Generally usable from approx. -25 °C to +80 °C (installed in a fixed position) and -5 °C to +70 °C (in motion).
- **High flame resistance:** PVC is inherently flame-resistant and self-extinguishing.
- **Not halogen-free:** Fire hazard: In the unlikely event of PVC catching fire it would release hydrogen chloride gas. If this reacts with firefighting water, extremely corrosive hydrochloric acid is generated.
- **Lower UV resistance:** Standard PVC ages quickly when exposed to direct sunlight and becomes brittle.

Typical applications for PVC cables

Traditional machinery and plant engineering: Woodworking machines, textile machines, test benches
- In any situation where the cables are not exposed to sharp metal chips or corrosive coolants, the basic protection provided by PVC is entirely sufficient.

Assembly and handling technology: Permanently installed signal lines, assembly lines, and feeding systems
- Here, cost-effective PVC cable is ideal, as it is rarely exposed to aggressive oils or extreme abrasion.

Intralogistics, handling technology: Conveyor systems, sorting facilities, warehouses, distribution centers
- Cables are usually laid rigidly in cable ducts along the conveyor routes: no continuous dynamic bending.

Control systems, control panel construction: Connecting sensors in enclosures, junction boxes, control cabinets
- Perfect for hardwiring in tight spaces without exposure to external environmental factors.

Wet area, packaging industry (no grease): Car washes, filling stations for aqueous media, cleaning areas
- Excellent resistance to water, moisture, and many diluted cleaning solutions.

Building automation: Heating, ventilation systems, air Conditioning (HVAC) systems, automatic door and window systems, lighting controls
- In buildings, cables are protected within cable ducts or false ceilings. PVC's high flame resistance is an important safety feature in this context.

Solar systems, photovoltaics (indoor equipment): Sensors for monitoring inverters, charge controllers, and performance data in control rooms
- For the fixed internal wiring of signaling equipment, PVC is the standard due to its excellent price-performance ratio.

Water treatment, environmental technology: Level sensors, flow meters, and pressure sensors in wastewater treatment plants or pumping stations
- PVC is resistant to prolonged exposure to moisture, high humidity, and typical aqueous salt solutions.

Printing presses, paper processing: Light barriers and position sensors for paper feed monitoring
- Typically fixed cable mounting withing the machine frame protects it against mechanical stress. The environment is free of chemical stress, such as aggressive oils.

Medical technology, laboratory automation: Control cables in laboratory analyzers, motorized hospital beds, or dialysis machines
- In sterile or clean laboratory environments, there is no abrasive dirt. PVC wiring is also easy to clean and disinfect.

POLYURETHANE (PUR)

Cables with a polyurethane (PUR) outer jacket are the rugged all-around performers of industrial automation technology. They are used wherever
PVC cables may fail due to mechanical stress, oils, or intense movement, where rough environmental conditions prevail, and where the highest level of reliability is required.

Mechanical properties of materials

PUR cables are characterized by their extremely high durability in continuous dynamic operation.

- **High impact and abrasion resistance**: The materials is resistant to sharp edges, friction, and rough industrial environments.
- **Excellent flexibility:** PUR remains highly flexible and elastic even at low temperatures.
- **Drag-chain capability**: Ideal for use in moving machine parts and robots with millions of bending cycles.
- **Small bending radius**: Allows for space-saving installation in tight spaces.

Chemical resistance

The PUR jacket reliably protects the inner copper conductors (usually insulated with PP) against corrosive substances.

- **Excellent oil resistance:** High resistance to mineral oils, synthetic oils, drilling oils and cutting oils.
- **Chemical resistance:** Excellent resistance to dilute acids, alkalis and aqueous salt solutions.
- **Microbial and hydrolysis resistance:** PUR cables do not degrade in long-lasting exposure to moisture, humid environments, or biological substances.

Thermo-physical and environmental characteristics

- **Wide temperature range:** Generally suitable for use from approx. -40 °C bis +80 °C (in motion -25 °C bis +80 °C).
- **Weather-resistant:** High resistance to ozone and UV radiation; suitable for outdoor use.
- **Halogen-free:** In the event of a fire, no corrosive or toxic gases are generated, which enhances personal safety.
- **Weldfield immunity:** Special PUR compounds can withstand direct sparks during automated welding.

Typical applications for PUR cables

Machinery and plant engineering: Machine tools, CNC milling machines, presses, injection molding machines
- Perfect for cables that come into direct contact with aggressive coolants and lubricants (C&L) as well as metal chips.

Robotics, materials handling: Multi-axis robots, gantry robots, drag chains, packaging lines
- Extremely high flexural and torsional strength ensures millions of movement cycles without cable breakage.

Assembly and handling technology: Pick-and-place machines, vibratory conveyors, pneumatic gripping systems
- Thanks to its high resilience, PUR is able to permanently compensate for extremely fast cycle times involving constant tensile, bending, and torsional stresses.

Construction and agricultural machinery: Excavators, tractors, harvesters, crane systems
- High notch and abrasion resistance protects against stone chipping and weather. PUR is resistant to mineral oils.

Food and packaging industries: Filling systems, meat processing machines, packaging robots
- Special halogen-free PUR system cables are resistant to frequent cleaning processes using aggressive disinfectants (such as hydrogen peroxide) and can withstand high-pressure cleaning (IP69K). They are also resistant to microbes and hydrolysis.

Chemical and pharmaceutical industries: Dosing systems, process valves, level sensors, flow meters
- The chemical resistance of PUR protects signal transmission from failures caused by jacket degradation, e.g. due to vapors, acids, or alkalis.

Automotive industry: Body construction, automated welding cells, paint shops
- Special PUR compounds can withstand hot flying welding sparks as well as the torsional forces exerted by the robots.

Wind power, renewable energy: Nacelle cabling and pitch systems in wind turbines
- Cables can withstand extreme temperature fluctuations, ozone, UV radiation, and constant torsion.

Maritime, offshore facilities: Crane systems in ports, sensor technology on oil rigs, and deck machinery on ships
- Good resistance to salt water (seawater) and UV radiation prevents moisture from diffusing into the cable and causing the copper wires to corrode.

Rail vehicles, transportation technology: Door control systems, brake pad sensors, clutch systems, axle monitoring for trains and streetcars
- Must be halogen-free (fire safety in accordance with EN 45545). No toxic gases are produced in the event of a fire. Resistant to stone chipping and extreme sub-zero temperatures in underground areas.

STYRENE BLOCK COPOLYMERS (TPE-S)

TPE-S cables (styrene block copolymers) combine the rubber-like elasticity and flexibility of elastomers with the excellent processability of thermoplastics. They are primarily used where outstanding weather resistance, a wide temperature range, halogen-free properties or physiological safety (for skin and food contact) are required, without the need for PTFE's extreme chemical resistance. They address challenges in highly specialized infrastructure and niche applications exposed to extreme environmental conditions or requiring exceptional purity, freedom from harmful substances and long-term durability.

Mechanical properties of materials

TPE-S offers excellent mechanical recovery properties.

- **High elasticity/tensile strength:** stretches and returns to its original shape without permanent deformation or cracking.
- **Excellent low-temperature flexibility:** Remains flexible even at extremely low temperatures, retaining its rubber-like properties.
- **Good abrasion/cut resistance:** Protects internal conductors effectively against everyday mechanical wear.
- **Excellent bending strength:** Ideal for dynamic applications, resisting breakage and fatigue even under repeated bending.

Chemical resistance

TPE-S features a microphase structure of soft, elastic and hard, stable domains, providing selective resistance to different media.

- **Excellent resistance to aqueous media:** Highly resistant to water, moisture, alcohols, diluted acids and alkalis.
- **Hydrolysis and microbial resistance:** Does not degrade under prolonged water exposure or in warm, humid environments.
- **Limited oil resistance:** Offers good resistance to light oils and greases, but does not match the broad resistance of PUR or PTFE to aggressive industrial lubricants and gasoline.

Thermo-physical and environmental characteristics

- **Wide temperature range:** Reliable for use from approx. -50 °C up to +110 °C (in some cases up to +125 °C).
- **Outstanding ozone and UV resistance:** Inherently weather-resistant, with no erosion or embrittlement under sunlight during outdoor use.
- **Halogen-free and plasticizer-free:** No toxic or corrosive gases are released in the event of fire.
- **Skin-friendly and odour-neutral:** Physiologically safe, with a pleasant soft-touch feel.

Typical applications for TPE-S-cables



Food and beverage industry (F&B): Sensors on filling lines, dairy processing equipment, meat processing machinery and conveyor belts
- Plasticizer-free, odour-neutral, FDA-compliant and compliant with EU food regulations. Highly resistant to aqueous cleaning solutions and disinfectants.



Automotive industry (E-mobility): Sensors in vehicle interiors, climate control systems, seat occupancy sensors and charging infrastructure (wallboxes)
- Pleasant soft-touch feel, completely odour-neutral (no plasticizer outgassing) and excellent low-temperature flexibility, ideal for automotive applications.



Renewable energy/outdoor installations: Solar tracking systems, sensors in wind turbines and weather stations
- Outstanding ozone and UV resistance. Does not become brittle even after years of continuous, unprotected exposure to direct sunlight and arctic temperatures down to –50 °C.



Medical technology and care: Patient cables, sensors in respirators, ultrasound probes and operating tables
- Biocompatible (skin-friendly), highly flexible for daily patient care, and resistant to medical surface disinfectants.



Home appliances/white goods: Sensors/actuators in washing machines, coffee machines, dishwashers, dryers
- Absolutely hydrolysis-resistant (does not degrade under prolonged hot-water exposure) and withstands thermal cycling in household appliances exceptionally well.



Cold storage logistics/refrigeration technology: Temperature sensors and door-opening actuators in shock-freezing systems and cold storage facilities
- Rubber-like flexibility down to -40 °C prevents cable breakage, e.g. during door opening movement.



Water management/maritime sensors (shoreline applications): Water-level measurement, flow monitoring at locks, sensors in above-ground pumping stations and retention basins
- Absolutely hydrolysis-resistant, no plasticizer release into the environment, and dimensionally stable for long-term water contact.



Tunnel construction/public infrastructure: Fire detection sensors, emergency lighting actuators, ventilation system controls and traffic monitoring systems in tunnels and underground stations
- Halogen-free, low-smoke: no corrosive gases.



Smart farming/agricultural technology: Automatic feeding systems, milking robots, greenhouse climate controls and soil moisture sensors
- Resistant to aggressive gases (ammonia/manure gases) and fertilizers. Does not degrade under continuous soil contact and high humidity, and does not provide a breeding ground for bacteria.



Consumer electronics/wearables (industrial sensor systems): Sensor wristbands for workplace ergonomics, portable gas detectors and handheld industrial testing devices
- biocompatible (ISO 10993): causes no skin irritation or allergic reactions, even with prolonged sweat contact.

POLYTETRAFLUOROETHYLENE (PTFE)

Polytetrafluoroethylene (PTFE) – commonly known as Teflon® – is the ultimate high-performance specialist in industrial connectivity. PTFE cables are used where standard materials fail due to extreme temperatures, highly aggressive chemicals, corrosive environments or stringent hygiene requirements. They solve challenges in highly specialized niche markets where extreme physical and chemical stresses occur simultaneously.

Mechanical properties of materials

PTFE cables offer a unique combination of hardness, low friction and durability.

- **Excellent non-stick properties:** Dirt, paints and adhesives do not adhere to the jacket, making it extremely easy to clean.
- **Very low coefficient of friction:** Ideal for applications where cables rub against each other or against housings.
- **High mechanical strength:** Extremely resistant to tensile stress, cuts and notching. However, PTFE is relatively stiff and rigid.
- **Limited bending strength:** Only suitable to a limited extent for highly dynamic drag-chain applications with tight bending radii.

Chemical resistance

The chemical resistance of PTFE is virtually universal and unmatched.

- **High chemical resistance:** Resistant to almost all acids, bases, alcohols, solvents, fuels and oils.
- **Virtually chemically inert:** Reacts with practically no substances, with exceptions including extreme agents such as elemental fluorine and molten alkali metals.
- **Zero water absorption**: Completely resistant to hydrolysis and microbial degradation, with no moisture absorption.

Thermo-physical and environmental characteristics

- **Extreme temperature range:** Suitable for use from -200 °C to +260 °C (up to +300 °C for short periods). Remains stable in both arctic cold and extreme heat.
- **Outstanding weather and ageing resistance:** 100% resistant to UV radiation, ozone and rough environmental conditions without becoming brittle.
- **Excellent flame retardancy:** Extremely heat-resistant and non-flammable (UL 94 V-0), self-extinguishing in the event of fire.
- **Halogen-containing:** Although PTFE does not produce dense smoke in a fire, fluorinated compounds are released.

Typical applications for PTFE cables



Chemical industry/petrochemistry: Sensors on chemical reactors, refinery equipment, acid pumps and storage tanks
- Suitable for direct contact with highly aggressive solvents, acids and alkalis.



Food processing, pharma-/biotechnology: Filling and cooking processes, steam sterilization systems (SIP/CIP) and pharmaceutical mixers
- Physiologically safe and FDA-compliant, PTFE does not absorb odours and is highly resistant to bacteria, aggressive disinfectants and steam cleaning.



Furnace construction, foundries/thermal processing: Temperature sensors in melting furnaces, heat treatment systems, drying chambers and exhaust systems
- With temperature resistance up to +260 °C, PTFE cables withstand extreme heat and hot gases in demanding industrial environments.



Aerospace/defence technology: Wing sensors, engine monitoring, radar systems and satellite components
- Material withstands extreme temperature fluctuations, from space temperatures as low as –200 °C to intense engine heat. Highly resistant to ageing and exhibits very low outgassing in a vacuum.



Laboratory/medical technology: Autoclaves, sensor-equipped surgical instruments and analytical equipment
- Cables withstand repeated high-temperature sterilization cycles and are exceptionally easy to keep sterile.



Battery/semiconductor manufacturing: Sensors in cleanrooms, lithography systems and lithium-ion battery electrolyte handling
- Very low outgassing, minimal risk of contamination and excellent resistance to the aggressive chemicals and solvents used in battery manufacturing.



High-voltage/power electronics: Temperature and current sensors in transformers, frequency converters and plasma torches
- Excellent dielectric properties provide reliable electrical insulation, even with slim wall thicknesses, while withstanding high temperatures.



Deep drilling/geothermal energy: Sensors on drill heads, downhole measurement probes and geothermal extraction pumps
- PTFE protects sensitive sensor signals under extreme pressure, in aggressive gases such as hydrogen sulphide, and at temperatures well above +150 °C.



Engine test benches/exhaust systems: Lambda probes, pressure sensors and temperature sensors directly in the exhaust stream of combustion engines
- Cables withstand high temperatures near engine components, aggressive fuel residues, hot exhaust gases and continuous vibration.

FACTORY AUTOMATION

	Materials	PVC			PTFE	TPE-S
Resistance	Flame retardancy	★★★	often self-extinguishing, no formation of droplets		★★★★ flame-retardant, IEC 60332-1-2	— depends on the type; only via additives
	Oil resistance	★	Insulation is compromised > risk of short circuit		★★★★ resistant to all oils, even at high temp.	★★★ better than PVC, worse than PTFE/PUR
	Weldfield immunity	—	sparks burning into insulation: risk of short circuit and fire		★★★★ exceptional thermal properties	★★ low spark exposure > protective hose
	Drag-chain capability	—	becomes hard and cracks: rupture, short service life		— not very flexible, not abrasion-resistant	★★★ ⚠ only cables spec. designed for this
	Torsion capability	—	becomes brittle: microcracks in insulation, wire breakage		— low flexural strength, cracks	★★★ ⚠ only cables spec. designed for this
	Acids and alkali resistance	★	only for exposure to weak acids and alkalis for short periods (<10%)		★★★★ almost completely chemically resistant	★★ suitable only for diluted acids/alkalis
	Seawater resistance	★	for short times only: saltwater attacks additives > swelling		★★★★ completely resistant	★★ for maritime environments, no submerging
	Ozone and UV resistance	—	even short-term exposure > microcracks, embrittlement, yellowing		★★★★ extremely stable, no aging	★★★ very good for outdoor applications
	Hydrolysis strength	★★	constant hot water/steam > swelling, embrittlement, cracks		★★★★ water has no influence at all	★★★ stable in water or moisture ⚠ temp.
	Microbial resistance	—	bacteria/fungi/mould may damage insulation		★★★★ no decomping by microorganisms	★★★ for standard industrial environments
	ESCHA Designation / Colour	P00	P01	P01BK	S2430	S3930®
	Application / Key Features	Sensor/Actuator, Valve connectors, Food&Beverage		Sensor/Actuator	High Temperature Sensor/Actuator	Food&Beverage
Materials	Jacket material	PVC			PTFE(5Y)	TPE-S, halogen-free
	Insulation material	PVC			PTFE(5Y)	PP, halogen-free
	Rated voltage	≤300V			≤250V	≤300V
Features	Bending strength (repeated)	10xØ			tbd	10xØ
	Bending strength (single)	3xØ	5xØ		tbd	5xØ
	Temperature range (repeated)	0°C...+80°C			tbd	-25°C...+105°C
	Temperature range (single)	-25°C...+80°C			-190°C...+260°C	-40°C...+105°C
	Temperature range (drag-chain)	—			—	+5°C...+60°C
	Drag-chain capability	not suitable			not suitable	well-suited
	Drag-chain cycles*	—			—	max. ≥5 million
	Acceleration	—			—	tbd
	Travel distance (horizontal | vertical)	—			—	tbd
	Travel speed	—			—	tbd
	Torsion capability (Cycles)*	not suitable			not suitable	tbd
	Shielding	optional			—	—
Approvals	RoHS	RoHS-compliant			RoHS-compliant	RoHS-compliant
	UL/CSA	—	UL AWM Style 2464 (80°C/300V)		—	UL AWM Style 22126 (105°C/300V)
	ECOLAB	ECOLAB			—	ECOLAB
	FDA	—			—	FDA-compliant

* The stated values apply to cables with fewer than 5 cores and a core cross-section of less than 0.5 mm². Please, refer to the specific technical data sheet for the individual properties of the required cable.

	Materials	PUR						
Resistance	Flame retardancy	★★★ flame-retardant mostly acc. to IEC 60332-1-2: limited flame propagation (self-extinguishing in single-flame test)						
	Oil resistance	★★★★ very good resistance to mineral/hydraulic oils, lubricating greases, cooling lubricants: remains flexible, exhibits minimal swelling, does not become brittle						
	Weldfield immunity	★★ spark-resistant/not spark-proof; significantly more durable than PVC for occasional sparks: additional protection advisable						
	Drag-chain capability	★★★★ high resistance to alternating bending, abrasion, cuts, tension, tearing; stable shape. ⚠ Data sheet: finely stranded conductors (Class 6), optimized core construction						
	Torsion capability	★★★★ high elasticity, excellent recovery properties, resistant to abrasion & tearing, stable shape; ⚠ Data sheet: finely stranded conductors (Class 6), def. clearing for torsion						
	Acids and alkali resistance	★★★ good but not indefinitely resistant; limited to no resistance against highly concentrated acids/alkalis, hot chemicals						
	Seawater resistance	★★ good resistance to salt spray/splashing water; not suitable for permanent submersion in water or exposure to seawater						
	Ozone and UV resistance	★★★★ suitable for long-term outdoor use (sunlight, weather conditions); suitable for industrial environments with ozone exposure						
	Hydrolysis strength	★★★ Polyether-PUR: up to very high hydrolysis-resistance, suitable for moist conditions as well as water/seawater spray						
	Microbial resistance	★★★ no plasticizers > no food source for microorganisms, very low water absorption, no decomposition by bacteria, fungi, or mold						
	ESCHA Designation / Colour	S370	S370GY®	S370YE® safety	S400® easystrip	S740®	S740YE® safety	S7400® robotic
	Application / Key Features	Sensor/Actuator, Valve connectors, ET/ETM		Automotive	manual stripping up to 1m	weldfield immune Automotive	weldfield immune Automotive	for high mechanical stress
Materials	Jacket materials	PUR, halogen-free						
	Insulation	PP, halogen-free						
	Rated voltage	≤300V						
Features	Bending strength (repeated)	10xØ						
	Bending strength (single)	5xØ						
	Temperature range (repeated)	-30°C...+90°C						
	Temperature range (single)	-40°C...+90°C						
	Temperature range (drag-chain)	-25°C...+60°C						
	Drag-chain capability	well-suited						very well suited
	Drag-chain cycles*	max. ≥5 million						max. ≥10 million
	Acceleration	max. 5m/s²						
	Travel distance (horizontal | vertikal)	5m | 2m (at 5m/s)						
	Travel speed	max. 200m/min						
	Torsion capability (Cycles)*	max. ≥2 million (±360°/m)						max. ≥10 million (±360°/m)
	Shielding	optional		—	—	—	—	—
Approvals	RoHS	RoHS-compliant						
	UL/CSA	UL AWM Style 20549 (80°C/300V)						
	ECOLAB	—						
	FDA	—						

* The stated values apply to cables with fewer than 5 cores and a core cross-section of less than 0.5 mm². Please, refer to the specific technical data sheet for the individual properties of the required cable.

DATA TRANSMISSION

	Materials	PUR								
Resistance	Flame retardancy	★★★	flame-retardant mostly acc. to IEC 60332-1-2: limited flame propagation (self-extinguishing in single-flame test)							
	Oil resistance	★★★★	very good resistance to mineral/hydraulic oils, lubricating greases, cooling lubricants: remains flexible, exhibits minimal swelling, does not become brittle							
	Weldfield immunity	★★	spark-resistant/not spark-proof; significantly more durable than PVC for occasional sparks: additional protection advisable							
	Drag-chain capability	★★★★	high resistance to alternating bending, abrasion, cuts, tension, tearing; stable shape. ⚠ Data sheet: finely stranded conductors (Class 6), optimized core construction							
	Torsion capability	★★★★	high elasticity, excellent recovery properties, resistant to abrasion & tearing, stable shape; ⚠ Data sheet: finely stranded conductors (Class 6), def. clearing for torsion							
	Acids and alkali resistance	★★★	good but not indefinitely resistant; limited to no resistance against highly concentrated acids/alkalis, hot chemicals							
	Seawater resistance	★★	good resistance to salt spray/splashing water; not suitable for permanent submersion in water or exposure to seawater							
	Ozone and UV resistance	★★★★	suitable for long-term outdoor use (sunlight, weather conditions); suitable for industrial environments with ozone exposure							
	Hydrolysis strength	★★★	Polyether-PUR: up to very high hydrolysis-resistance, suitable for moist conditions as well as water/seawater spray							
	Microbial resistance	★★★	no plasticizers > no food source for microorganisms, very low water absorption, no decomposition by bacteria, fungi, or mold							
	ESCHA Designation / Colour	S1329®	S3400®	S2171®	S5100®	S5058®	S5059®	S4031®	S3500®	S4030®
	Application / Key Features	Cat5e		Cat5e/ Profinet		Cat5e / EtherCAT P		Cat6	Cat7	
		AWG26/19		AWG22/7	AWG22/19 robotic	AWG22/7	AWG24/7	AWG26/19 drag-chain	AWG26/7	AWG24/7 torsion
Materials	Jacket materials	PUR, halogen-free		PUR, halogen-free	PUR (TPU), halogen-free	PUR, halogen-free		PUR, halogen-free	PUR, halogen-free	
	Insulation	PP, halogen-free	PP/PE, halogen-free	PE, halogen-free		FS-PO, halogen-free		PP, halogen-free	PP/PE, halogen-free	FS-PO, halogen-free
	Rated voltage	≤300V		≤600V		≤300V		≤100V	≤300V	≤125V
Features	Bending strength (repeated)	8xØ		8xØ		15xØ		7,5xØ	8xØ	15xØ
	Bending strength (single)	4xØ		4xØ		5xØ	8xØ	4xØ	4xØ	8xØ
	Temperature range (repeated)	-30°C...+70°C		-30°C...+70°C		-30°C...+70°C		-30°C...+70°C	-30°C...+70°C	
	Temperature range (single)	-40°C...+80°C		-40°C...+80°C		-40°C...+80°C		-40°C...+80°C	-40°C...+80°C	
	Temperature range (drag-chain)	-20°C...+60°C		-20°C...+60°C		tbd		—	tbd	—
	Drag-chain capability	well-suited		well-suited		limited suitability	well-suited	well-suited	not suitable	tbd
	Drag-chain cycles	≥5 million		≥3 mio	≥5 mio	tbd	≥2 mio	≥4 mio	—	tbd
	Acceleration	max. 5m/s²		max. 4m/s²	max. 10m/s²	tbd	max. 3m/s²	max. 3m/s²	—	tbd
	Travel distance (horizontal | vertical)	tbd		tbd	tbd	tbd		tbd	—	tbd
	Travel speed	tbd		tbd	tbd	tbd		max. 180m/min	—	tbd
	Torsion capability (Cycles)	tbd		tbd	≥5 million (±180°/m)	—		—	—	≥5 million (±180°/m)
Approvals	RoHS	RoHS-compliant		RoHS-compliant		RoHS-compliant		RoHS-compliant	RoHS-compliant	
	UL/CSA	UL AWM Style 21815 (80°C/300V)		UL AWM Style 21238 (80°C/600V)	UL AWM Style 21329 (80°C/600V)	UL AWM Style 21198 (80°C/300V)		UL444 Type CMX	UL AWM Style 20963 (80°C/30V)	UL AWM Style 21576 (80°C/30V)
	others	—		UN ECE-R 118		—		—	UN ECE-R 118	—

	Materials	PUR			PVC		HFC	
Resistance	Flame retardancy	★★★	flame-retardant mostly acc. to IEC 60332-1-2	★★★	often self-extinguishing	★★★	flame-retardant and low smoke emission	
	Oil resistance	★★★★	very good resistance to oils and lubricants	★	insulation in danger	★	insulation may be damaged & get brittle	
	Weldfield immunity	★★	spark-resistant/not spark-proof; for occasional sparks	—	sparks: risk of fire	—	sparks damage insulation	
	Drag-chain capability	★★★★	high fatigue resistance to bending & stable shape	—	wear: short service life	—	material is often too stiff, high wear	
	Torsion capability	★★★★	high elasticity, excellent resilience, and stable shape	—	embrittlement: short service life	—	low elasticity, embrittlement	
	Acids and alkali resistance	★★★	good but not indefinitely resistant	★	not for acids and alkalis (<10%)	★	briefly, weak acids & bases only	
	Seawater resistance	★★	good resistance to salt spray/splashing water	★	saltwater > swelling	—	briefly, seawater attacks additives	
	Ozone and UV resistance	★★★★	suitable for long-term outdoor use	—	embrittlement, yellowing	—	loses mechanical strength (brittle)	
	Hydrolysis strength	★★★	Polyether-PUR: up to very high hydrolysis-resistance	★★	hot water > swelling, embrittlement	—	loses its insulating properties (brittle)	
	Microbial resistance	★★★	no plasticizers > no food source for microorganisms	—	insulation in danger	—	material may be degraded or damaged	
	ESCHA Designation / Colour	S1800®	S2800®	S6000®	S5200®	S510	S620®	
	Application / Key Features	Profibus	CANopen/DeviceNet	SPE	Cat5e/IE-Patchcord	Cat5e/IE-Patchcord	Cat7/IE-Patchcord	
				AWG22/7	AWG22/7	AWG26/7	AWG27/7	
Materials	Jacket materials	PUR, halogen-free			PVC		Compound LS0H/FRNC, halogen-free	
	Insulation	PE, halogen-free			PE, halogen-free	PE	Cellular PE, halogen-free	
	Rated voltage	≤300V			≤600V	≤125V	≤125V	
Features	Bending strength (repeated)	10xØ	5xØ	8xØ	7xØ	tbd	tbd	
	Bending strength (single)	5xØ	2,5xØ	4xØ	3xØ	5xØ	4xØ	
	Temperature range (repeated)	-25°C...+80°C	-50°C...+80°C	-25°C...+80°C	-40°C...+80°C	tbd	tbd	
	Temperature range (single)	-50°C...+80°C	-50°C...+80°C	-40°C...+80°C	-40°C...+80°C	0°C...+60°C	-20°C...+60°C	
	Temperature range (drag-chain)	-25°C...+60°C	-50°C...+80°C	—	—		—	
	Drag-chain capability	limited suitability	well-suited	not suitable	not suitable	not suitable	not suitable	
	Drag-chain cycles	≥1 Mio	≥2,5 Mio	—	—	—	—	
	Acceleration	max. 5m/s²	max. 20m/s²	—	—	—	—	
	Travel distance (horizontal | vertikal)	5m/2m (at5m/s²)	5m/2m (at 5m/s²)	—	—	—	—	
	Travel speed	200m/min	300m/min	—	—	—	—	
	Torsion capability (Cycles)	—	—	—	—	—	—	
Approvals	RoHS	RoHS-compliant			RoHS-compliant		RoHS-compliant	
	UL/CSA	UL AWM Style 20549 (80°C/300V)	UL AWM Style 20549 (80°C/300V)	UL AWM Style 20233 (80°C/300V)	UL AWM Style 21694 (60°C/600V)	—	UL444 Type CMX	
	others	—	—	—	—	—	—	

POWER

	Materials	PUR	
Resistance	Flame retardancy	★★★	flame-retardant mostly acc. to IEC 60332-1-2: limited flame propagation (self-extinguishing in single-flame test)
	Oil resistance	★★★★	very good resistance to mineral/hydraulic oils, lubricating greases, cooling lubricants: remains flexible, exhibits minimal swelling, does not become brittle
	Weldfield immunity	★★	spark-resistant/not spark-proof; significantly more durable than PVC for occasional sparks: additional protection advisable
	Drag-chain capability	★★★★	high resistance to alternating bending, abrasion, cuts, tension, tearing; stable shape. ⚠ Data sheet: finely stranded conductors (Class 6), optimized core construction
	Torsion capability	★★★★	high elasticity, excellent recovery properties, resistant to abrasion & tearing, stable shape; ⚠ Data sheet: finely stranded conductors (Class 6), def. clearing for torsion
	Acids and alkali resistance	★★★	good but not indefinitely resistant; limited to no resistance against highly concentrated acids/alkalis, hot chemicals
	Seawater resistance	★★	good resistance to salt spray/splashing water; not suitable for permanent submersion in water or exposure to seawater
	Ozone and UV resistance	★★★★	suitable for long-term outdoor use (sunlight, weather conditions); suitable for industrial environments with ozone exposure
	Hydrolysis strength	★★★	Polyether-PUR: up to very high hydrolysis-resistance, suitable for moist conditions as well as water/seawater spray
	Microbial resistance	★★★	no plasticizers > no food source for microorganisms, very low water absorption, no decomposition by bacteria, fungi, or mold
	ESCHA Designation / Colour	S5015®	S5015GY® / S5025® / S5025GY®
	Application / Key Features	Stranded wires Ø1,5 mm²	Stranded wires Ø2,5 mm²
Materials	Jacket materials	PUR, halogen-free	
	Insulation	PP, halogen-free	
	Rated voltage	≤1,000V	
Features	Bending strength (repeated)	7.5xØ	
	Bending strength (single)	4xØ	
	Temperature range (repeated)	-30°C...+90°C	
	Temperature range (single)	-40°C...+90°C	
	Temperature range (drag-chain)	-25°C...+60°C	
	Drag-chain capability	well-suited	
	Drag-chain cycles	≥8 million	
	Acceleration	max. 5m/s²	
	Travel distance (horizontal | vertical)	5m | 5m (at 5m/s)	
	Travel speed	max. 300m/min	
	Torsion capability (Cycles)	≥1 million (±270°/m)	
	Shielding	—	
Approvals	RoHS	RoHS-compliant	
	UL/CSA	UL AWM Style 20234 (80°C/1.000V)	
	ECOLAB	—	
	FDA	—	

FOOD & BEVERAGE

	Materials	PVC		TPE-S
Resistance	Flame retardancy	★★★	often self-extinguishing, no formation of droplets	— depends on the type; only via additives
	Oil resistance	★	insulation is compromised > risk of short circuit	★★★ better than PVC, worse than PTFE/PUR
	Weldfield immunity	—	sparks burning into insulation: risk of short circuit and fire	★★ low spark exposure > protective hose
	Drag-chain capability	—	becomes hard and cracks: rupture, short service life	★★★ ⚠ only cables spec. designed for this
	Torsion capability	—	becomes brittle: microcracks in insulation, wire breakage, short service life	★★★ ⚠ only cables spec. designed for this
	Acids and alkali resistance	★	only for exposure to weak acids and alkalis for short periods (<10%)	★★ suitable only for diluted acids/alkalis
	Seawater resistance	★	for short times only: saltwater attacks additives > swelling, embrittlement	★★ for maritime environments, no submerging
	Ozone and UV resistance	—	even short-term exposure > microcracks, embrittlement, yellowing	★★★ very good for outdoor applications
	Hydrolysis strength	★★	constant hot water/steam > swelling, embrittlement, cracks	★★★ stable in water or moisture ⚠ temp.
	Microbial resistance	—	bacteria/fungi/mould may damage insulation	★★★ for standard industrial environments
	ESCHA Designation / Colour	P00 / P01®		S3930®
	Application / Key Features	Food&Beverage		Food&Beverage
Materials	Jacket materials	PVC		TPE-S, halogen-free
	Insulation	PVC		PP, halogen-free
	Rated voltage	≤300V		≤300V
Features	Bending strength (repeated)	10xØ		10xØ
	Bending strength (single)	3xØ	5xØ	5xØ
	Temperature range (repeated)	0°C...+80°C		-25°C...+105°C
	Temperature range (single)	-25°C...+80°C		-40°C...+105°C
	Temperature range (drag-chain)	—		+5°C...+60°C
	Drag-chain capability	not suitable		well-suited
	Drag-chain cycles*	—		max. ≥5 million
	Acceleration	—		tbd
	Travel distance (horizontal | vertikal)	—		tbd
	Travel speed	—		tbd
	Torsion capability (Cycles)*	not suitable		tbd
	Shielding	optional		—
Approvals	RoHS	RoHS-compliant		RoHS-compliant
	UL/CSA	—	UL AWM Style 2464 (80°C/300V)	UL AWM Style 22126 (105°C/300V)
	ECOLAB	ECOLAB		ECOLAB
	FDA	—		FDA-compliant

* The stated values apply to cables with fewer than 5 cores and a core cross-section of less than 0.5 mm². Please, refer to the specific technical data sheet for the individual properties of the required cable.

Material	ESCHA Description	Features	Wires	Conductor structure	Strand structure	Diameter [mm]	Typical application	Item.-No. 100m-ring
PVC	P00	unshielded	3	3 x 0.25mm²	14 x 0.15mm	4.00	M8	8058513
				3 x 0.34mm²	19 x 0.15mm	4.20	M12	8058515
				3 x 0.75mm²	24 x 0.20mm	6.20	Valve connectors	8057560
			4	4 x 0.25mm²	14 x 0.15mm	4.20	M8	8056855
				4 x 0.34mm²	19 x 0.15mm	4.50	M12	8057030
				4 x 0.5mm²	130 x 0.07mm	5.20	M12	8045492
				4 x 0.75mm²	24 x 0.20mm	7.30	Valve connectors	8099686
			4+PE	4 x 0.34mm² + 1 x 0.34mm²	19 x 0.15mm	4.90	M12	8058516
			5	5 x 0.25mm²	14 x 0.15mm	4.50	M8	8058514
				5 x 0.34mm²	19 x 0.15mm	4.90	M12	8058517
				5 x 0.75mm²	24 x 0.20 mm	7.30	Valve connectors	—
			6	6 x 0.14mm²	18 x 0.10mm	4.50	M8	8053228
			8	8 x 0.25mm²	14 x 0.15mm	5.70	M12	8058519
			12	12 x 0.14 mm²	18 x 0.10mm	6.10	M12	8058520
		shielded	3	3 x 0.25mm²	14 x 0.15mm	4.60	M8	8058497
				3 x 0.34mm²	19 x 0.15mm	4.80	M12	8058502
			4	4 x 0.25mm²	14 x 0.15mm	4.90	M8	8058498
				4 x 0.34mm²	19 x 0.15mm	5.10	M12	8058503
			5	5 x 0.25mm²	14 x 0.15mm	5.30	M8	8058504
				5 x 0.34mm²	19 x 0, 5mm	5.50	M12	8058504
			8	8 x 0.25mm²	14 x 0.15mm	6.70	M12	8042487
			12	12 x 0.14 mm²	18 x 0.10mm	6.60	M12	8058505
	P01®	unshielded	3	3 x 0.25mm²	14 x 0.15mm	4.30	M8	8058521
				3 x 0.34mm²	19 x 0.15mm	4.60	M12	8058523
				3 x 0.75mm²	24 x 0.20mm	6.10	Valve connectors	—
			4	4 x 0.25mm²	14 x 0.15mm	4.70	M8	8058522
				4 x 0.34mm²	19 x 0.15mm	4.90	M12	8058524
				4 x 0.75mm²	24 x 0.20mm	6.40	Valve connectors	—
			4+PE	4 x 0.34mm² + 1 x 0.34mm²	19 x 0.15mm	5.30	M12	8058525
			5	5 x 0.34mm²	19 x 0.15mm	5.30	M12	8058526
				5 x 0.75mm²	24 x 0.20mm	7.20	Valve connectors	—
			6	4 x 0.25mm² + 2 x 0.75mm²	32 x 0.10mm	6.50	I/O-Boxes Ø8mm snap	—
			8	8 x 0.25mm²	14 x 0.15mm	6.20	M12	8058527
			10	8 x 0.25mm² + 2 x 0.75mm²	32 x 0.10mm	7.50	I/O-Boxes Ø8mm snap	—
			12	12 x 0.14 mm²	18 x 0.10mm	6.10	M12	8058528
				10 x 0.25 mm² + 2 x 0.75mm²	32 x 0.10mm	7.60	I/O-Boxes Ø8mm snap	—
	P01®	unshielded	3	3 x 0.25mm²	14 x 0.15mm	4.30	M8	8082410
				3 x 0.34mm²	19 x 0.15mm	4.60	M12	8082412
			4	4 x 0.25mm²	14 x 0.15mm	4.70	M8	8082411
				4 x 0.34mm²	19 x 0.15mm	4.90	M12	8082413
			4+PE	4 x 0.34mm² + 1 x 0.34mm²	19 x 0.15mm	5.30	M12	8082414

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
LiYY-OB 3x0.25		BN		BU	BK															
LiYY-OB 3x0.34		BN		BU	BK															
LiYY-OB 3x0.75		BN	BU		GN/YE															
LiYY-OB 4x0.25		BN	WH	BU	BK															
LiYY-OB 4x0.34		BN	WH	BU	BK															
LiYY 4x0.5		BN	WH	BU	BK															
LiYY-OB 4x0.75		BN	BU	BK	GN/YE															
LiYY-JB 4x0.34+1x0.34		BN	WH	BU	BK	GN/YE														
LiYY-OB 5x0.25		BN	WH	BU	BK	GY														
LiYY-OB 5x0.34		BN	WH	BU	BK	GY														
LiYY-JB 5x0,75		BN	WH	BK	GN/YE	BU														
LiYY-OB 6x0.14		BN	WH	BU	BK	GY	PK													
LiYY-OB 8x0.25		WH	BN	GN	YE	GY	PK	BU	RD											
LiYY-OB 12x0.14		BN	BU	WH	GN	PK	YE	BK	GY	RD	VT	GY/PK	RD/BU							
LiYCY-OB 3x0.25		BN		BU	BK															
LiYCY-OB 3x0.34		BN		BU	BK															
LiYCY-OB 4x0.25		BN	WH	BU	BK															
LiYCY-OB 4x0.34		BN	WH	BU	BK															
LiYCY-OB 5x0.25		BN	WH	BU	BK	GY														
LiYCY-OB 5x0.34		BN	WH	BU	BK	GY														
LiYCY-OB 8x0.25		WH	BN	GN	YE	GY	PK	BU	RD											
LiYCY-OB 12x0.14		BN	BU	WH	GN	PK	YE	BK	GY	RD	VT	GY/PK	RD/BU							
LiYY-OB 3x0.25	UL1729/2464	BN		BU	BK															
LiYY-OB 3x0.34	UL1729/2464	BN		BU	BK															
LiYY-JB 3x0.75	UL1729/2464	BN	BU		GN/YE															
LiYY-OB 4x0.25	UL1729/2464	BN	WH	BU	BK															
LiYY-OB 4x0.34	UL1729/2464	BN	WH	BU	BK															
LiYY-JB 4x0.75	UL1729/2464	BN	BU	BK	GN/YE															
LiYY-JB 4x0.34+1x0.34	UL1729/2464	BN	WH	BU	BK	GN/YE														
LiYY-OB 5x0.34	UL1729/2464	BN	WH	BU	BK	GY														
LiYY-JB 5x0.75	UL1729/2464	BN	WH	BK	GN/YE	BU														
LIFYY 4x0.25+2x0.75	UL1729/2464	BN	WH	BU	BK	GY	PK													
LiYY-OB 8x0.25	UL1729/2464	WH	BN	GN	YE	GY	PK	BU	RD											
LIFYY 8x0.25+2x0.75	UL1729/2464	WH	BN	BU	GN	YE	GY	PK	BK	RD	VT									
LiYY-OB 12x0.14	UL1729/2464	BN	BU	WH	GN	PK	YE	BK	GY	RD	VT	GY/PK	RD/BU							
LIFYY 10x0.25+2x0.75	UL1729/2464	BN	BU	WH	GN	PK	YE	BK	GY	RD	VT	GY/PK	RD/BU							
LiYY-OB 3x0.25	UL1729/2464	BN		BU	BK															
LiYY-OB 3x0.34	UL1729/2464	BN		BU	BK															
LiYY-OB 4x0.25	UL1729/2464	BN	WH	BU	BK															
LiYY-OB 4x0.34	UL1729/2464	BN	WH	BU	BK															
LiYY-JB 4x0.34+1x0.34	UL1729/2464	BN	WH	BU	BK	GN/YE														

Material	ESCHA Description	Features	Wires	Conductor structure	Strand Structure	Diameter [mm]	Typical application	Item.-No. 100m-Ring
	P01®	shielded	3	3 x 0.25mm²	14 x 0.15mm	4.80	M8	8058506
				3 x 0.34mm²	19 x 0.15mm	5.00	M12	8058508
			4	4 x 0.25mm²	14 x 0.15mm	5.10	M8	8058507
				4 x 0.34mm²	19 x 0.15mm	5.30	M12	8058509
			5	5 x 0.34mm²	19 x 0.15mm	5.90	M12	8058510
			8	8 x 0.25mm²	32 x 0.10mm	6.70	M12	8058511
			12	12 x 0.14 mm²	18 x 0.10mm	6.60	M12	8058512
PVC	S510GY	Cat5e IE-Patchcord	8	4 x 2 x AWG26	7 x 0.16mm	5.50	RJ45	—
	S510RD							
	S510YE							
	S510BU							
	S510GN							
	S5200®		4	1 x 4 x AWG22	7 x 0.25mm	6.50	RJ45, M8, M12	8101540
PUR	S370®	unshielded	2	2 x 0.75mm²	42 x 0.15mm	5.40	ET/ETM	8121619
			3	3 x 0.25mm²	32 x 0.10mm	4.00	M8	8058490
				3 x 0.34mm²	42 x 0.10mm	4.30	M12	8046603
				3 x 0.75mm²	42 x 0.15mm	5.70	ET	8121620
				3 x 0.75mm²	42 x 0.15mm	5.70	Valve connectors	8121620
			4	4 x 0.25mm²	32 x 0.10mm	4.30	M8	8058491
				4 x 0.34mm²	42 x 0.10mm	4.70	M12	8045519
				4 x 0.75mm²	42 x 0.15mm	6.40	ET	8812343
				4 x 0.75mm²	42 x 0.15mm	6.40	Valve connectors	8057342
			4+PE	4 x 0.34mm² + 1 x 0.34mm²	42 x 0.10mm	5.20	M12	8048725
			5	5 x 0.25mm²	32 x 0.10mm	4.70	M8	8058492
				5 x 0.34mm²	42 x 0.10mm	5.20	M12	8047757
				5 x 0.75mm²	42 x 0.15mm	6.80	Valve connectors	8078313
				5 x 1.50mm²	84 x 0.15mm	8.50	7/8"	8065831
			6	6 x 0.14mm²	18 x 0.10mm	4.10	M8	8115975
				6 x 0.75mm²	42 x 0.15mm	7.30	ET	8121621
				4 x 0.25 mm² + 2 x 0.75 mm²	32 x 0.1mm + 44 x 0.15mm	6.50	I/O-Boxes	—
			7	4 x 0.34mm² + 3 x 1mm²	42 x 0.1mm + 56 x 0.15mm	7.50	M23(12.001), I/O-Boxes	8057978
			8	8 x 0.14mm²	32 x 0.10mm	5.90	M12	8055605
				8 x 0.75mm²	42 x 0.15mm	8.60	ET	8121622
			10	8 x 0.25 mm² + 2 x 0.75 mm²	32 x 0.1mm + 44 x 0.15mm	7.50	I/O-Boxes	—
			11	8 x 0.34 mm² + 3 x 1 mm²	42 x 0.1mm + 56 x 0.15mm	8.20	M23(12.003), I/O-Boxes	8046339
				8 x 0.34mm² + 3 x 1mm²	42 x 0.1mm + 56 x 0.15mm	8.20	M23(19.001), I/O-Boxes	8032478
			12	12 x 0.14mm²	18 x 0.10mm	5.60	M12	8055606
				12 x 0.75mm²	42 x 0.15mm	9.50	ET	8121623
				10 x 0.25mm² + 2 x 0.75mm²	32 x 0.1mm + 44 x 0.15mm	7.60	I/O-Boxes	—
			18	16 x 0.25mm² + 2 x 0.75mm²	32 x 0.1mm + 44 x 0.15mm	9.10	I/O-Boxes	—
			19	16 x 0.34mm² + 3 x 1mm²	42 x 0.1mm + 56 x 0.15mm	9.70	M23(19.003), I/O-Boxes	8032491
				16 x 0.34mm² + 3 x 1mm²	42 x 0.1mm + 56 x 0.15mm	9.70	I/O-Boxes	8080322

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
LiYCY-OB 3x0.25	UL1729/2464	BN		BU	BK															
LiYCY-OB 3x0.34	UL1729/2464	BN		BU	BK															
LiYCY-OB 4x0.25	UL1729/2464	BN	WH	BU	BK															
LiYCY-OB 4x0.34	UL1729/2464	BN	WH	BU	BK															
LiYCY-OB 5x0.34	UL1729/2464	BN	WH	BU	BK	GY														
LiYCY-OB 8x0.25	UL1729/2464	WH	BN	BU	GN	YE	GY	PK	RD											
LiYCY-OB 12x0.14	UL1729/2464	BN	BU	WH	GN	PK	YE	BK	GY	RD	VT	GY/PK	RD/BU							
KS-2Y(ST+C)Y 4x2xAWG26/7		WH/OG	OG	WH/GN	BU	WH/BU	GN	WH/BN	BN											
		WH/OG	OG	WH/GN	BU	WH/BU	GN	WH/BN	BN											
		WH/OG	OG	WH/GN	BU	WH/BU	GN	WH/BN	BN											
		WH/OG	OG	WH/GN	BU	WH/BU	GN	WH/BN	BN											
		WH/OG	OG	WH/GN	BU	WH/BU	GN	WH/BN	BN											
2YY(ST)CY2x2xAWG22	UL21694	YE	OG	WH			BU													
LiF9Y11YFHF 2x0.75	UL10493/20549	BN	BU																	
LiF9YH-11Y-OB 3x0.25	UL10493/20549	BN		BU	BK															
LiF9YH-11Y-OB 3x0.34	UL10493/20549	BN		BU	BK															
LIF9Y11YFHF 3x0.75	UL10493/20549	BN	BU	BK																
LiF9YH-11Y-JB 3x0.75	UL10493/20549	BN	BU		GN/YE															
LiF9YH-11Y-OB 4x0.25	UL10493/20549	BN	WH	BU	BK															
LiF9YH-11Y-OB 4x0.34	UL10493/20549	BN	WH	BU	BK															
LIF9Y11YFHF 4x0.75	UL10493/20549	BN	BU	BK	WH															
LiF9YH-11Y-JB 4x0.75	UL10493/20549	BN	BU	BK	GN/YE															
LiF9YH-11Y-JB 5x0.34	UL10493/20549	BN	WH	BU	BK	GN/YE														
LiF9YH-11Y-OB 5x0.25	UL10493/20549	BN	WH	BU	BK	GY														
LiF9YH-11Y-OB 5x0.34	UL10493/20549	BN	WH	BU	BK	GY														
LiF9YH-11Y-JB 5x0.75	UL10493/20549	BN	WH	BK	GN/YE	BU														
LiF9YH-11YH 5x1.5	UL10493/20549	BN	WH	BU	BK	GY														
LiF9YH-11YH 6x0.14	UL10493/20549	BN	WH	BU	BK	GY	PK													
LIF9Y11YFHF 6x0.75	UL10493/20549	BN	BU	BK	WH	GY	PK													
LIF9Y11Y 4x0.25+2x0.75	UL10493/20549	BN	WH	BU	BK	GY	PK													
Li9YH11YH 4x0,34 + 3x1.0	UL10493/20549	WH	GN	YE	GY						BU	BN	GN/YE							
LiF9YH-11Y-OB 8x0.25	UL10493/20549	WH	BN	BU	GN	YE	GY	PK	RD											
LIF9Y11YFHF 8x0.75	UL10493/20549	GN	BN	WH	PK	GY	YE	BU	RD											
LIF9Y11Y 8x0.25+2x0.75	UL10493/20549	WH	BN	BU	GN	YE	GY	PK	BK	RD	VT									
Li9YH11YH 8x0.34+3x1.0	UL10493/20549	WH	GN	YE	GY	PK	RD	BK	VT		BU	BN	GN/YE							
Li9YH11YH 8x0,34 + 3x1.0	UL10493/20549			GY	RD/BU	GN	BU	GY/PK	WH/GN				GN/YE		BN/GN	WH	YE			BN
LiF9YH-11Y-OB 12x0.14	UL10493/20549	BN	BU	WH	GN	PK	YE	BK	GY	RD	VT	GY/PK	RD/BU							
LIF9Y11YFHF 12x0.75	UL10493/20549	GN	BN	WH	PK	GY	YE	BU	RD	BK	VT	GY/PK	RD/BU							
LIF9Y11Y 10x0.25+2x0.75	UL10493/20549	BN	BU	WH	GN	PK	YE	BK	GY	RD	VT	GY/PK	RD/BU							
LIF9Y11Y 16x0.25+2x0.75	UL10493/20549	VT	RD	GY	RD/BU	GN	BU	GY/PK	WH/GN	WH/YE	WH/GY	BK	GN/YE	YE/BN	BN/GN	WH	YE	PK	GY/BN	
Li9YH11YH 16x0.34+3x1.0	UL10493/20549	VT	RD	GY	RD/BU	GN	BU	GY/PK	WH/GN	WH/YE	WH/GY	BK	GN/YE	YE/BN	BN/GN	WH	YE	PK	GY/BN	BN
Li9YH11YH 16x0.34+ 3x1.0	UL10493/20549	VT	RD	GY	RD/BU	GN	BU	GY/PK	WH/GN	WH/YE	WH/GY	BK	GN/YE	YE/BN	BN/GN	WH	YE	PK	GY/BN	BN

Material	ESCHA Description	Features	Wires	Conductor structure	Strand Structure	Diameter [mm]	Typical application	Item.-No. 100m-Ring
PUR	S370®	shielded	3	3 x 0.25mm²	32 x 0.10mm	4.40	M8	8096241
				3 x 0.34mm²	42 x 0.10mm	4.80	M12	8058488
			4	4 x 0.25mm²	32 x 0.10mm	4.70	M8	8096243
				4 x 0.34mm²	42 x 0.10mm	5.10	M12	8047431
				4 x 0.5mm²	64 x 0.10mm	6.10	M12	8086527
			5	5 x 0.25mm²	32 x 0.10mm	5.60	M8	8046513
				5 x 0.34mm²	42 x 0.10mm	5.60	M12	8046513
			8	8 x 0.25mm²	32 x 0.10mm	6.30	M12	8048963
			12	12 x 0.14mm²	18 x 0.10mm	6.00	M12	8058489
	S370GY®	unshielded	3	3 x 0.25mm²	32 x 0.10mm	4.00	M8	8058493
				3 x 0.34mm²	42 x 0.10mm	4.30	M12	8058494
			4	4 x 0.25mm²	32 x 0.10mm	4.30	M8	8079702
				4 x 0.34mm²	42 x 0.10mm	4.70	M12	8058495
			4+PE	4 x 0.34mm² + 1 x 0.34mm²	42 x 0.10mm	5.20	M12	8058496
			5	5 x 0.34mm²	42 x 0.10mm	5.20	M12	8096250
			8	8 x 0.25mm²	32 x 0.10mm	5.90	M12	8093251
			12	12 x 0.14mm²	18 x 0.10mm	5.60	M12	8096252
		shielded	3	3 x 0.25mm²	32 x 0.10mm	4.40	M8	8096242
				3 x 0.34mm²	42 x 0.10mm	4.70	M12	8096241
			4	4 x 0.25mm²	32 x 0.10mm	4.70	M8	8096245
				4 x 0.34mm²	42 x 0.10mm	5.20	M12	8096244
			5	5 x 0.25mm²	32 x 0.10mm	5.10	M8	8096247
				5 x 0.34mm²	42 x 0.10mm	5.60	M12	8096246
			8	8 x 0.25mm²	32 x 0.10mm	6.30	M12	8096248
			12	12 x 0.14mm²	18 x 0.10mm	6.00	M12	8096249
	S370YE®	unshielded Automotive	4	4 x 0.34mm²	42 x 0.10mm	4.70	M12	8070658
			5	5 x 0,34mm²	42 x 0.10mm	5.20	M12	8803087
			8	8 x 0.25mm²	32 x 0.10mm	5.90	M12	8116368
	S400® easystrip	unshielded, manual stripping up to 1 meter	3	3 x 0.25mm²	32 x 0.10mm	4.15	M8	8073161
				3 x 0.34mm²	42 x 0.10mm	4.30	M12	8073032
			4	4 x 0.25mm²	32 x 0.10mm	4.40	M8	8073162
				4 x 0.34mm²	42 x 0.10mm	4.70	M12	8073033
			4+PE	4 x 0.34mm² + 1 x 0.34mm²	42 x 0.10mm	5.70	M12	8073165
			5	5 x 0.25mm²	32 x 0.10mm	4.80	M8	8073163
				5 x 0.34mm²	42 x 0.10mm	5.20	M12	8073164
			8	8 x 0.25mm²	32 x 0.10mm	6.00	M12	8073166
			12	12 x 0.14mm²	18 x 0.10mm	5.60	M12	8073167
	S740® Automotive	unshielded, Weldfield immune	3	3 x 0.34mm²	42 x 0.10mm	6.20	M12	—
			4	4 x 0.34mm²	42 x 0.10mm	6.60	M12	8099084
			5	5 x 0.34mm²	42 x 0.10mm	7.00	M12	8803927
	S740YE®		5	5 x 0.34mm²	42 x 0.10mm	7.00	M12	8099083

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
LiF9YHC-11Y-OB 3x0.25	UL10493/20549	BN		BU	BK															
LiF9YHC-11Y-OB 3x0.34	UL10493/20549	BN		BU	BK															
LiF9YHC-11Y-OB 4x0.25	UL10493/20549	BN	WH	BU	BK															
LiF9YHC-11Y-OB 4x0.34	UL10493/20549	BN	WH	BU	BK															
LiF9YC11YFHF 4x0.5	UL10493/20549	BN	WH	BU	BK															
LiF9YHC-11Y-OB 5x0.25	UL10493/20549	BN	WH	BU	BK	GY														
LiF9YHC-11Y-OB 5x0.34	UL10493/20549	BN	WH	BU	BK	GY														
LiF9YHC-11Y-OB 8x0.25	UL10493/20549	WH	BN	GN	YE	GY	PK	BU	RD											
LiF9YHC-11Y-OB 12x0.14	UL10493/20549	BN	BU	WH	GN	PK	YE	BK	GY	RD	VT	GY/PK	RD/BU							
LiF9YH-11Y-OB 3x0.25	UL10493/20549	BN		BU	BK															
LiF9YH-11Y-OB 3x0.34	UL10493/20549	BN		BU	BK															
LiF9YH-11Y-OB 4x0.25	UL10493/20549	BN	WH	BU	BK															
LiF9YH-11Y-OB 4x0.34	UL10493/20549	BN	WH	BU	BK															
LiF9YH-11Y-JB 5x0.34	UL10493/20549	BN	WH	BU	BK	GN/YE														
LiF9YH-11Y-OB 5x0.34	UL10493/20549	BN	WH	BU	BK	GY														
LiF9YH-11Y-OB 8x0.25	UL10493/20549	WH	BN	GN	YE	GY	PK	BU	RD											
LiF9YH-11Y-OB 12x0.14	UL10493/20549	BN	BU	WH	GN	PK	YE	BK	GY	RD	VT	GY/PK	RD/BU							
LiF9YHC-11Y-OB 3x0.25	UL10493/20549	BN		BU	BK															
LiF9YHC-11Y-OB 3x0.34	UL10493/20549	BN		BU	BK															
LiF9YHC-11Y-OB 4x0.25	UL10493/20549	BN	WH	BU	BK															
LiF9YHC-11Y-OB 4x0.34	UL10493/20549	BN	WH	BU	BK															
LiF9YHC-11Y-OB 5x0.25	UL10493/20549	BN	WH	BU	BK	GY														
LiF9YHC-11Y-OB 5x0.34	UL10493/20549	BN	WH	BU	BK	GY														
LiF9YHC-11Y-OB 8x0.25	UL10493/20549	WH	BN	GN	YE	GY	PK	BU	RD											
LiF9YHC-11Y-OB 12x0.14	UL10493/20549	BN	BU	WH	GN	PK	YE	BK	GY	RD	VT	GY/PK	RD/BU							
LiF9YH-11YH 4x0.34	UL10493/20549	BN	WH	BU	BK															
LiF9YH-11YH 5x0.34	UL10493/20549	BN	WH	BU	BK	GY														
LiF9Y11YFHF 8x0.25	UL10493/20549	WH	BN	GN	YE	GY	PK	BU	RD											
LiF9YH-11YH 3x0.25	UL10493/20549	BN		BU	BK															
LiF9YH-11YH 3x0.34	UL10493/20549	BN		BU	BK															
LiF9YH-11YH 4x0.25	UL10493/20549	BN	WH	BU	BK															
LiF9YH-11YH 4x0.34	UL10493/20549	BN	WH	BU	BK															
LiF9YH-11YH 4x0.34+1x0.34	UL10493/20549	BN	WH	BU	BK	GN/YE														
LiF9YH-11YH 5x0.25	UL10493/20549	BN	WH	BU	BK	GY														
LiF9YH-11YH 5x0.34	UL10493/20549	BN	WH	BU	BK	GY														
LiF9YH-11YH 8x0.25	UL10493/20549	WH	BN	GN	YE	GY	PK	BU	RD											
LiF9YH-11YH 12x0.14	UL10493/20549	BN	BU	WH	GN	PK	YE	BK	GY	RD	VT	GY/PK	RD/BU							
LiF9YH-11Y-OB 3x0.34	UL10493/20549	BN		BU	BK															
LiF9YH-11Y-OB 4x0.34	UL10493/20549	BN	WH	BU	BK															
LiF9YH-11Y-OB 5x0.34	UL10493/20549	BN	WH	BU	BK	GY														
LiF9YH-11Y-OB 5x0.34	UL10493/20549	BN	WH	BU	BK	GY														

Material	ESCHA Description	Features	Wires	Conductor structure	Strand Structure	Diameter [mm]	Typical application	Item.-No. 100m-Ring
PUR	S7400® robotic	unshielded, for high mechanical stress,	3	3 x 0.25mm²	32 x 0.10mm	4.60	M8	8058484
				3 x 0.34mm²	42 x 0.10mm	4.80	M12	8058485
			4	4 x 0.25mm²	32 x 0.10mm	4.80	M8	8069722
				4 x 0.34mm²	42 x 0.10mm	5.20	M12	8057309
			4+PE	4 x 0.34mm² + 1 x 0.34mm²	42 x 0.10mm	5.60	M12	8058487
			5	5 x 0.34mm²	42 x 0.10mm	5.60	M12	8084528
	S1800®	Profibus	2	1 x 2 x 0.30mm²	19 x 0.14mm	7.60	M12	8043857
	S2800®	CANopen/DeviceNet	4	2 x 0.25mm² + 2 x 0.34mm²	19 x 0.13mm + 19 x 0.15mm	6.90	M12	8047939
	S1329®	Cat5e	4	1 x 4 x AWG26	19 x 0.10mm	4.65	M8, M12, RJ45	8113245
	S3400®			1 x 4 x AWG26	19 x 0.10mm	4.80	M8, M12, RJ45	8055896
	S2171®	Cat5e/ Profinet		1 x 4 x AWG22	7 x 0.25mm	6.50	M8, M12, RJ45	8036284
	S5100®			1 x 4 x AWG22	19 x 0.15mm	6.50	M8, M12, RJ45	8088017
	S5058®	Cat5e / EtherCAT P		1 x 4 x AWG22	7 x 0.25mm	6.50	M8	8089302
	S5059®			1 x 4 x AWG24	7 x 0.20mm	5.20	M8	8089303
	S4031®	Cat6 | draig chain	8	4 x 2 x AWG26	19 x 0.10mm	7.80	M12	8064606
	S3500®	Cat7		4 x 2 x AWG26	7 x 0.16mm	6.40	M12, RJ45	8053361
	S4030®	Cat7 | torsion		4 x 2 x AWG24	7 x 0.20mm	9.40	M12	8064607
	S6000®	SPE	2	1 x 2 x AWG22	7 x 0.25mm	5.80	M8, M12	—
	S5015®	POWER	2+PE	3 x 1.5mm²	84 x 0.15mm	8.50	M12	8064082
			3+PE	3 x 1.5mm² + 1 x 1.5mm²	84 x 0.15mm	9.60	M12	8070663
			4	4 x 1.5mm²	84 x 0.15mm	5.60	M12	8064083
			4+PE	5 x 1.5mm²	84 x 0.15mm	9.90	M12	8083056
	S5015GY®	POWER	4+FE	5 x 1.5mm²	84 x 0.15mm	9.90	M12	8096903
	S5025®		4	4 x 2.5mm²	140 x 0.15mm	11.00	M12	8064084
			4+PE	5 x 2.5mm²	140 x 0.15mm	11.70	M12	8083057
	5025GY®		4+FE	5 x 2.5mm²	140 x 0.15mm	11.70	M12	8096904
HFC	S620GY®	Cat7 IE-Patchcord	8	4 x 2 x AWG27	7 x 0.14mm	6.00	RJ45	—
	S620RD®							
	S620YE®							
	S620BU®							
	S620GN®							
	S620BK®							
PTFE	S2430	unshielded, high-temperature/ chemically resistant	5	5 x AWG22	7 x 0.254mm	3.80	M8, M12	8037921
			8	8 x AWG24	19 x 0.127mm	4.70	M12	8047617
			12	12 x AWG26	19 x 0.102mm	4.30	M12	8058529
TPE	S3930®	unshielded, Food&Beverage	3	3 x 0.34mm²	42 x 0.10mm	4.20	M8, M12	—
			4	4 x 0.34mm²	42 x 0.10mm	4.60	M8, M12	8058694
			5	5 x 0.34mm²	42 x 0.10mm	5.0	M12	8093916

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
LiF9Y11YFHF 3x0.25	UL10493/20549	BN		BU	BK															
LiF9Y11YFHF 3x0.34	UL10493/20549	BN		BU	BK															
LiF9YH-11YH 4x0.25	UL10493/20549	BN	WH	BU	BK															
LiF9Y11YFHF 4x0.34	UL10493/20549	BN	WH	BU	BK															
LiF9Y11YFHF 4x0.34+1x0.34	UL10493/20549	BN	WH	BU	BK	GN/YE														
LiF9Y11YFHF 5x0.34	UL10493/20549	BN	WH	BU	BK	GY														
Li02YS-STCB11Y 1x2x0.30	UL10230/20549		GN		RD															
LIV02YS(ST)-CB11Y (2x0.25)+(2x0.34)	UL20549		RD	BK	WH	BU														
LI9YC(ST)11Y 2x2xAWG26 YE	UL10954/21815	YE	WH	BU	OG															
LI9YC(ST)11Y 1x4xAWG26	UL10954/21815	WH/OG	WH/BU	OG	BU															
2YH(ST)C11Y2x2xAWG22	UL12001/21238	YE	WH	BU	OG															
2Y(ST)C11Y4xAWG22	UL21239	YE	WH	BU	OG															
Li2YH(ST)C-11Y-OB 4xAWG22	UL21198	YE	WH	BU	OG															
Li2YH(ST)C-11Y-OB 4xAWG24	UL21198	YE	WH	BU	OG															
Etherline FD P CAT.6 4x2xAWG26/19	UL444CMX	WH/OG	OG	WH/GN	GN	WH/BN	BN	WH/BU	BU											
LI02YSC11Y 4x2x0.14	UL10008/20963	WH/OG	OG	WH/GN	GN	WH/BN	BN	WH/BU	BU											
ETHERLINE TORSION Cat.7	UL11117/21576	WH/OG	OG	WH/GN	GN	WH/BN	BN	WH/BU	BU											
02YS(ST)C11Y 1X2X0.76/1.8-100LI	UL20233	WH	BU																	
LiF9YH-11Y-JB 3x1.5	UL10492/20234	BN		BU	GN/YE															
LiF9YH-11Y-JB 4x1.5	UL10492/20234	BN	BK	GY	GN/YE															
LiF9YH-11Y-OB 4x1.5	UL10492/20234	BN	WH	BU	BK															
LiF9YH-11Y-JB 5x1.5	UL10492/20234	BK	BN	GY	BU	GN/YE														
LiF9YH-11Y-OB 5x1.5	UL10492/20234	BN	WH	BU	BK	GY														
LiF9YH-11Y-OB 4x2.5	UL10492/20234	BN	WH	BU	BK															
LiF9YH-11Y-JB 5x2.5	UL10492/20234	BK	BN	GY	BU	GN/YE														
LiF9YH-11Y-OB 5x2.5	UL10492/20234	BN	WH	BU	BK	GY														
KS-02YSCH 4x2xAWG27/7	UL444CMX	WH/OG	OG	WH/GN	BU	WH/BU	GN	WH/BN	BN											
		WH/OG	OG	WH/GN	BU	WH/BU	GN	WH/BN	BN											
		WH/OG	OG	WH/GN	BU	WH/BU	GN	WH/BN	BN											
		WH/OG	OG	WH/GN	BU	WH/BU	GN	WH/BN	BN											
		WH/OG	OG	WH/GN	BU	WH/BU	GN	WH/BN	BN											
		WH/OG	OG	WH/GN	BU	WH/BU	GN	WH/BN	BN											
Li5Y5Y-OB 5xAWG22		BN	WH	BU	BK	GY														
LiF5Y5Y-OB 8xAWG24		WH	BN	GN	YE	GY	PK	BU	RD											
LiF5Y5Y-OB 12x0.14		BN	BU	WH	GN	PK	YE	BK	GY	RD	VT	GY/PK	RD/BU							
LiF9Y17Y-OB 3x 0.34	UL11787/22126	BN		BU	BK															
LiF9Y17Y-OB 4x 0.34	UL11787/22126	BN	WH	BU	BK															
LiF9Y17Y-OB 5x 0.34	UL11787/22126	BN	WH	BU	BK	GY														



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