

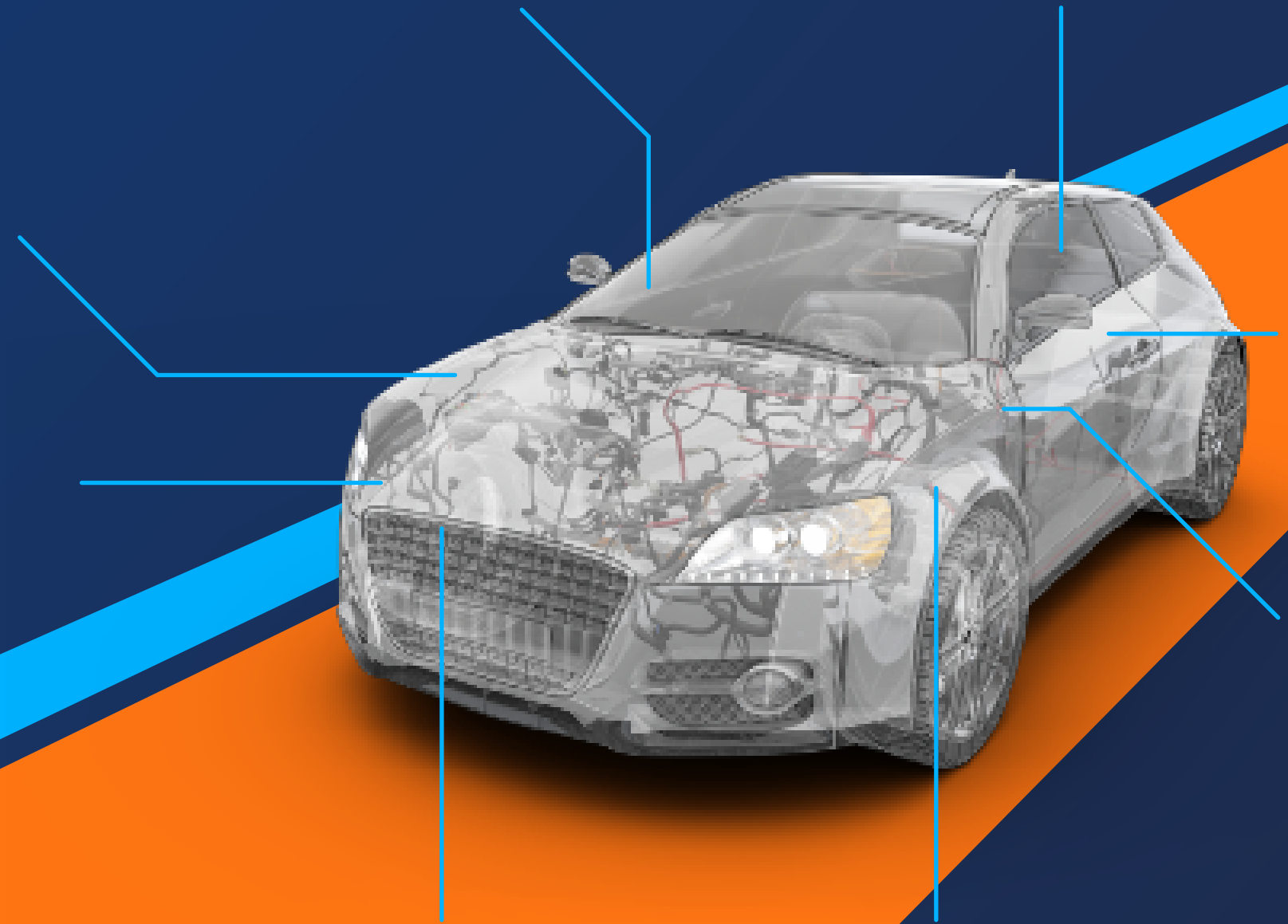


**LEONI Adascar[®]
& LEONI exFC[®]**

**Automotive
Special Cables**



Content



Automotive Special Cables

Competence for the automotive industry

The Automotive Special Cables business unit meets your challenge to bring innovative products into the market within the shortest possible time.

LEONI is covering the whole value creation chain from development up to production

→ **Development:** Our skilled product specialists are in constant touch to the automotive OEM, first tier suppliers and connector manufacturers. They play a significant part in circles of experts of international cable committees.

→ **Range of Insulation materials:** Within the LEONI group we are developing and producing our own recipes of materials which are especially tailored to the needs of the automotive industry. In addition to the standard materials we are processing Insulation materials for high temperature applications up to +1,250 °C. Actually, our product range comprises appr. 50 different materials

→ **Production:** Besides the standard processes for wire and cable production, LEONI employs state-of-the-art technology in the area of rammextrusion and silicone processing. We are covering different kinds of crosslinking such as chemical or physical, as well as various techniques of foaming.

The product specialists draw on abundant resources in all areas when finding solutions. A large production network with sites in Mexico, China and Europe rounds off LEONI's product range.

The Automotive Special Cables business unit early identifies next generation technologies and offers the best preconditions for their customers to jointly manage the challenges of the automotive industry





Insulation material properties

LEONI develops and uses insulation materials that provide high reliability and durability under operating conditions. The structure and properties of the materials used are listed below in the table



Symbol	Name	Code e.g.	Density	Halogen content	Hardness Shore A/D	Tensile strength	Elongation at break	Temperatur-Index**	Thermal overload capacity	Cold winding test	Specific volume resistance	Dielectric strength	Abrasion	Flame retardation	Oil	Fuels	Brake fluid	Acids/Alkalines	Organic agents
			g/cm ³	approx. %		MPa	%	°C/3000 h	°C/48 h	°C	Ω · cm	kV/mm							
PVC-P	Polyvinylchlorid (plasticized)*	Y	1.30-1.45	35	85A-95A	>10	>150	105*	110/125*	-25/-40*	>10 ¹²	>10	+	+	+	+	-	+	-
PVC-P	cold-resistantx	YK	1.24-1.34	30	80A-95A	>10	>150	105	110	-50	>10 ¹²	>10	+	+	+	+	-	+	-
PVC-P	hot-pressure resistant* heat-resistant*	YW	1.24-1.34	35	92A-97A	>15	>150	125	140	-25/-40*	>10 ¹²	>10	+	+	+	+	-	+	-
PE	Polyethylene	2Y	0.92- 0.95	0	50D- 62D	>15	>300	90	100	-40	>10 ¹⁶	>30	+	--	-	+/-*	--	+	-
PA	Polyamide	4Y	1.01	0	-/72D	>40	>300	105	140	-50	>10 ¹²	>10	++	-	++	++	+	+	+
FEP	Tetrafluorethylene hexafluorpropylene	6Y	2.14	75	-/55D	>15	>200	210	260	-65	>10 ¹⁵	>30	++	++	++	++	++	++	++
ETFE	Ethylen tetrafluorethylene	7Y	1.70	60	-/75D	>30	>200	180	230	- 65	>10 ¹⁵	>30	++	++	++	++	++	++	++
PP	Polypropylene	9Y	0.91	0	-/70D	>15	>200	125	150	- 40	>10 ¹⁶	>30	+	--	+	+	-	+	+
PP-FR	Polypropylene, flame-retardant	9Y	1.05-1.3	10	-/70D	>15	>200	125	150	- 40	>10 ¹⁴	>20	+	+	+	+	-	+	+
PFA	Perfluoralkoxy copolymer	51Y	2.15	75	-/55D	>20	>200	260	290	-80	>10 ¹⁵	>30	++	++	++	++	++	++	++
PVDF	Polyvinylidenfluorid	10Y	1.8	35	-/78D	>25	>100	150	160	-30	>10 ¹⁴	>30	++	++	++	++	++	+	+
			g/cm ³	ca. %		MPa	%	°C/3000 h	°C/48 h	°C	Ω · cm	kV/mm							
TPE-U	Thermoplastic polyether polyurethane	11Y	1.12	0	85A-54D	>30	>400	125	150	-40	>10 ⁹	>10	++	-	++	++	+	+	+
TPE-E	Thermoplastic polyether ester elastomer	12Y	1.16-1.25	0	40D-72D	>25	>400	90	150	-40	>10 ⁹	>10	++	-	++	++	+	-	+
TPE-E	Thermoplastic polyester elastomer	13Y	1.25-1.28	0	-/55D	>30	>300	150	180	-40	>10 ⁹	>10	++	+/-*	++	++	+	+	+

All compounds used are lead free.

++ excellent
+ good
- fair
-- poor

* depends on recipe, as required
** criterion: residual elongation at break > 50 %
*** thermal overload capability 20h



Insulation material properties

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Symbol	Name	Code e.g.	Density	Halogen content	Hardness Shore A/D	Tensile strength	Elongation at break	Temperature-Index**	Thermal overload capacity	Cold winding test	Specific volume resistance	Dielectric strength	Abrasion	Flame retardation	Oil	Fuels	Brake fluid	Acids/Alkalines	Organic agents
TPE-S	Thermoplastic polystyrene block copolymer	31Y	1.10-1.30	0-10	55D- 65D	>15	>200	125	150	-40	>10 ¹⁰	>10	-	+/-	+	+	-	+	-
TPE-A	Thermoplastic polyamide elastomer	41Y	1.01-1.06	0	75A-70D	>25	>400	90	120	-50	>10 ¹⁰	>10	++	-	++	++	+	-	+
TPE-O	Thermoplastic polyolefin elastomer	91Y	0.95-1.25	0-10	87A/-	>10	>300	125	150	-40	>10 ¹⁴	>20	-	+/-*	-	-	-	+	-
			g/cm ³	ca. %		MPa	%	°C/3000 h	°C/48 h	°C	Ω · cm	kV/mm							
E/VA	Ethylene vinyl acetate	4G	1.30-1.40	0	80A- 85A	>7	>150	140	180	-40	>10 ¹⁰	>10	-	-	-	-	-	-	-
PVC-X	Polyvinyl chloride, crosslinked	X	1.35	30	95A/-	>10	>150	105	140	-40	>10 ¹²	>10	++	+	+	+	-	+	+
PE-X	Polyethylene, crosslinked (XLPE)	2X	1.1	10	95A/-	>10	>200	125	150	-40	>10 ¹⁴	>20	+	+	+	+	-	+	+
PE-X	Polyethylene, crosslinked, halogen-free (XLPE)	2X	1.4	0	-/42D	>10	>200	125	150	-40	>10 ¹⁴	>10	+	+	+	+	-	+	+
SIR	Silicone-Rubber	2G	1.20 - 1.30	0	A40 - A90	6-20	>250	230	>300***	-80	>10 ¹⁵	18-36	++	++	+/-	++	++	+/-	++
PTFE	Polytetrafluorethylen	5Y	2.12 - 2.17	-	D55 - D65	>20	>200	300	310***	-90	>10 ¹⁸	>20	+	++	++	-	-	++	++

All compounds used are lead free.

++ excellent
+ good
- fair
-- poor

* depends on recipe, as required
** criterion: residual elongation at break > 50 %
*** thermal overload capability 20h



Conductor materials

Conductor materials

Copper (Cu) is the conductive material we most commonly use in our cables. In addition to pure copper we also process a variety of copper alloys for special applications.

Extract from EN 1977 – copper

Symbol	Material number	Composition	Density	Melting point	Electrical conductivity min.	Notes on properties and use
		in % by weight	g/m ³	°C	%IACS	ISO 527
Oxygenic copper						
Cu-ETP1 (E-Cu)	CW 003 A	Cu ≥ 99.90 oxygen max. 0.040	8,9	1.083	101	Oxygenic (tough-pitch) copper (soft annealed) with an electrical conductivity in the soft condition of ≥58.58 MS/m at 20 °C.

International Annealed Copper Standard = IACS
Electrical conductivity of copper = min. 58 m/Ωmm² = 100 % IACS

Excerpt from DIN CEN/TS 13388 and EN 1977 – Alloys

Symbol	Material number	Composition	Density	Melting point	Electrical conductivity min.	Notes on properties and use
		in % by weight	g/m ³	°C	%IACS	
CuAg 0.1	CW 013 A	Ag min. 0.08 max. 0.12	8.9	1.083	98	Copper alloys with high tensile strength (converted) electrical conductivity of ≥ 57 MS/m at 20 °C in a soft condition.
CuMg 0.2	CW 127 C	Mg* min. 0,14 max. 0.26	8.9	1.078	75	Copper alloys with high tensile strength (converted) electrical conductivity of ≥ 43.5 MS/m at 20 °C in a soft condition.
CuSn 0.3**	CW 129 C	Sn* min. 0.25 max. 0.35	8.9	1.065	72	Copper alloys with high tensile strength (converted) electrical conductivity of ≥ 42 MS/m at 20 °C in a soft condition

* Tolerance deviating from DIN CEN/TS 13388
** Symbol deviating from DIN CEN/TS 13388

Excerpt from EN 573 – Aluminium

Symbol	Material number	Composition	Density	Melting point	Electrical conductivity min.	Notes on properties and use
		in % by weight	g/m ³	°C	%IACS	
EN AW-Al 99.7 EN AW-1070A	1370	Al ≥ 99.7	2.7	659 °C	62	Aluminium (soft annealed) with electrical conductivity of ≥ 35.5 MS/m at 20 °C in a soft condition.

Galvanic coatings:

The metal materials used for galvanically refined copper wires are tin, silver or nickel, depending on the requirements.

Tin		Silver		Nickel	
Designation	Zinn 99,90	Designation	Feinsilber 99,97	Designation	Nickel 99,90
Density	7.29 g/cm ³	Density	10.5 g/cm ³	Density	8.9 g/cm ³
Melting point	232 °C	Melting point	960 °C	Melting point	1450 °C
Symbol	Sn	Symbol	Ag	Symbol	Ni

Criteria for use

- Good solderability
- Effective protection against corrosion

- High temperature resistance
- Optimized conductivity (skin-effect)
- Optimized solderability (skin effect)

- High resistance to corrosion and temperature
- Optimized resistance against chemicals

Coating classifications

- DIN EN 13602

- ASTM B 298

- ASTM B 355



Conductor materials

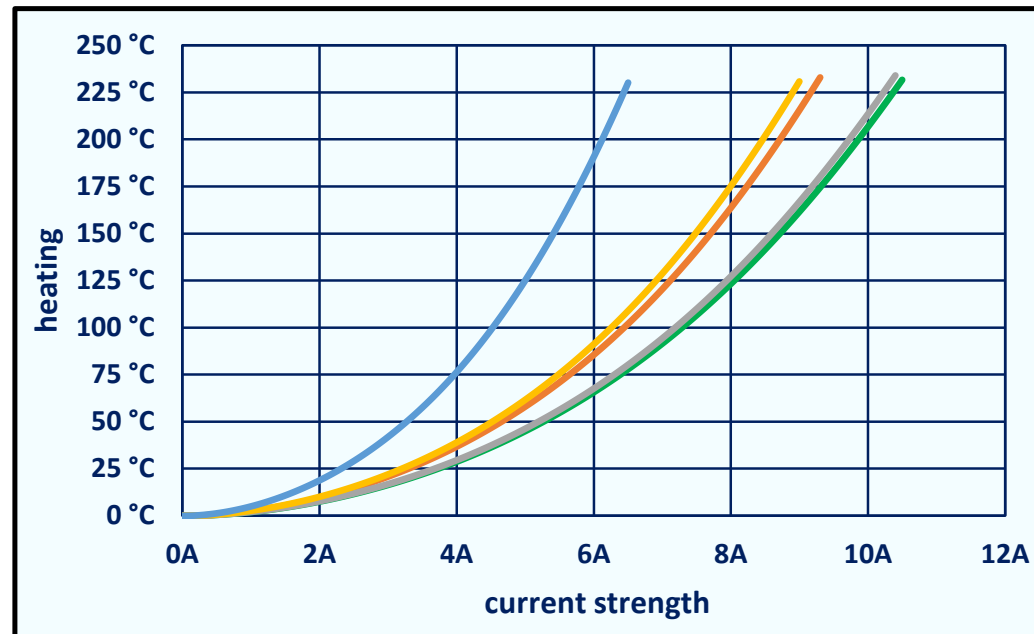
Innovative standard conductor materials for cross-section reduced low-current and signal cables.

Material	Material-Standard
CuAg Copper Silver → low alloyed copper	DIN CEN/TS 13388
CCS Copper Clad Steel	ASTM B 227, ASTM B 228, ASTM B 452, DIN 48200-7
CuMg Copper Magnesium → low alloyed copper	DIN CEN/TS 13388
CuSn Copper Tin → low alloyed copper	DIN CEN/TS 13388

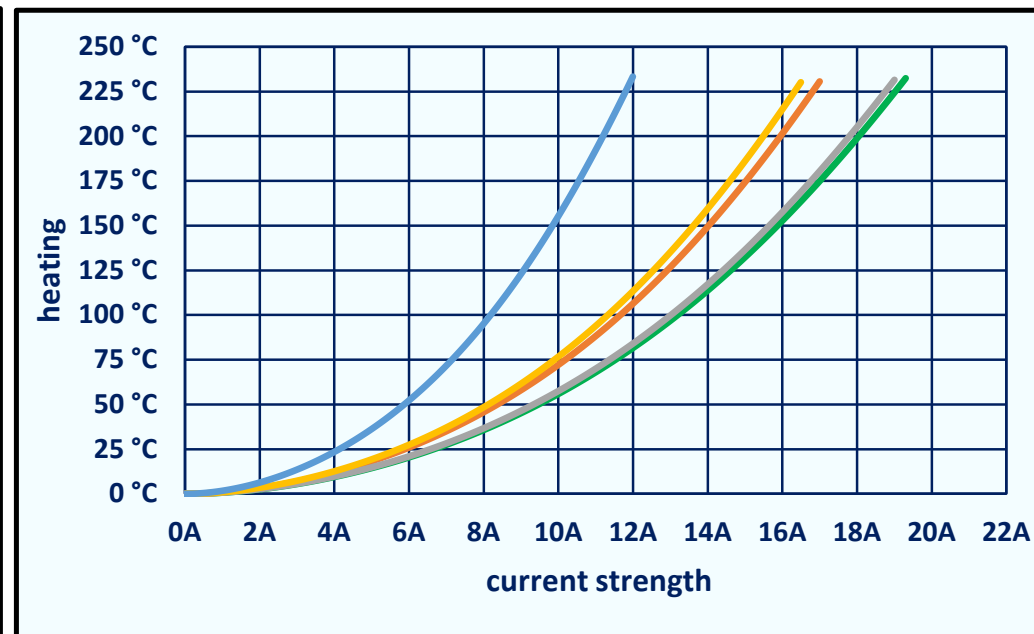


Current rating diagram

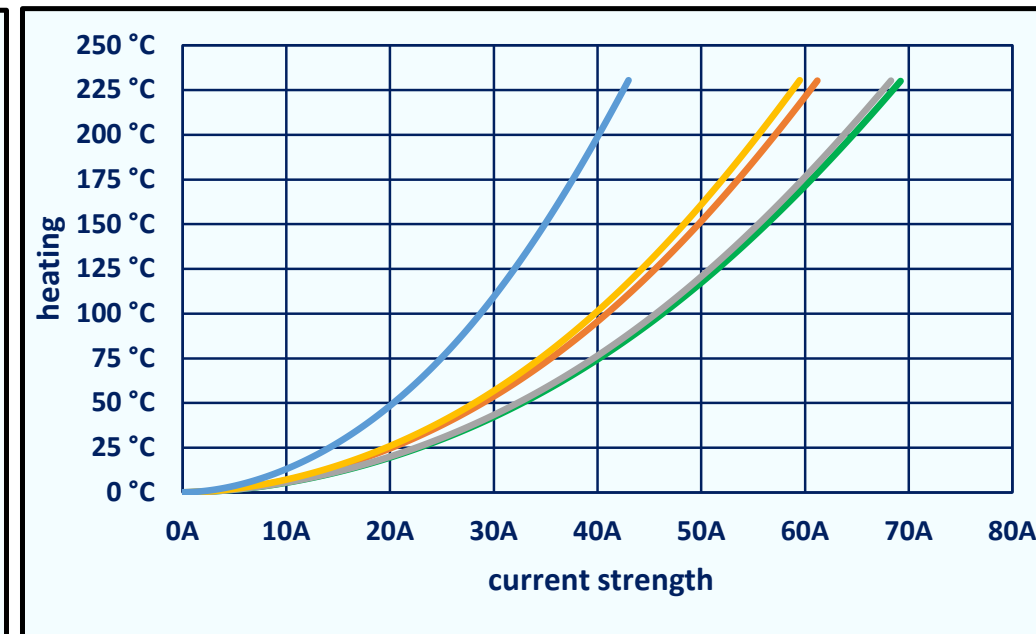
— Cu-ETP1 — CuSn03 — CuAg01 — CuMg02 — CCS40



Values / Simulation based on:
 Cross-section conductor: 0,13mm²
 Insulation material core: PVC
 Wall Thickness Insulation: 0,25mm



Values / Simulation based on:
 Cross-section conductor: 0,13mm²
 Insulation material core: PVC
 Wall Thickness Insulation: 0,25mm



Values / Simulation based on:
 Cross-section conductor : 2,50mm²
 Insulation material core: PVC
 Wall Thickness Insulation: 0,35mm

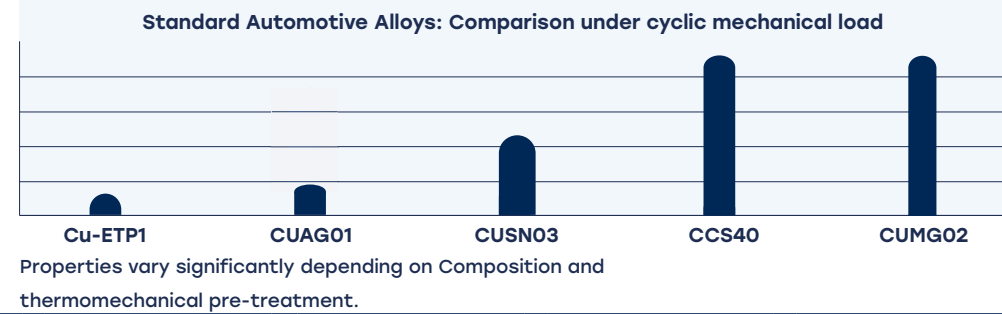
Alloy Portfolio

Physical Properties in Comparison

	CuAg01	CCS40	CuMg02	CuSn03	Cu-ETP1
Electrical conductivity	95 %IACS	40 %, IACS	75 %, IACS	72 %, IACS	100%, IACS
Tensile strength	≥ 540N/mm ²	≥ 770 N/mm ²	≥ 670 N/mm ²	≥ 600 N/mm ²	≥ 200 N/mm ²
Elongation at break	≤ 5%	≤ 5%	≤ 5%	≤ 5%	> 16 %



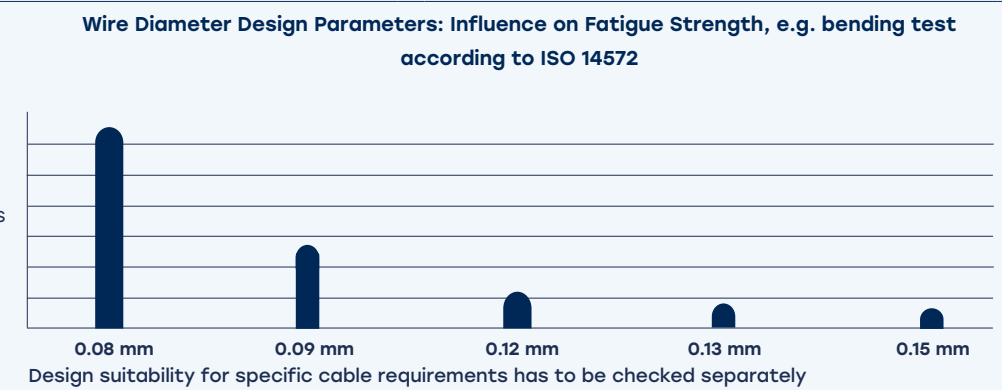
number of cycles



* All properties vary, largely dependent on chem. composition, thermomechanical pre-treatment as well as dimension. The figures are based on ETP1 copper in the "soft annealed" state, CCS and alloys in the formed state.



number of cycles



Nomenclature

The type designation provides information on the type of cable, the insulation and sheath materials used and the principle design features in abbreviated and simplified form. A type designation is made up of several groups. The type of cable is specified first and then its design from inside to outside:

1. Type of cable

- FL** = Automotive cable
- FZL** = Automotive ignition cable

2. Special conductor materials (except electrolytic copper)

- M** Materials other than E-Cu or resistance alloys (e.g. aluminium, steel, Staku, etc.)
- W** Resistive conductors (usually copper alloys with Ni, Cr, Mn, etc.)

3. Geometrical structure of the insulation

Normal insulation wall thickness (equivalent to ISO 6722 "Thick wall") is not marked.

- U** Ultra-thin insulation corresponds to ISO 6722
- R** Reduced insulation wall thickness corresponds to ISO 6722*
- S** Reinforced insulation (wall thickness greater than in ISO 6722)

4. Characteristics for dielectrics

Encoded markings for the dielectrics that are used as insulating or sheathing materials.

- Y** Soft-PVC (Polyvinyl chloride plasticized)
- YW** Soft-PVC (Polyvinyl chloride, heat-resistant)
- YK** Soft-PVC (Polyvinyl chloride, cold-resistant)
- 2Y** PE (polyethylene)
- 4Y** PA (polyamid)
- 5Y** PTFE (polytetrafluorethylen)
- 6Y** FEP (tetrafluorethylen/hexafluorpropylen)
- 7Y** ETFE (ethylen/tetrafluorethylen)
- 9Y** PP (polypropylen)
- 10Y** PVDF (polyvinylidenfluorid)
- 11Y** TPE-U (Thermoplastic elastomer on polyurethane basis, PUR)
- 12Y** TPE-E (Thermoplastic polyester elastomer on polyether ester basis)
- 13Y** TPE-E (Thermoplastic polyester elastomer on polyester ester basis)
- 31Y** TPE-S (Thermoplastic polyester elastomer on polystyrene basis)

- 41Y** TPE-A (Thermoplastic polyester elastomer on polyamide basis)
- 51Y** PFA (Perfluoroalkoxy copolymer)
- 91Y** TPE-O (Thermopl. polyester elastomer based on polyolefins)
- X** PVC-X (Polyvinyl chloride cross-linked)
- 2X** PE-X (Polyethylen cross-linked)
- 4G** EVA (Ethylen/vinylacetat)

In the case of foamed materials, the abbreviation is preceded by a "zero". e.g. O2Y = foamed or cell PE.

5. Codes for constructional elements

Codes for further constructional elements and non-extruded coverings

- B** Foil shield
- C** Copper wire braiding
- D** Copper wire spiral shield
- G** Glass fiber braiding
- P** Insulation foil
- T** Textile braiding

6. Special design features

- F** Flat cables
- Z** Multi-core, divisible cable

7. In addition...

... the number of cores (not applicable for single-core cables) and finally the nominal cross-section in mm² are specified. Particularly flexible or highly flexible strands are characterized by the fact that the nominal single wire diameter is also indicated after the nominal cross-section.

For metal-coated copper wires, in certain cases, the type of metal coating is specified as:

- SN** tinned conductor
- NI** nickel-plated single conductors
- AG** silver-plated

Bare copper is not specifically designated.

Various components, which are joined together by certain elements (e.g. inner jackets or inner screens), are grouped together by brackets in the type designation (see examples for the abbreviation structure).

Example

The nomenclature of the LEONI Adascar® Control, Comfort, Power, Safety, sensor and truck lines are composed as:

LEONI Adascar®-Power 5020-B 2x0.35 + DW

Special design/shielding:

- F Flat cable
- B Cable with foil shield (B-shield)
- D Cable with spiral shield (D-shield)
- C Cable with braided screen (C-shield)

Number of cores x nominal cross-section

Further information:

- DW Drainwire
- CC Conductive core
- SN Tinned conductor
- Flex High flexible cable
- Twin Twin cable





International standards – Automotive Cables



International standards

- ISO 6722-1** Road vehicles, 60 V and 600 V single-core cables
- ISO 6722-2** Road vehicles, 60 V and 600 V single-core aluminium cables
- ISO 14 572** Road vehicles – round, screened and unshielded, 60 V and 600 V multi-core sheathed cables
- ISO 19642** „Road Vehicles – Automotive Cables“
- LV 112-1** Electrical cables for motor vehicles (copper, single-core, unshielded)
- LV 112-2** Electrical cables for motor vehicles (aluminium, single-core, unshielded)
- LV 112-3** Specification of the current rating of vehicle cables
- LV 112-4** Electrical cables for motor vehicles (copper alloy cables, single-core, unshielded)

- LV 122** Twisted cables
- LV 212** Sheathed cables for motor vehicles (requirements and testing)
- LV 213-1 & LV 213-2** High-frequency cables for motor vehicles

LV 216-1 & LV 216-2

Shielded high-voltage sheathed cables for motor vehicles and their electrical drives

Japanische Normung: JASO D611:2009 Japanese Automobile Standard

- AV** Vinyl insulated low tension electric cable for automobiles
- AVS** Low tension cable with reduced outside diameter for automobiles, general wall thickness
- AVSS** Low tension cable with reduced outside diameter for automobiles, thin wall thickness
- AVSSf** Low tension cable with reduced outside diameter for automobiles, thin wall thickness, high flexibility
- CAVS** Construction of conductors pressed in circular shape, low tension cable with reduced outside diameter for automobiles, general wall thickness
- AVX** Crosslinked vinyl heat-resistant low-tension cable for automobiles
- AEX** Crosslinked polyethylene heat-resistant low-tension cable for automobiles

Customer standards

In addition, we produce according to various customer standards.



LEONI Adascar® Product range



LEONI Adascar® expertise

Advanced Automotive Special Cables.

The LEONI Adascar® family is divided in the following applications:

→ **COMFORT APPLICATIONS:** roof, seat, heating, ventilation and climate control systems, park assistance, consumer electronics etc

→ **CONTROL APPLICATIONS:** sensors for rain, weight and occupant recognition, fill level, lambda probe, applications with capacity and inductivity requirements etc.

→ **POWER APPLICATIONS:** lighting and wiring systems, electrical installation wiring, engine compartment etc.

→ **SAFETY APPLICATIONS:** airbag, belt, pre-crash, collision avoidance and closing systems, clamping protections, chassis safety, distance controllers etc.

→ **TRUCK APPLICATIONS:** connection cable between tractor and trailer or semi-trailer, lighting and wiring systems with ADR approval etc.

→ **WHEEL SENSOR APPLICATIONS:** ABS, ESP, brake wear indicator (BWI) and electrical parking brake (EPB)



→ **MULTIFUNCTIONAL & EPB APPLICATIONS:** Electric parking brake (EPB) or customer-specific combinations (multifunction) of various applications such as WSS, BWI, etc.



LEONI Adascar® Comfort • Portfolio Overview

Type	Code	Number of wires	Nominal cross-section [mm²]	Conductor material	Insulation material	Shield type	Jacket material	Temperature range [°C]	
Round Cables	LEONI Adascar® Comfort 6xxx	≥ 2	0.13 - 1.50	Cu bare Cu tin-plated Cu silver-plated Cu nickel-plated CuSn CuAg CuMg	PVC	unshielded	PVC	-40 to +105	
	LEONI Adascar® Comfort 7xxx					B-shield C-shield D-shield			
	LEONI Adascar® Comfort 66xx					unshielded			PP TPE TPE-U SIR
	LEONI Adascar® Comfort 67xx -69xx					B-shield C-shield D-shield			
	LEONI Adascar® Comfort 77xx -79xx								
Flat Cables	LEONI Adascar® Comfort 65xx	2	PVC	unshielded	PVC	-40 to +105 -40 to +125			

*customer-specific designs possible on request

Multi-core automotive cables with sheath; shielded and unshielded.

LEONI has an extensive portfolio of products for comfort applications. Depending on the layout and expected possible mechanical load, special robust materials are used to permit installation in the car body (e.g. for power windows) and also to allow a coiling of the cable, if needed.

For fitting in vehicle interiors, flame retardance pursuant to the international standards (ISO, LV, JASO...) is also assured with these special materials. There is also a choice of low halogen and halogen free materials

BENEFITS/PROPERTIES

- customer-specific cables available
- shielded versions
- certified according to international standards
- extensive OEM approvals

APPLICATIONS

- seat systems, power windows, mirror wiring
- heating, ventilation and climate control systems
- consumer electronics
- car phone
- convertible roof, tailgate and sun roof systems
- park assistance
- driver authentication system

STANDARDS

Compliant with ISO 6722, ISO 19642, LV 112, ISO 14572, LV 212, JASO and customer specifications.





LEONI Adascar® Comfort • Product Examples

Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	External diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Comfort for e.g. lighting, communication systems, audio & entertainment								
LEONI Adascar® Comfort 7010	3X0.35+DW	Cu bare, 19x0.150 mm	1.30 mm	PVC	C-shield	4.20 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7015	2X1.5+DW	2X1.5+DW	2.30 mm	PVC	B-shield	6.15 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7020	2X0.35SN+DW	Cu tin-plated, 7x0.254 mm	1.25 mm	PVC	B-shield	3.70 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7025	4X0.5+DW	Cu bare, 16x0.200 mm	1.55 mm	PVC	B-shield	5.60 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7050	4X0.22+DW	Cu bare, 7x0.202 mm	1.05 mm	PVC	B-shield	3.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7060	2X2X0.75+DW	Cu bare, 24x0.200 mm	1.75 mm	PVC	B-shield	6.90 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7070	2X1.0+DW	Cu bare, 19x0.254 mm	1.95 mm	PVC	B-shield	5.10 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7071	3X0.5+DW	Cu bare, 7x0.302 mm	1.65 mm	PVC	B-shield	4.90 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7080	2X2X0.35+DW	Cu bare, 7x0.254 mm	1.30 mm	PVC	B-shield	7.00 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7090	4X0.35+DW	Cu bare, 7x0.254 mm	1.30 mm	PVC	B-shield	4.20 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7130	2X0.5	Cu bare, 19x0.182 mm	1.55 mm	PVC	D-shield	4.80 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7150	2X0.5+DW	Cu bare, 19x0.182 mm	1.55 mm	PVC	B-shield	4.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7151	2X0.5+DW	Cu bare, 19x0.182 mm	1.65 mm	PVC	B-shield	4.80 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7160	4X0.35+DW	Cu bare, 7x0.254 mm	1.25 mm	PVC	B-shield	4.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7750	2X1.0	Cu bare, 126x0.100 mm	2.00 mm	TPE-S	B-shield C-shield	4.50 mm	-	-40°C to +125 °C
LEONI Adascar® Comfort 7752	2X1.0+DW	Cu bare, 126x0.100 mm	2.00 mm	TPE-S	B-shield C-shield	5.35 mm	-	-40°C to +125 °C
LEONI Adascar® Comfort 7753	2X1.0+DW	Cu bare, 126x0.100 mm	2.00 mm	TPE-S	B-shield	4.10 mm	-	-40°C to +125 °C

*customer-specific designs possible on request





LEONI Adascar® Comfort • Product Examples



Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	External diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Comfort for e.g. heating systems								
LEONI Adascar® Comfort 6010	2X0.75	Cu bare, 16x0.200 mm	1.80 mm	PVC	-	4.60 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 6020	4X0.5	Cu bare, 19x0.182 mm	1.55 mm	PVC	-	5.30 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 6041	2X0.35	Cu bare, 45x0.100 mm	1.30 mm	PVC	-	3.70 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 6610	2X0.75	Cu bare, 24x0.200 mm	1.80 mm	PVC	-	4.80 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 6710 FLEX	4X0.35	Cu bare, 45x0.100 mm	1.30 mm	TPE-E	-	5.80 mm	TPE-U	-40°C to +105 °C
LEONI Adascar® Comfort for e.g. door opener (capacitive sensor)								
LEONI Adascar® Comfort 7700 TUBE	-	-	5.50 mm	PVC	C-shield	7.10 mm	PVC	-40°C to +105 °C
LEONI Adascar® Comfort 7800 TUBE	-	-	3.10 mm	cell-PE	C-shield	4.80 mm	PVC	-40°C to +85 °C

*customer-specific designs possible on request



LEONI Adascar® Control • Portfolio Overview

Type	Code	Number of wires	Nominal cross-section [mm²]	Conductor material	Insulation material	Shield type	Jacket material	Temperature range [°C]
Round Cables	LEONI Adascar® Control 8xxx	≥ 2	0.13 - 1.50	Cu bare Cu tin-plated Cu silver-plated Cu nickel-plated CuSn CuAg CuMg	PVC	unshielded	PVC	-40 to +105
	LEONI Adascar® Control 9xxx					B-shield C-shield D-shield		
	LEONI Adascar® Control 86xx							
	LEONI Adascar® Control 87xx -89xx					unshielded B-shield C-shield D-shield		
	LEONI Adascar® Control 97xx -99xx							
Flat Cables	LEONI Adascar® Control 85xx	2			PVC	unshielded	PVC	-40 to +105 -40 to +125

*customer-specific designs possible on request

Multi-core automotive cables with sheath; shielded and unshielded.

LEONI has a wide range of products with properties tailored individually to the respective customer requirements for the broadest possible variety of control and management functions. Depending on the area of use, the cables are also available in shielded form as foil shields (B shield) with drain wire or conductive core for contacting, as coiled shield (D shield) or as braided shields (C shield) made of copper wires, either bare or tinned.

BENEFITS/PROPERTIES

- customer- specific cables available
- certified according to international standards
- extensive OEM approvals

APPLICATIONS

- sensor applications
- knock sensor
- weight sensor
- rain sensor
- engine management sensor
- fill level sensor
- occupant recognition

STANDARDS

Compliant with ISO 6722, ISO 19642, LV 112, ISO 14572, LV 212, JASO and customer specifications.





LEONI Adascar® Control • Product Examples

Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	Outer diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Control for e.g. door wiring								
LEONI Adascar® Control 9001	2X0.75+DW	Cu bare, 19x0.230 mm	1.80 mm	PVC	B-shield	4.70 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9002	2X0.35+DW	Cu bare, 7x0.254 mm	1.30 mm	PVC	B-shield	4.00 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9005	2X2X0.5+DW	Cu bare, 19x0.182 mm	1.55 mm	PVC	B-shield	7.20 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9012	2X2X0.35+DW	Cu bare, 7x0.254 mm	1.30 mm	PVC	B-shield	6.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9016	2X1.5+DW	Cu bare, 19x0.315 mm	2.30 mm	PVC	B-shield	6.15 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9017	3X2.0	Cu bare, 28x0.300 mm	2.75 mm	PVC	C-shield	8.20 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9021	3X0.5+DW	Cu bare, 19x0.182 mm	1.55 mm	PVC	B-shield	4.80 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control for e.g. control function (knock sensor)								
LEONI Adascar® Control 9016	2X1.5+DW	Cu bare, 19x0.315 mm	2.30 mm	PVC	B-shield	6.15 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9710	2X0.35+DW	Cu bare, 7x0.250 mm	1.30 mm	TPE-E	B-shield	4.00 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Control for e.g. temperature sensors								
LEONI Adascar® Control 8850 TC	2X0.5NiSi/NiCrSi	NiCrSi, 19x0.182 mm NiSi, 19x0.182 mm	1.43 mm	PTFE	-	2.86 mm	-	-40°C to +250° C
LEONI Adascar® Control for e.g. Active Body Control (ABC)								
LEONI Adascar® Control 9025	2X1.5+DW	Cu bare, 19x0.315 mm	2.30 mm	PVC	B-shield	6.15 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9030	2X1.5+DW	Cu bare, 30x0.250 mm	1.60 mm	PVC	B-shield	6.40 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9050	2X0.35+DW	Cu bare, 7x0.254 mm	1.25 mm	PVC	B-shield	4.00 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9070	3X0.35+DW	Cu bare, 7x0.254 mm	1.25 mm	PVC	B-shield	4.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9080	2X0.75+DW	Cu bare, 19x0.230 mm	1.80 mm	PVC	B-shield	4.70 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9081	2X0.35+DW	Cu bare, 7x0.254 mm	1.25 mm	PVC	B-shield	3.60 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9085	2X0.35	Cu bare, 7x0.254 mm	1.25 mm	PVC	D-shield	4.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9095	3X2X0,35+DW	Cu bare, 7x0,254 mm	1,25 mm	PVC	B-shield	7,50 mm	PVC	-40°C to +105 °C

*customer-specific designs possible on request





LEONI Adascar® Control • Product Examples



Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	Outer diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Control for e.g. Active Body Control (ABC)								
LEONI Adascar® Control 9110	4X0.16+DW	Cu bare, 19x0.102 mm	1.05 mm	PVC	B-shield	4.60 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9120	1X0.35+DW	Cu bare, 7x0.254 mm	1.30 mm	PVC	B-shield	3.10 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control 9140	2X0.5+DW	Cu bare, 19x0.182 mm	1.55 mm	PVC	D-shield	4.80 mm	PVC	-40°C to +105 °C
LEONI Adascar® Control for e.g. lighting								
LEONI Adascar® Control 8005	2X0.14	Cu bare, 18x0.100 mm	1.00 mm	PVC	-	3.10 mm	PVC	-40°C to +105 °C

*customer-specific designs possible on request



LEONI Adascar® Power • Portfolio Overview

Type	Code	Number of wires	Nominal cross-section [mm²]	Conductor material	Insulation material	Shield type	Jacket material	Temperature range [°C]		
Round Cables	LEONI Adascar® Power 4xxx	≥ 2	0.13 - 4.00	Cu bare Cu tin-plated Cu silver-plated Cu nickel-plated CuSn CuAg CuMg	PVC	unshielded	PVC	-40 to +105		
	LEONI Adascar® Power 5xxx					B-shield C-shield D-shield				
	LEONI Adascar® Power 46xx									
	LEONI Adascar® Power 47xx -49xx					unshielded B-shield C-shield D-shield			PP TPE TPE-U SIR PFA	-40 to +105 -40 to +125 -40 to +150 -40 to +175 -40 to +260
	LEONI Adascar® Power 57xx -59xx									
Flat Cables	LEONI Adascar® Power 45xx	2			PVC	unshielded	PVC	-40 to +105 -40 to +125		

*customer-specific designs possible on request

Multi-core automotive cables with sheath; shielded and unshielded.

LEONI provides with the brand LEONI Adascar® Power a wide selection of multi-core shielded and unshielded wiring cables. There is, depending on the area of installation, i.e. interior, engine compartment or cable harness, a very wide variety of materials to meet the respective mechanical, thermal or chemical requirements. Shielding with a high level of coverage (up to nearly 100 percent) is essential when carrying currents to reducing the radiation and thus the inference to data cables if they are installed in parallel.

BENEFITS/PROPERTIES

- customer-specific cables available
- shielded versions
- certified according to international standards
- extensive OEM approvals

APPLICATIONS

- lighting and cabling systems
- wiring of electrical equipment (in board and out board, bodywork)
- engine compartment, catalytic converter
- power distributors

STANDARDS

Compliant with ISO 6722, ISO 19642, LV 112, ISO 14572, LV 212, JASO and customer specifications





LEONI Adascar® Power • Product Examples

Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	Outer diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Power for e.g. electronics								
LEONI Adascar® Power 5001	1X0.35	Cu bare, 7x0.254 mm	1.45 mm	PVC	C-shield	2.95 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5002	1X0.5	Cu bare, 7x0.300 mm	1.70 mm	PVC	C-shield	3.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5005	1X1.5SN	Cu tin-plated, 30x0.250 mm	1.60 mm	PVC	C-shield	2.60 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5010	2X2X0.5SN	Cu tin-plated, 16x0.200 mm	1.80 mm	PVC	C-shield	8.60 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5012	2X1.0+DW	Cu bare, 126x0.110 mm	2.00 mm	TPE-S	B-shield	5.40 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Power 5040	2X0.5+DW	Cu bare, 19x0.182 mm	1.55 mm	PVC	B-shield	4.20 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5045	2X0.5+DW	Cu bare, 19x0.182 mm	1.55 mm	PVC	B-shield	4.20 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5050	2X1.0+DW	Cu bare, 19x0.254 mm	1.95 mm	PVC	B-shield	5.10 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5051	2X1.0+DW	Cu bare, 19x0.254 mm	1.95 mm	PVC	B-shield	5.10 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5060	1X0.5+DW	Cu bare, 19x0.182 mm	1.55 mm	PVC	B-shield	3.80 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5065	2X1.5+DW	Cu bare, 30x0.250 mm	2.30 mm	PVC	B-shield	6.20 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5070	2X2.5+DW	Cu bare, 50x0.250 mm	2.80 mm	PVC	B-shield	7.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5071	2X2.0+DW	Cu bare, 30x0.300 mm	2.60 mm	PVC	B-shield	6.70 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5075	2X1,5+6X0.35	Cu bare, 19x0.320 mm Cu bare, 7x0.254 mm	2.30 mm 1.27 mm	PVC	-	8.20 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5120	2X0.35	Cu bare, 7x0.254 mm	1.45 mm	PVC	C-shield	4.40 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5130	3X0.35	Cu bare, 7x0.254 mm	1.45 mm	PVC	C-shield	5.00 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5735	2X0.5+DW	Cu bare, 19x0.182 mm	1.55 mm	TPE-E	B-shield	4.20 mm	TPE-U	-40°C to +150 °C

*customer-specific designs possible on request





LEONI Adascar® Power • Examples



Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	Outer diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Power for e.g. sensor technology								
LEONI Adascar® Power 4900	2X0.5NI	Cu nickel-plated, 19x0.182mm	1.40 mm	PFA	-	3.50 mm	PFA	-40°C to +260 °C
LEONI Adascar® Power for e.g. fuel pump								
LEONI Adascar® Power 5090	3X2.0+DW	Cu bare, 30x0.300 mm	2.60 mm	PVC	B-shield	7.20 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power for e.g. gearboxes								
LEONI Adascar® Power 5070	2X2.5+DW	Cu bare, 50x0.250 mm	2.80 mm	PVC	B-shield	7.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 5071	2X2.0+DW	Cu bare, 30x0.300 mm	2.50 mm	PVC	B-shield	6.70 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power for e.g. lighting								
LEONI Adascar® Power 4010	2X0.5	Cu bare, 16x0.200 mm	1.55 mm	PVC	-	4.45 mm	PVC	-40°C to +105°C
LEONI Adascar® Power 4020	2X0.75	Cu bare, 24x0.200 mm	1.80 mm	PVC	-	4.90 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 4035	4X0.75	Cu bare, 24x0.200 mm	1.75 mm	PVC	-	6.20 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 4040	2X0.5	Cu bare, 16x0.200 mm	1.90 mm	PVC	-	5.20 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 4520 TWIN	2X0.75	Cu bare, 24x0.200 mm	2.10 mm	PVC	-	2.10x4.40 mm	-	-40°C to +105 °C
LEONI Adascar® Power 4610-F	2X0.5	Cu bare, 19x0.182 mm	1.55 mm	PVC	-	2.90x4.80 mm	TPE-U	-40°C to +105°C
LEONI Adascar® Power 4710	4X0.75	Cu bare, 24x0.200 mm	1.95 mm	PVC	-	6.70 mm	TPE-U	TPE-U
LEONI Adascar® Power for e.g. eBike applications								
LEONI Adascar® Power 4405	2X1.5+2X0.5	Cu bare, 48x0.200 mm Cu bare, 28x0.150 mm	2.30 mm 1.55 mm	PVC	-	6.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 4050	2X0.35	Cu bare, 7x0.254 mm	1.50 mm	PVC	-	4.80 mm	PVC	-40°C to +105 °C
LEONI Adascar® Power 4750	2X0.35	Cu bare, 7x0.254 mm	1.25 mm	PP	-	3.80 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Power 4760	4X0.35	Cu bare, 7x0.254 mm	1.25 mm	PP	-	4.45 mm	TPE-U	-40°C to +125 °C

*customer-specific designs possible on request



LEONI Adascar® Safety · Portfolio Overview

Type	Code	Number of wires	Nominal cross-section [mm²]	Conductor material	Insulation material	Shield type	Jacket material	Temperature range [°C]
Round Cables	LEONI Adascar® Safety 2xxx	2-4	0.13 - 0.50	Cu bare Cu tin-plated CuSn CuAg CuMg	PVC	unshielded	PVC	-40 to +85 (JASO) -40 to +105
	LEONI Adascar® Safety 3xxx					B-shield C-shield D-shield		
	LEONI Adascar® Safety 26xx					unshielded		
	LEONI Adascar® Safety 27xx -29xx					B-shield C-shield D-shield		
	LEONI Adascar® Safety 37xx -39xx					B-shield C-shield D-shield		
Flat Cables	LEONI Adascar® Safety 25xx	2			PVC	unshielded	PVC	-40 to +105 -40 to +125

*customer-specific designs possible on request

Multi-core automotive cables for safety applications.

The LEONI Adascar® Safety product range is used in all safety-related applications in vehicles. By being easy to strip and and because of a good molding behavior, the cables are ideally suited to a wide variety of fully automated further processing. The materials used are exclusively of high quality and approved to international standards.

BENEFITS/PROPERTIES

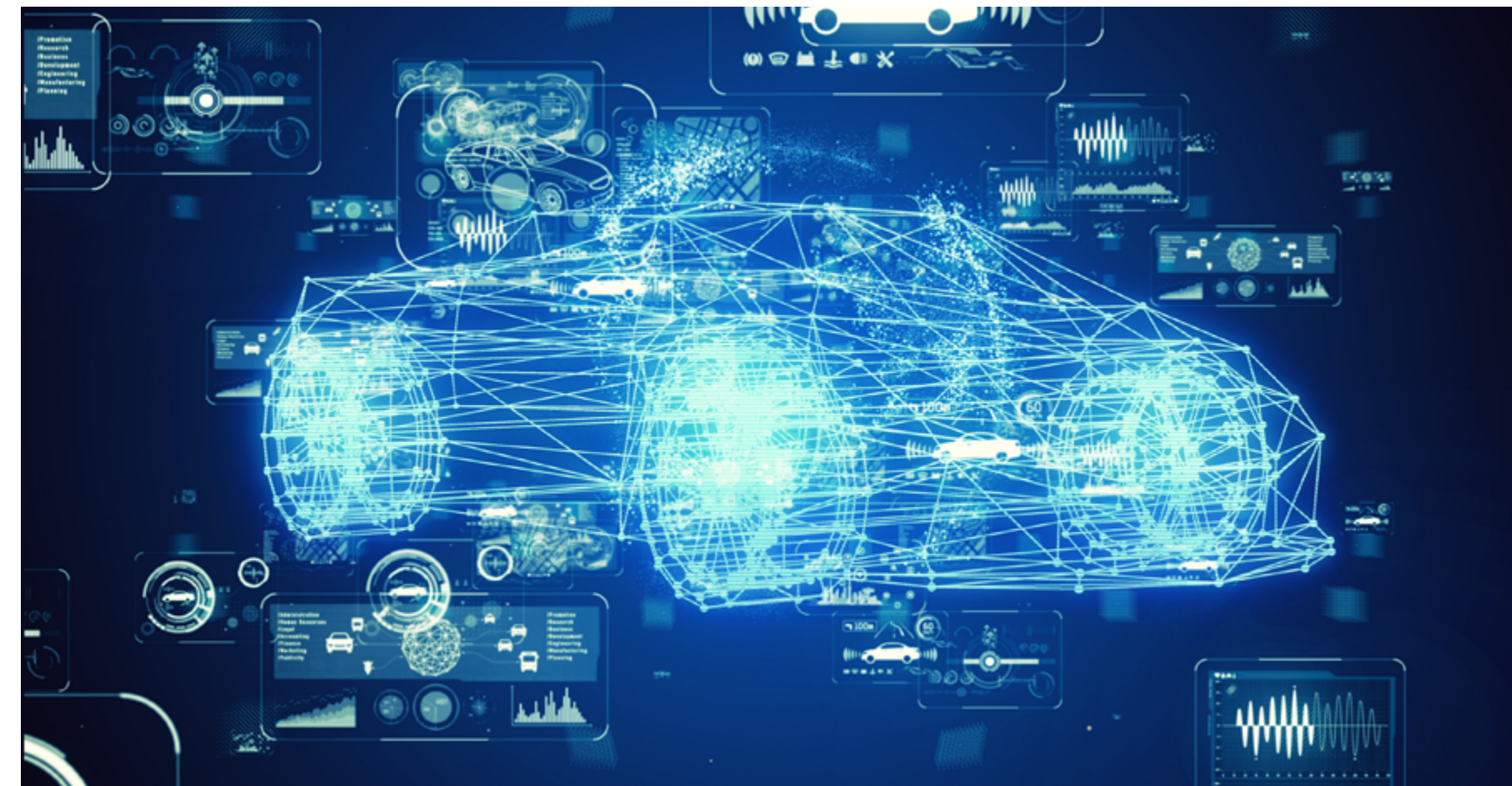
- excellent processability
- extensive OEM approvals
- customised solutions
- worldwide production facilities

APPLICATIONS

- impact protection (airbag)
- restraint systems (belt)
- active headrest, seats, engine cover (pre/in crash)
- locking systems, clamping protection
- chassis safety
- pre-impact warning sensors, distance controller (collision avoidance)

STANDARDS

Compliant with ISO 6722, ISO 19642, LV 112, ISO 14572, LV 212, JASO and customer specifications.





LEONI Adascar® Safety • Product Examples

Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	Outer diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Safety for e.g. airbag or belt applications								
LEONI Adascar® Safety 2010	2x0.35	Cu bare, 7x0.260 mm	1.25 mm	PVC	-	5.45 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2011	2X0.35	Cu bare, 7x0.260 mm	1.30 mm	PVC	-	3.75 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2012	2X0.35	Cu bare, 7x0.260 mm	1.25 mm	PVC	-	3.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2013	2X0.35	Cu bare, 7x0.254 mm	1.25 mm	PVC	-	4.00 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2015	3X0.35	Cu bare, 7x0.260 mm	1.25 mm	PVC	-	3.90 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2017	2X0.5	Cu tin-plated, 19x0.182 mm	1.55 mm	PVC	-	4.40 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2018	4X0.35	Cu bare, 7x0.260 mm	1.30 mm	PVC	-	5.45 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2020	2X0.5	Cu bare, 19x0.182 mm	1.55 mm	PVC	-	4.40 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2021	2X0.5	Cu bare, 16x0.210 mm	1.55 mm	PVC	-	4.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2022	2X0.5	Cu bare, 19x0.182 mm	1.70 mm	PVC	-	4.45 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2024	2X0.5	Cu bare, 19x0.182 mm	1.55 mm	PVC	-	4.80 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2025	2X0.5	Cu tin-plated, 19x0.182 mm	1.55 mm	PVC	-	4.45 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2026	2X0.5	Cu tin-plated, 19x0.182 mm	1.55 mm	PVC	-	4.25 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2030	3X0.5	Cu bare, 19x0.182 mm	1.55 mm	PVC	-	4.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2035	2X0,5SN+0.5	"Cu tin-plated, 19x0.182 mm Cu bare, 19x0.182mm"	1.55 mm	PVC	-	4.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2040	4X0.5	Cu bare, 19x0.182 mm	1.50 mm	PVC	-	4.80 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2045	2X0.5SN	Cu tin-plated, 16x0.200 mm	1.55 mm	PVC	-	4.40 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2110	2X0.35	Cu bare, 19x0.182 mm	1.25 mm	PVC	-	4.00 mm	PVC	-40°C to +105 °C

*customer-specific designs possible on request





LEONI Adascar® Safety · Product Examples



Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	Outer diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Safety for e.g. airbag or belt applications								
LEONI Adascar® Safety 2510-F	2X0.35	Cu bare, 7x0.254 mm	1.25 mm	PVC	-	2.60x3.90 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2511-F	2X0.35	Cu bare, 19x0.150 mm	1.25 mm	PVC	-	2.80x4.10 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2521-F	2X0.5	Cu bare, 16x0.200 mm	1.55 mm	PVC	-	2.25x3.80 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2610	2X0.5	Cu bare, 19x0.182 mm	1.55 mm	PVC	-	4.40 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety for e.g. anti-pinch protection								
LEONI Adascar® Safety 2710	2X0.22	Cu bare, 7x0.210 mm	1.15 mm	PVC	-	3.40 mm	TPE-O	-40°C to +90 °C
LEONI Adascar® Safety 2720	2X0.35	Cu bare, 7x0.260 mm	1.60 mm	PVC	-	4.10 mm	TPE-O	-40°C to +90 °C
LEONI Adascar® Safety for e.g. sensor technology								
LEONI Adascar® Safety 3700	2X0.35+DW	Cu bare, 7x0.254mm	1.30 mm	PP	B-shield	5.00 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety with AVSS wires according to JASO								
LEONI Adascar® Safety 2422 AVSS	2X0.54	Cu bare, 19x0,200 mm	1.65 mm	PVC	-	3.40 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2423 AVSS	2X0.54	Cu tin-plated, 19x0,200 mm	1.65 mm	PVC	-	4.10 mm	PVC	-40°C to +105 °C
LEONI Adascar® Safety 2721 AVSS	2X0.37	Cu bare, 7x0,260 mm	1.40 mm	PVC	-	4.00 mm	TPE-O	-40°C to +90 °C

*customer-specific designs possible on request

LEONI Adascar® Truck • Portfolio Overview

Type	Code	Number of wires	Nominal cross-section [mm²]	Conductor material	Insulation material	Shield type	Jacket material	Temperature range [°C]
Round Cables	LEONI Adascar® Truck 10xxx	≥ 2	0.13 - 4.00	Cu bare Cu tin-plated CuSn	PVC	unshielded	PVC	-30 to +85 -40 to +105
	LEONI Adascar® Truck 12xxx - 16xxx							
	LEONI Adascar® Truck 18xxx				PVC PE-X PP TPE ETFE	B-shield C-shield D-shield	PVC TPE-E TPE-U	-30 to +85 -40 to +105 -40 to +125 -40 to +150
Flat Cables	LEONI Adascar® Truck 11xxx - 13xxx	2			PVC	unshielded	PVC TPE-U	-30 to +85 -40 to +105 -40 to +125

*customer-specific designs possible on request

Multi-core automotive cables with ADR certificates for commercial vehicles.

The LEONI Adascar® Truck cables meet the high mechanical, chemical and also electric requirements in the commercial vehicle industry. These PVC cables are resistant to oil, weather, chemicals and UV as well as to cold. The versions with PU jackets also boast increased resistance to wear and abrasion as well as excellent durability under exposure to microbes and hydrolysis.

BENEFITS/PROPERTIES

- with ADR/GGVS certificates
- with integrated data pair
- coilable versions
- with double jacket

APPLICATIONS

- cable to connect the tractor and trailer or semi trailer
- wiring of the electrical equipment
- front, rear and side illumination as well as cabling systems

STANDARDS

Compliant with ISO 6722, ISO 19642, LV 112, ISO 14572, LV 212, ISO 4141 and customer specifications.



Photo: Sensor vehicle, ATLAS-L4 funding project. You can read our press release [here](#).



LEONI Adascar® Truck • Product Examples

Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	Outer diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Truck mit PVC-Adern with PVC cores for e.g. engine wiring, power supply, lighting systems for trucks and trailers								
LEONI Adascar® Truck 10151	12X1.0+3X2.5	Cu bare, 32x0.200 mm Cu bare, 50x0.250 mm	2.00 mm 2.80 mm	PVC	-	12.60 mm	PVC	-40°C to +105 °C
LEONI Adascar® Truck 10152	12X1.5+3X2.5	Cu bare, 30x0.250 mm Cu bare, 50x0.250 mm	2.30 mm 2.85 mm	PVC	-	14.30 mm	PVC	-40°C to +105 °C
LEONI Adascar® Truck 10201	2X0.5	Cu bare, 16x0.200 mm	1.55 mm	PVC	-	4.80 mm	TPE-U	-40°C to +105 °C
LEONI Adascar® Truck 10301	3X0.75	Cu bare, 19x0.230 mm	1.80 mm	PVC	-	5.90 mm	PVC	-40°C to +105 °C
LEONI Adascar® Truck 10407	4x0.75	Cu bare, 24x0.200 mm	1.75 mm	PVC	-	6.00 mm	PVC	-40°C to +105 °C
LEONI Adascar® Truck 10701	6X1.0+1X1.5	Cu bare, 32x0.210 mm Cu bare, 30x0.260 mm	2.30 mm 2.30 mm	PVC	-	9.30 mm	PVC	-40°C to +105 °C
LEONI Adascar® Truck 10703	7X1.5	Cu bare, 19x0.315 mm	2.30 mm	PVC	-	10.30 mm	PVC	-40°C to +105 °C
LEONI Adascar® Truck 14206	2X0.75	Cu bare, 24x0.200 mm	1.85 mm	ETFE	-	5.20 mm	TPE-U	-40°C to +150 °C
LEONI Adascar® Truck Flachleitungen with PVC cores for e.g. lighting systems in trucks and trailers								
LEONI Adascar® Truck 11201-F	2X1.5SN	Cu tin-plated, 30x0.250 mm	2.70 mm	PVC	-	6.80x4.50 mm	PVC	-40°C to +105 °C
LEONI Adascar® Truck 11205-F	2X1.5	Cu bare, 30x0.250 mm	2.70 mm	PVC	-	6.80x4.50 mm	PVC	-40°C to +85 °C
LEONI Adascar® Truck mit PVC-Adern for e.g. electronic brake system (EBS) incl. PP/PE wires for data transmission (CAN-BUS) for trucks and trailers								
LEONI Adascar® Truck 15701	2X4,0+3X- 1.5+1X2X1.5	Cu bare, 56x0.300 mm Cu bare, 30x0.250 mm Cu bare, 30x0.250 mm	2.30 mm 2.55 mm 3.40 mm	PVC PP	-	11.50 mm	PVC	-40°C to +85 °C
LEONI Adascar® Truck 15730	2X4,0+3X- 1.5+1X2X1.0	Cu bare, 56x0.300 mm Cu bare, 30x0.250 mm Cu bare, 32x0.200 mm	2.30 mm 3.55 mm	PVC PP	-	11.50 mm	PVC	-40°C to +85 °C
LEONI Adascar® Truck for sensor applications in trucks and trailers								
LEONI Adascar® Sensor 1622	2X0.75	Cu bare, 42x0.150 mm	1.80 mm	PVC	-	5.40 mm	TPE-U	-40°C to +105 °C
LEONI Adascar® Sensor 1775	2X0.35CUSN	CuSn, 19x0.154 mm	1.25 mm	PVC	-	4.00 mm	TPE-U	-40°C to +105 °C
LEONI Adascar® Truck 1715	2X0.5CCS	CCS, 19x0.182mm	1.45 mm	PE-X	-	4.40 mm	TPE-U	-40°C to +125 °C

*customer-specific designs possible on request



LEONI Adascar® Sensor • Portfolio Overview

Type	Code	Number of wires	Nominal cross-section [mm²]	Conductor material	Insulation material	Shield type	Jacket material	Temperature range [°C]
Round Cables	LEONI Adascar® Sensor 1xx - 19xx	>=2	0.13 - 2.50	Cu Cu bare Cu nickel-plated Cu tin-plated CuSn CuAg	PVC EVA TPE-S PE-X PE-X ETFE FEP PTFE	unshielded B-shielded	TPE-U	-40 bis +105 -40 bis +125 -40 bis +150

*customer-specific designs possible on request

Sensor cables for driver assistance and active safety systems in the axel wiring.

The LEONI Adascar® Sensor brand stands for cables used in many different areas of axel wiring in both cars and trucks.

The cables meet particularly high reliability requirements. This means they must be oil and fuel resistant, have very high resistance to abrasion and a long flex life.

BENEFITS/PROPERTIES

- highly flexible
- available in halogen-free version
- extremely high abrasion resistance
- very good media resistance
- long-term temperature resistance to +150 °C
- resistant to charring
- resistant to hydrolysis
- bending strength
- recyclability

APPLICATIONS

- ABS/ESP sensor cables
- Active body control)
- brake wear indicator
- sensor cables for automatic regulation of head lamp leveling
- extension cables for ABS systems on trucks and trailers
- electrical parking brake
- Adaptive buffer system
- Tire Pressure Sensors
- Knock Sensor
- Anti-knock control
- Redundant signal transmission (autonomous driving)
- Brake booster

STANDARDS

Compliant with customer specifications.

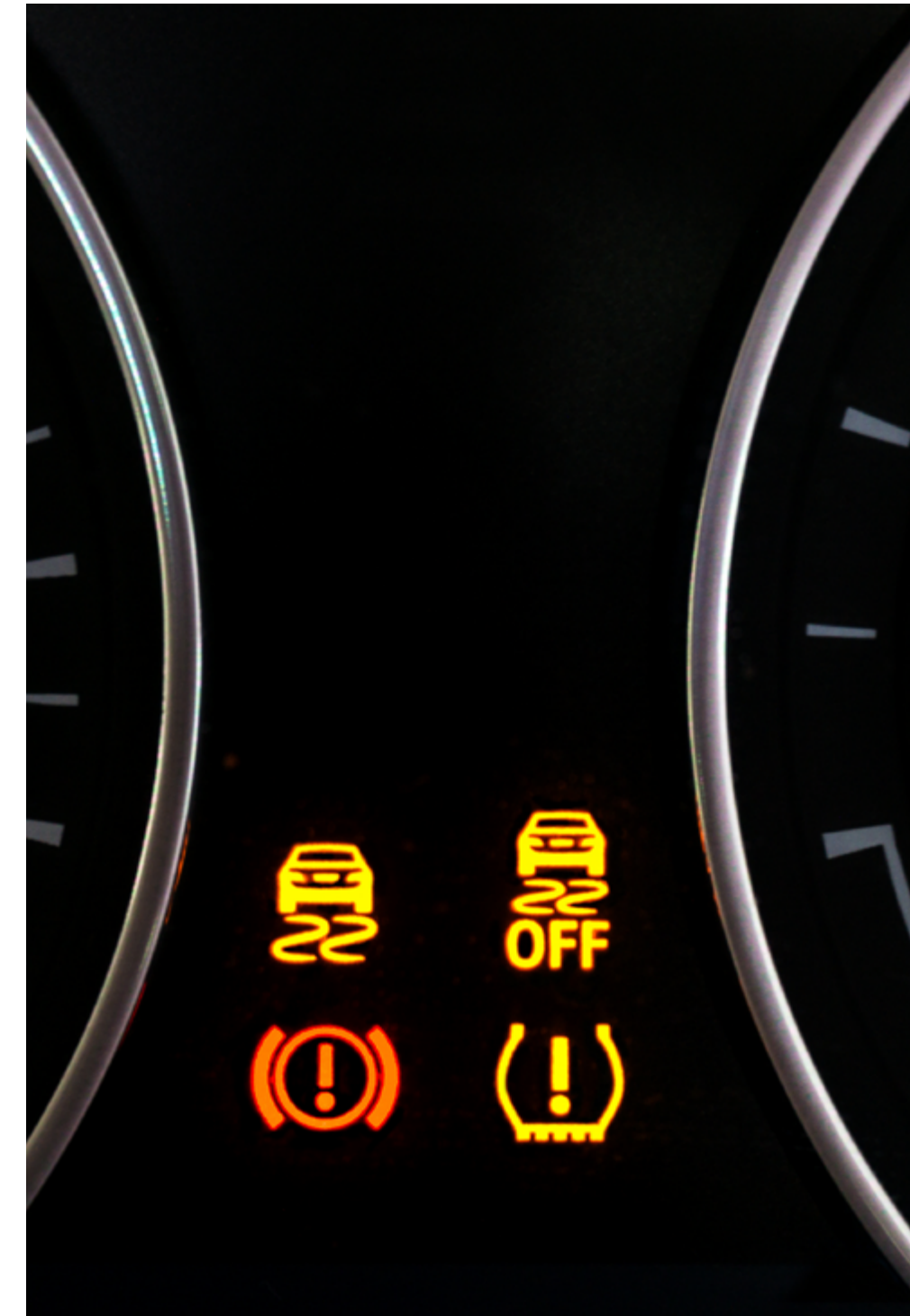




LEONI Adascar® Sensor • Product Examples

Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	Outer diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Sensor with standard design for e.g. Wheel Speed Sensor (WSS), Anti-lock Braking System (ABS), Vehicle Dynamics Control (ESP) etc.								
LEONI Adascar® Sensor 110	2X0.35SN	Cu tin-plated, 37x0.110 mm	1.42 mm	EVA	-	4.00 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 113	2X0.35SN	Cu tin-plated, 37x0.110 mm	1.42 mm	EVA	-	5.15 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 210	2X0.5SN	Cu tin-plated, 28x0.150 mm	1.65 mm	EVA	-	4.30 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 220	2X0.5SN	Cu tin-plated, 28x0.150 mm	1.65 mm	EVA	-	5.15 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor with reduced cross-section for e.g. Wheel Speed Sensor (WSS), Anti-lock Braking System (ABS), Vehicle Dynamics Control (ESP) etc.								
LEONI Adascar® Sensor 808	2X0.25CUSN	CuSn, 48x0.080 mm	1.45 mm	PE-X	-	4.30 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1710	2X0.22CUAG	CuAg, 12x0.150 mm	1.15 mm	PE-X	-	4.00 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1735	2X0.13CUSN	CuSn, 7x0.154 mm	1.10 mm	PE-X	-	3.50 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1740	2X0.13CUSN	CuSn, 7x0.154 mm	1.25 mm	PE-X	-	4.00 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor with highly flexible design for e.g. Wheel Speed Sensor (WSS), Anti-lock Braking System (ABS), Vehicle Dynamics Control (ESP) etc.								
LEONI Adascar® Sensor 211	2X0.5SN	Cu tin-plated, 64x0.100 mm	1.65 mm	EVA	-	4.30 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 805	2X0.25CUSN	CuSn, 48x0.080 mm	1.45 mm	PE-X	-	4.00 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 812	2X0.35SN	Cu tin-plated, 37x0.110 mm	1.42 mm	ETFE	-	4.00 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1100	2X0.5	Cu bare, 19x0.182 mm	1.55 mm	TPE-S	-	5.00 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1111	2X0.5	Cu bare, 64x0.100 mm	1.55 mm	TPE-S	-	6.20 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1203	2X0.75	Cu bare, 42x0.150 mm	1.80 mm	TPE-S	-	6.20 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1210	2X0.75	Cu bare, 96x0.100 mm	1.85 mm	TPE-E	-	6.20 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1510	2X0.75SN	Cu tin-plated, 42x0.160 mm	1.80 mm	TPE-E	-	6.30 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1702	2X0.6CUSN	CuSn, 19x0.189 mm	1.55 mm	PE-X	-	4.40 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1703	3X0.6CUSN	CuSn, 19x0.200 mm	1.50 mm	PE-X	-	5.05 mm	TPE-U	-40°C to +125 °C

*customer-specific designs possible on request





LEONI Adascar® Sensor • Product Examples



Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	Outer diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Sensor with special design for e.g. brake wear indicator (BWI), knock sensor, engine speed sensor (ESS) etc.								
LEONI Adascar® Sensor 210	2X0.5SN	Cu tin-plated, 28x0.150 mm	1.65 mm	EVA	-	4.30 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 225	2X0.5SN	Cu tin-plated, 16x0.210 mm	2.20 mm	EVA	-	6.10 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 226	2X0.5SN	Cu tin-plated, 19x0.182 mm	1.60 mm	EVA	-	4.20 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 330	3X0.5SN	Cu tin-plated, 19x0.160 mm	1.55 mm	PE-X	-	4.80 mm	TPE-U	-40°C to +150 °C
LEONI Adascar® Sensor 1251	2X0.75+DW	Cu bare, 24x0.210 mm	1.80 mm	TPE-S	B-shield	5.00 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1831	2X0.5SN	Cu tin-plated, 19x0.182 mm	1.35 mm	ETFE	-	4.40 mm	TPE-U	-40°C to +150 °C
LEONI Adascar® Sensor 1910	2X0.25NI	Cu nickel-plated, 19x0.130 mm	1.00 mm	PTFE	-	5.15 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1911	2X0.25NI	Cu nickel-plated, 19x0.130 mm	1.00 mm	PTFE	-	4.30 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1932	2X0.25NI	Cu nickel-plated, 32x0.100 mm	1.00 mm	PTFE	-	5.15 mm	TPE-U	-40°C to +125 °C

*customer-specific designs possible on request

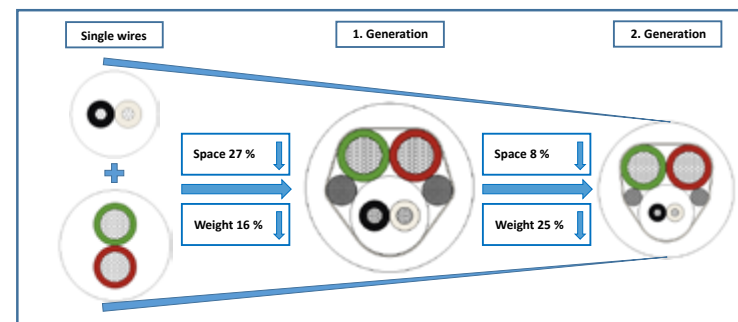
LEONI Adascar® Multifunction & EPB • Portfolio Overview

Type	Code	Number of wires	Nominal cross-section [mm²]	Conductor material	Insulation material	Shield type	Jacket material	Temperature range [°C]
Round Cables EPB	LEONI Adascar® Sensor 1xx - 19xx	2	1.50 - 2.50	Cu bare Cu tin-plated	EVA PE-X PP TPE-O	unshielded	TPE-U	-40 to +125
Flat Cables		4 - 10	0.13 - 2.50	Cu bare Cu tin-plated CuSn	EVA PE-X PP TPE-O			

*customer-specific designs possible on request

Multi-core vehicle cables for safe and reliable driver assistance systems in axle cabling.

Whether it's parking and camera systems or lane departure warning systems and stability control, installing a separate cable for each function takes up a lot of installation space. That's why LEONI combines various signal cables into multifunctional cables.



BENEFITS/PROPERTIES

- Less complicated installation
- Space and weight reduction compared to individually laid cables
- Customer-specific stripping lengths can be realized
- Application-specific division of the piping system possible (front/rear axle)
- Significant material saving potential compared to equivalent individual cables
- Excellent mechan. Properties (bending, abrasion)
- Resistance to hydrolysis
- Very good chemical resistance

APPLICATIONS

- Combination cables in the area of axle cabling
- Wheel Speed Sensors for ABS
- Electric Parking Brake
- Adaptive Damping System
- Brake Wear Indicator



LEONI Adascar® Multifunction & EPB • Product Examples

Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	Outer diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Sensor for e.g. electronic parking brake in axle cabling								
LEONI Adascar® Sensor 900	2X2.5SN	Cu tin-plated, 141x0.150 mm	2.80 mm	EVA	-	7.40 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 901	2X2.5SN	Cu tin-plated, 141x0.150 mm	2.80 mm	EVA	-	7.40 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 920	2X2.5	Cu bare, 140x0.160 mm	2.85 mm	PE-X	-	7.40 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor for e.g. electronic parking brake in axle cabling with integrated single wires for e.g. wheel speed sensor (WSS), adaptive damping system (ADS) or brake wear indicator								
LEONI Adascar® Sensor 910	2X2.5SN+ 2X0.5SN	Cu tin-plated, 141x0.150 mm Cu tin-plated, 28x0.150 mm	2.80 mm 1.65 mm	EVA	-	7.40 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 911	2X2.5SN+ 2X0.5SN	Cu tin-plated, 141x0.150 mm Cu tin-plated, 28x0.150 mm	2.80 mm 1.65 mm	EVA	-	7.40 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1505	2X2.5+3X2X0.5	Cu bare, 315x0.100 mm Cu bare, 64x0.100 mm	3.00 mm 1.55 mm	TPE-S	-	10.30 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor for e.g. electronic parking brake (EPB) in axle cabling with integrated sheath cable for e.g. Wheel Speed Sensor (WSS), adaptive damping system (ADS) or brake wear indicator (BWI)								
LEONI Adascar® Sensor 1920	2X2.5SN+ (2X0.25CUSN)	Cu tin-plated, 1274x0.050 mm (CuSn, 48x0.080 mm)	3.30 mm (1.45 mm)	PE-X (PE-X)	-	10.00 mm (4.30 mm)	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1925	2X2.5+ (2X0.5SN)	Cu bare, 504x0.080 mm (Cu tin-plated, 28x0.150 mm)	3.05 mm (1.65 mm)	PP (EVA)	-	10.00 mm (4.30 mm)	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1930	2X2.5+ (2X0.25CUSN)	Cu bare, 504x0.080 mm (CuSn, 48x0.080 mm)	3.05 mm (1.45 mm)	PP (PE-X)	-	10.00 mm (4.30 mm)	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1931	2X2.5SN+ (2X0.5SN)	Cu tin-plated, 141x0.150 mm (Cu tin-plated, 28x0.150 mm)	2.85 mm (1.65 mm)	EVA (EVA)	-	9.20 mm (4.30 mm)	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1932	2X2.5SN+ (2X0.5SN)	Cu tin-plated, 141x0.150 mm (Cu tin-plated, 28x0.150 mm)	2.85 mm (1.60 mm)	EVA (EVA)	-	9.20 mm (4.30 mm)	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor for e.g. electronic parking brake (EPB) in axle cabling with integrated sheathed cable and individual wires for e.g. Wheel Speed Sensor (WSS), adaptive damping system (ADS) or Brake Wear Indicator (BWI)								
LEONI Adascar® Sensor 1940	2X2.5SN+ 2X0.5SN+ (2X0.5SN)	Cu tin-plated, 141x0.150 mm Cu tin-plated, 28x0.150 mm (Cu tin-plated, 28x0.150 mm)	2.85 mm 1.65 mm (1.65 mm)	EVA EVA (EVA)	-	9.20 mm (4.30 mm)	TPE-U	-40°C to +125 °C

*customer-specific designs possible on request



LEONI Adascar® Multifunction & EPB • Product Examples



Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Wire diameter [nom. Ø]	Insulation material	Shield type	Outer diameter [nom. Ø o. Width x Height]	Jacket material	Temperature range
LEONI Adascar® Sensor for e.g. Wheel Speed Sensor (WSS) in axle cabling with integrated single wires for e.g. adaptive damping system (ADS) or brake wear indicator (BWI)								
LEONI Adascar® Sensor 1934	(2X0.5SN)+ 2X0.5SN	(Cu tin-plated, 28x0.150 mm) Cu tin-plated, 28x0.150 mm	(1.65 mm) 1.65 mm	(EVA) EVA	-	(4.30 mm) 9.20 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1939	(2X0.25CUSN)+ 2X0.25CUSN	(CuSn, 48x0.080 mm) CuSn, 105x0.080 mm	(1.45 mm) 1.80 mm	(PE-X) PE-X	-	(4.30 mm) 7.80 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor in axle cabling with integrated single wires for e.g. Wheel Speed Sensor (WSS), adaptive damping system (ADS), brake wear indicator (BWI), brake booster or in redundant design for autonomous driving								
LEONI Adascar® Sensor 130	4X0.35SN	Cu tin-plated, 19x0.160 mm	1.45 mm	EVA	-	4.70 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 140	5X0.35SN	Cu tin-plated, 19x0,160 mm	1.45 mm	EVA	-	5.15 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 410	4X0.5SN	Cu tin-plated, 28x0.160 mm	1.65 mm	EVA	-	5.20 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 551	5X0.5SN	Cu tin-plated, 28x0.150 mm	2.00 mm	EVA	-	7.40 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 561	6X0.5SN	Cu tin-plated, 28x0.150 mm	1.65 mm	EVA	-	6.20 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 571	7X0.5SN	Cu tin-plated, 28x0.150 mm	1.65 mm	EVA	-	7.00 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 850	4X0.25CUSN	CuSn, 48x0.080 mm	1.45 mm	PE-X	-	5.00 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1402	4X0.5	Cu bare, 64x0.110 mm	1.55 mm	TPE-S	-	6.20 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1410	4x0.5	Cu bare, 28x0.152 mm	1.55 mm	TPE-S	-	6.20 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1422	4X0.75	Cu bare, 42x0.160 mm	1.80 mm	TPE-S	-	5.80 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1755	4X0.13CUSN	CuSn, 7x0.154 mm	1.25 mm	PE-X	-	4.30 mm	TPE-U	-40°C to +125 °C
LEONI Adascar® Sensor 1790	4X0.22CCS	CCS bare, 19x0.220 mm	1.25 mm	PE-X	-	4.10 mm	TPE-U	-40°C to +125 °C

*customer-specific designs possible on request



LEONI exFC® Product range

LEONI exFC® · Portfolio Overview

The LEONI exFC® brand includes ribbon cables and extruded flat cables for cabling in vehicles with limited space requirements.

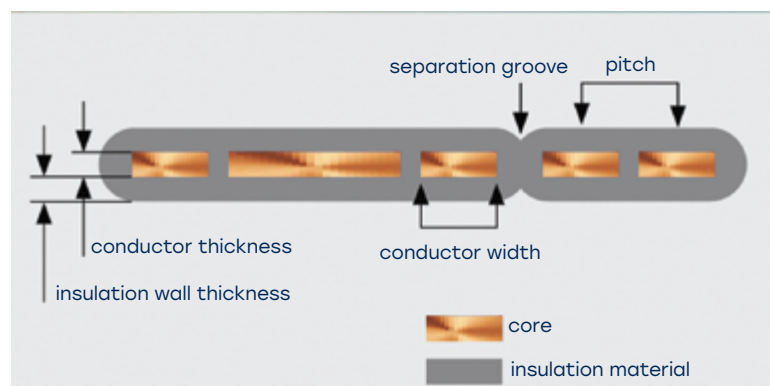
→ **exFC® APPLICATIONS:** When things get tight our extruded flat cables LEONI exFC are used. Flat rolled single wire and a variable insulation thickness are the perfect combination for wiring with small installation space.

Type	Code	Number of wires	Nominal cross-section [mm ²]	Dimensions of wire [mm]	Dimensions of wire [mm]	Jacket material	Temperature range [°C]
Flat Conductors	LEONI exFC® ...	1 - 20	-	0.80 x 0.178* - 6.00 x 0.200*	max. 70.00	PVC TPE-S TPE-E PP	-30 to +85 -40 to +105 -40 to +125
Round Conductors	LEONI exFC-Z® ...	1 - 20	0.089 - 2.50*	-	max. 70.00		

*customerspecific designs possible on request

Extruded flat cables for wiring in the vehicle.

The automotive industry is demanding reductions in weight and size in all areas. Following this trend, LEONI has developed extruded flat cables.



PROPERTIES

- Flat-milled individual wires made of copper
- Flame retardant materials
- Recyclable products
- Resistance to hydrolysis
- Insulation materials PVC, PUR, TPE
- Conductor surface in bare, tin-plated or silver-plated design

BENEFITS/PROPERTIES

- Fully automatic assembly possible
- Small space requirement
- Variable insulation wall thickness
- Cut-off grooves optional
- Variable grid
- Insulation coloring

APPLICATIONS

- Clockspring applications
- Sliding doors





LEONI exFC® · Product Examples

Code	Cable construction [Number of wires x Nominal cross-section]	Conductor design [Material, Number of Single Wires x Single Wire Diameter]	Isolationsmaterial	Grid [nom.]	Dimensions [Width x Height]	Temperature range
grid patterned cables (with round conductor) for e.g. lighting						
LEONI exFC® YW-Z 3X0.089SN-A RM 1.27	3X0.089SN	Cu tin-plated, 7x0.128 mm	PVC	1.27 mm	3.35 mm x 0.80 mm	-40°C to +105 °C
LEONI exFC® YW-Z 2X0.50-A	2X0.5	Cu bare, 19x0.128 mm	PVC	2.54 mm	4.05 mm x 1.51 mm	-40°C to +105 °C
LEONI exFC® Y-Z 3X0.35-A	3X0.35	Cu bare, 7x0.254 mm	PVC	2.54 mm	6.45 mm x 1.37 mm	-40°C to +105 °C
LEONI exFC® Y-Z 2X0.35A RM2.54	2X0.35	Cu bare, 7x0.254 mm	PVC	2.54 mm	3.91 mm x 1.37 mm	-40°C to +105 °C
Extruded flat cables (with flat conductors) for e.g. lighting, clockspring, etc.						
LEONI exFC® 12Y 4X0.80/0.178 BL RM2.54	4X0.80/0.178	Cu bare, 0.80 mm x 0.178 mm	TPE-E	2.54 mm	10.15 mm x 0.35 mm	-40°C to +125 °C

*customer-specific designs possible on request





LEONI Environmental and quality management



LEONI Environmental management

Business success and ecological responsibility are no contradiction in terms for us. As a company engaged in production around the world, we acknowledge that we share a special responsibility for safeguarding the natural essentials of life. It is our aim to strike a balance between environmental concerns and the interests of our company. Environmental protection consequently is a mandatory element of our business activity. We encourage our business partners to follow environmental guidelines comparable to our own and we advise our customers on environmentally friendly ways to handle and dispose of our products.

Based on our DIN EN ISO 14001-certified environmental management system, we ensure that our environmental policy is effectively applied.

LEONI Sustainability programme

Resource shortages, climate change and social justice are the big social and ecological challenges of our times, which LEONI is also confronting. As a global company with about 95,000 employees, as a manufacturer of wiring systems and as a major supplier in the automotive sector, we have a special responsibility and want to actively participate in shaping sustainability. That is why, in 2021, we restructured and refocused our sustainability management in that has been place since 2016 in our new ReWire sustainability programme. We are thereby making sustainability a holistic and integral part of our corporate strategy.

LEONI ReWire

Our vision is to make climate-friendly and resourceefficient mobility accessible to everyone.

Our sustainability programme is based on three focal areas. An overview of our three areas for action:

ReWire Climate

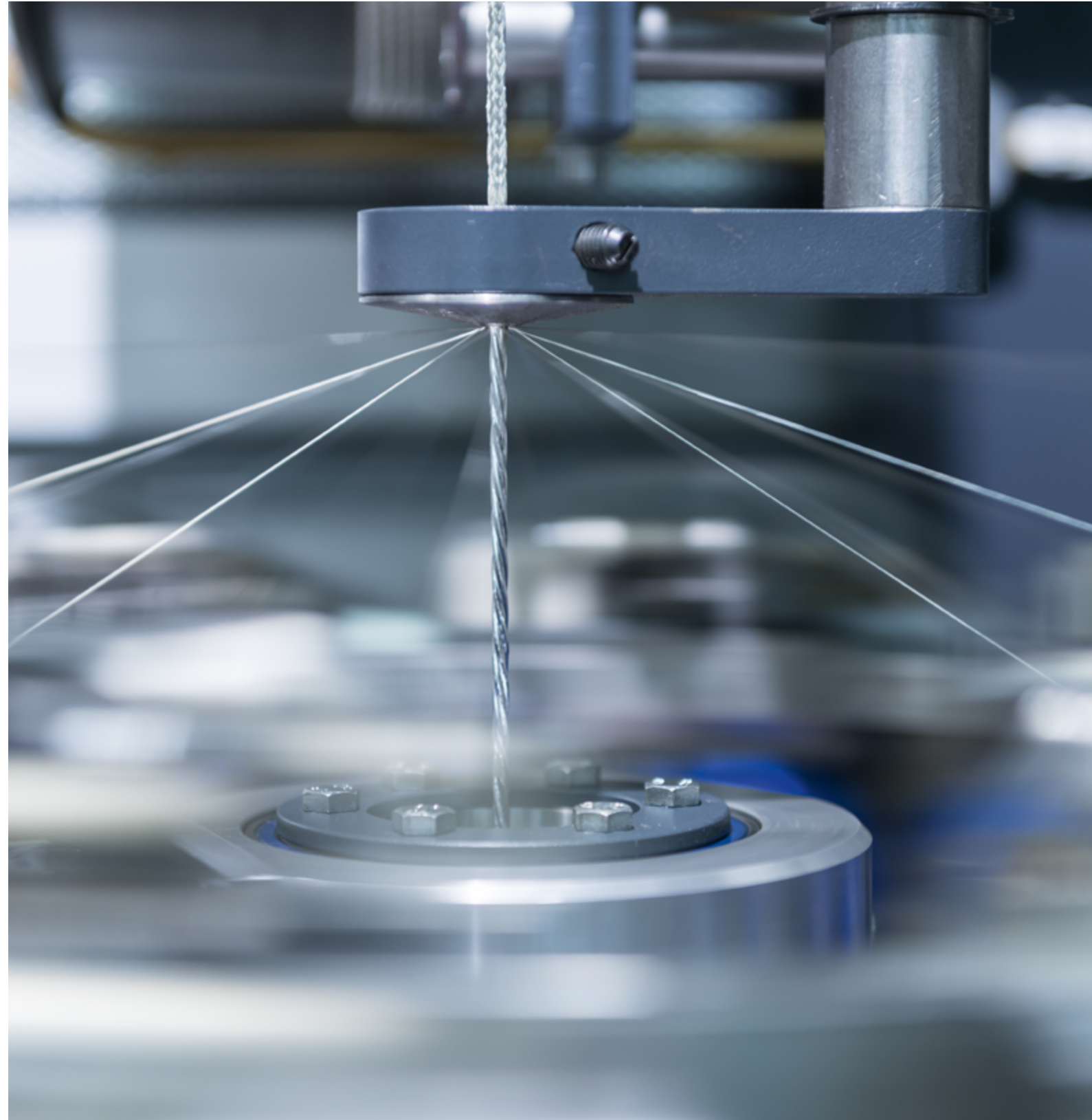
LEONI's understanding of sustainability is based on the vision of a future in which climate-friendly mobility is accessible to all humankind. LEONI is contributing to the mobility transformation with efficient use of renewable energy and environmentally friendly transport.

ReWire Resources

There is only limited supply of many natural resources, while worldwide demand for them is simultaneously rising. In view of the resultant shortage of resources, we are contributing by using materials efficiently and, going forward, by closing raw material cycles.

ReWire People

Social sustainability means good working and living conditions and health protection. We promote diversity, inclusion and the quality of life of our employees and the communities in the regions where our sites are located.



LEONI Quality management

We meet the high expectations of our automotive industry customers. The quality management systems at all the facilities worldwide of LEONI's Automotive Cable Solutions division are IATF 16949:2016 as well as ISO 9001:2015 certified.

We strive to avoid errors as much as possible in all our company's processes and have applied corresponding, preventive quality-assurance measures, which involve using such quality tools as FMEA and capability analyses that are recognised worldwide and specifically in the sector.

During our production processes, we continually measure, monitor and control process parameters and the properties of our products with state-of-the-art equipment. Regular sampling additionally ensures that we keep within the defined tolerances. This testing and monitoring directly in production guarantees rapid response to any interferences.

In accordance with the agreed customer specifications and other sets of rules that are also applicable, our checks cover the following among other factors:

- the behavior of the cable and conductors under extreme temperature conditions
- functionality after artificial aging
- resistance to fuels, lubricants and other environmental influences
- the insulation's resistance to stretching, abrasion and tension
- mechanical and electrical properties of the conductor
- flex life and torsion tolerance

The interaction of these quality-assurance measures in an integrated management system facilitates constant optimization of our processes and products, thereby meeting the related ambitious quality targets that we have set.



LEONI news

Our regularly updated information services such as the customer publication “LEONI inTEAM” keep you abreast of recent developments at LEONI and on the market. So that we can tailor our choice of topics even more closely to your requirements and interests, we would be delighted to receive your suggestions and comments.

Visit our website

www.leoni-automotive-cables.com





LEONI worldwide

Cable facilities of the LEONI group

Proximity to our customers is a core element of our corporate policy. LEONI is a dependable partner to its customers – all over the world. We also regard maintaining, as well as raising quality and service at the same high level everywhere in the world as a sign of proximity.

We support efficient operating as well as our customers' power of innovation and market position on the basis of our own international positioning, standardised methods and clearly defined processes. No matter where we apply and realise our know-how, commitment and ideas: we want confident customers around the world.



LEONI ACS world wide

Here an overview of our production plants of the Automotive Special Cables business unit:

GERMANY

LEONI Kabel GmbH, Roth
LEONI HighTemp Solutions GmbH, Halver

CHINA

LEONI Cable (Changzhou) Co. Ltd., Changzhou
LEONI Cable (Panjin City) Co., Ltd., Panjin City

POLAND

LEONI Kabel Polska S.p.z.o.o., Kobierzyce

MEXICO

LEONI Cable Mexico S.A. de C.V., Cuauhthémoc
LEONI Cable S.A. de C.V., Apaseo el Grande

TURKEY

LEONI Kablo ve Teknolojileri San. ve Tic. Ltd. Sti., Gemlik

SLOVAKIA

LEONI Slovakia spol. s r.o., Trenčianska Teplá

HUNGARY

LKH LEONI Kábelgyár Hungaria Kft., Hatvan

UNITED STATES

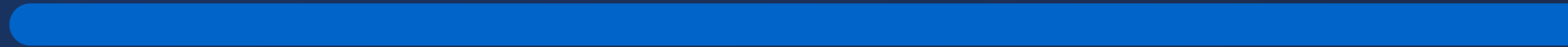
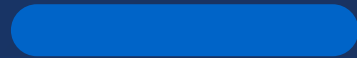
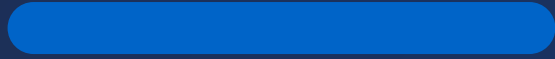
LEONI Cable Inc.

● SALES OFFICES

of the Automotive Special Cables business unit

● PRODUCTION FACILITIES

of the Automotive Special Cables business unit



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