

LEONI exFC® – extruded flat cable



Maximum performance – minimum space requirement and weight

THE QUALITY CONNECTION

LEONI

Wire • Cable • Wiring Systems



Extruded Flat Cables of LEONI

What is new about this product?

The cables consist of several parallel flat copper wires extruded with insulation material using modern production plants. LEONI exFC® offers maximum performance with minimum space requirement and weight.

LEONI exFC® is mainly used by automobile manufacturers. The first examples of specific applications are in those areas in vehicles where there is in any case very limited space for cables anyway (i.e. in the roof, doors and cockpit).

The conductor surface of LEONI exFC® is produced in non-plated, tinned or silver-plated variations in accordance with your specifications.

Flat wire can, in principle, be produced by rolling or cutting. LEONI have opted for rolled manufacturing, the advantage here being that rolled flat copper wire can be produced with naturally-rounded edges. Surface finish is also preserved during rolling (i.e. the silver layer is still intact after rolling).

For the LEONI exFC® all insulation materials can be used that are known from the extrusion of round conductors in the automotive sector. These materials offer properties which include high flammability resistance, high thermal resistance, resistance to hydrolysis, resistance to media used in the automobile industry and recyclability. The extrusion process employed for LEONI exFC® creates homogenous insulation material which guarantees longitudinal water tightness and helps avoid capillary action.

In addition to imprinting, LEONI exFC® insulation material can also be dyed or given an edging colour to identify the first conductor.

Step-by-step illustration of a LEONI exFC® ribbon connector contact element (from bottom to top):

- LEONI exFC® with laser-stripped insulation
- Crimped contact
- Finished cable assembly

Advantages of our exFC® at a glance:

- Extremely low space requirement
- LEONI exFC® can be produced with cross-sections of 0.15 – 3.86 mm² (see adjacent table), other cross-sections are available on request
- Twin-core and multi-core conductor versions possible
- Non-plated, tinned or silver-plated conductors can be supplied
- Variable insulation wall thickness and insulation materials on request to meet customer specifications
- Various insulation materials can be used, enabling the exploitation of different properties and use in a variety of areas (e.g. high flammability resistance, high thermal resistance, resistance to hydrolysis, recyclability, halogen-free cable structure, resistance to different media)
- Insulation material can be imprinted or dyed and/or given an edging colour marking to identify the first conductor



Rolled Flat Cable (extruded)

Construction description

Conductor-Ø [✓] in mm ²	Conductor width in mm	Conductor thickness in mm	max. resistance in Ω/km
0.15	1.54 (± 0.025)	0.1 (± 0.005)	120.0
0.30	1.54 (± 0.025)	0.2 (± 0.005)	58.4
0.40	4.08 (± 0.025)	0.1 (± 0.005)	44.8
0.81	4.08 (± 0.025)	0.2 (± 0.005)	21.8
0.66	6.62 (± 0.05)	0.1 (± 0.005)	27.6
1.32	6.62 (± 0.05)	0.2 (± 0.005)	13.5
1.83	9.16 (± 0.1)	0.2 (± 0.005)	9.8
2.34	11.70 (± 0.1)	0.2 (± 0.005)	7.6
3.86	19.32 (± 0.1)	0.2 (± 0.005)	4.6

✓ other cross sections on request



Conductors

Soft-annealed electrolytic copper (E-Cu58F21) conforming with DIN 40500 part (4) (non-plated), part (5) (tinned) and ASTM B 298 (silver-plated).

Insulation

- Thermally-resistant lead-free PVC
- Thermoplastic polyurethane-based elastomer
- Thermoplastic polyolefin elastomer

Insulation wall thicknesses from 0.1 – 0.25 mm are available, depending on the insulation material and cable structure involved.

Insulation materials

YW	Thermally-resistant PVC –40 °C to 110 °C
11Y	PUR (Polyurethane) –40 °C to 125 °C
12Y	TPE-E –40 °C to 105 °C
9Y	PP FR –40 °C to 125 °C
4Y	Polyamide –50 °C to 105 °C

Conductor materials

BL	Plain copper
SN	Tinned copper
AG	Silver-plated copper

Pitch

2.54 mm (standard). Other pitch dimensions are available on request.

Marking options

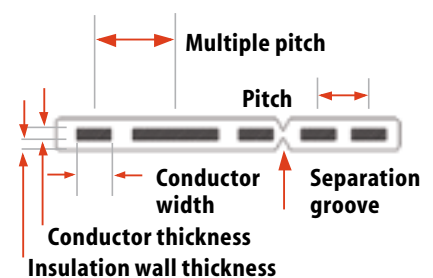
- Text imprint
- Edge marking to indicate the first conductor
- Dyed insulation material

Tolerances

- Insulation wall thickness ± 0.03 mm
- Cable width ± 0.30 mm (up to cable width of 70 mm)
- Pitch ± 0.15 mm
- Multiple pitch: ± 0.20 mm (for cable widths > 50 mm)

Separation grooves

It is possible to extrude separation grooves in the cable. These can be utilised during further processing when cutting the cable.



Example of a material designation

exFC–YW 5x1,54+3x4,08/0,2 BL
(extruded flat cable, thermally-resistant PVC insulation, 5x conductors (1.54 x 0.2mm) + 3 x conductors (4.08 x 0.2mm), non-plated copper conductor material)

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