

**CLEVERTEX<sup>®</sup>**



**Highly Conductive  
Textile Elastic Ribbons**

# Textile interconnecting elastic ribbons CleverTex® with high electrical conductivity

Elastic ribbons represent about 25 % of overall textile ribbon world production volume.

The production of this specific ribbon type does not differ practically from the production of firm ribbons, so called belts or tapes.

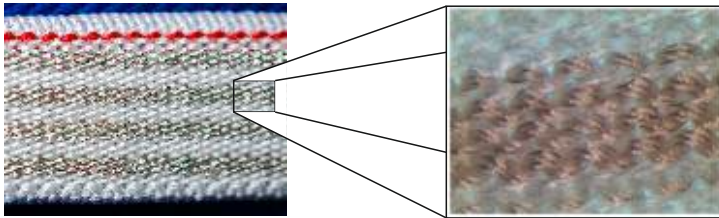
In general, ribbon elasticity is ensured by the presence of flexible/elastic components, which can be in the form of elastomer or natural rubber bands.

The quantity of woven-in elastic components and their extensibility provides resulting elastic parameters of the ribbon.

In case of our presented CleverTex® **conductive elastic textile ribbons** some of non-elastic textile components are replaced by CleverTex® conductive threads in the warp direction in order to create conductive tracks.

**In such a way, a new product has been developed which combines textile and electrical properties and offers new application potential in the field of e-textiles.**

The quantity of woven-in elastic components and their extensibility provides resulting elastic parameters of the ribbon.





## **Most important features & main advantages of CleverTex® conductive elastic textile ribbons**

- Stretchable (elastic) woven ribbon containing elastomeric fibers with integrated hybrid conductive threads.
- Ribbon width usually 8-12 mm, wider ribbons possible based on demand.
- Variable amount of conductive tracks.
- Standardized spacing of conductive tracks 2,54 mm (ribbons with 2 or more tracks)
- Possible direct integration of electronic components or interposers on stretchable textile ribbon.
- Contacting by soldering, welding, crimping

- Stable electrical resistance during stretching.
- High elasticity - stretchable up to 70 %, no change of electrical resistance.
- Endurance >9 000 cycles @ 70% stretching.
- Resistance to maintenance stress of the ribbon with integrated LEDs more than 50 washing cycles, 40 °C.
- High abrasion resistance of the ribbons.
- Medical harmlessness

### Single-conductor elastic ribbons

It is a flexible ribbon with one wide conductive track composed of several individual electrically conductive hybrid threads. This ribbon can be used as a collecting electrode (bus-bar) for textile heating elements. If necessary the width of the conductive track can be variable depending on the amount of conductive threads implemented.

Code: 700 668 121		 
Total width	12 mm	
Width of conductive track	6 mm	
Conductive material	12/88 PES/Cu <sub>2</sub> Ag wire	

### Multi-conductor flexible ribbons

This type of the ribbon is a "multi-conductor" ribbon type, where multiple electrically separated conductive tracks, usually 2 - 4, are integrated in the ribbon.

Such ribbons can then be used as a replacement of litz-wires and buses in e-textile products. A huge advantage of this solution is the ability to create turnoffs and tree structures as the conductive tracks are accessible from one or both sides of the ribbon.

Code: 700 666 121		 
Total ribbon width	12 mm	
Conductive material	12/88 PES/Cu <sub>2</sub> Ag wire	
Width of each conductive track	1.5 mm	
Spacing of conductive threads	2.54 mm	

**The design and topology of elastic ribbons with conductive tracks realized by means of hybrid conductive threads is protected by Czech patent No. 308 614 "Conductive elastic woven ribbon".**

- **Production and especially application of flexible or rigid conductive ribbons makes possible to raise the integration of electronic components into textiles to a significantly higher level.**
- **Conductive ribbons can not only serve as carriers for individual electronic components or entire electronic modules, but they can also be used as connecting wires or bus-bar.**
- **Wide variability and customization of conductive ribbons - they can be tailored exactly to the required parameters, i.e. it is possible to change the current carrying capacity, change the electrical characteristics of conductive elements, amounts of conductive elements, spacing of conductive paths etc.**
- **High resistance to maintenance stress allowing to achieve a long life of e-textile end products.**



## Application areas

Our CleverTex conductive textile ribbons offer a wide range of applications, especially in the field of e-textiles and wearables.

The electrically conductive flexible ribbons can advantageously be used as bus bars or as "textile conductors" wherever a variable length of conductive element is required without the influence on their electrical resistance during the change in length. Moreover it is possible to place electronic components such as LEDs, sensors or connectors on these ribbons. Flexible conductive ribbons thus enable an easy and reliable way of implementing e-textiles.

## Possible contacting methods:



**CLEVERTEX®**  
SPECIAL, PROTECTIVE AND FUNCTIONAL TEXTILES



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