

Silver plated threads for  
technical embroidery and sewing

**MADEIRA**

# HC conductive threads

## Switch on the Magic!



Threads | Stabilisers | Accessories



# SMART TEXTILES

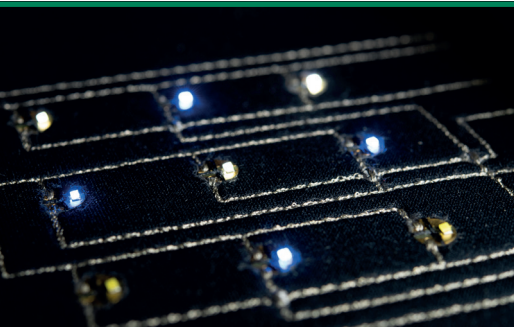


*Motherboard connected with HC thread  
©Photo: University of Applied Science Niederrhein; R.Nolden*

Smart textiles are intelligent garments realised by integrating functionality directly into the fabric. The key to stable operation is the electrical circuitry.

## HC quality threads for versatile smart connections

- Flexible textile circuits with **free geometry**
- **Connecting electronic components**
- Lighting applications **with LED sequins**
- **Textile-based sensors and actuators**
- **Heating**



*Textile circuitry with LEDs*



*Embroidered sensor*

# CONNECTIONS

## HC premium highly conductive threads

Skin friendly – Antibacterial – Antistatic – Biocompatible

### HC 40

100% Polyamide  
dtex 117x2

Resistance: < 300  $\Omega$ /m

75/#11 - 80/#12

1 x 2500 m  
Art. No. 410 0000

SAMPLE: 1 x 250 m  
Art. Nr. 410SMP

### HC 12

100% Polyamide  
dtex 235x2

Resistance: < 100  $\Omega$ /m

100/#16

1 x 1000 m  
Art. Nr. 420 0000

SAMPLE: 1 x 150 m  
Art. No. 420SMP



OEKO-TEX®  
CONFIDENCE IN TEXTILES

STANDARD 100  
94.0.6007 HOHENSTEIN HTTI

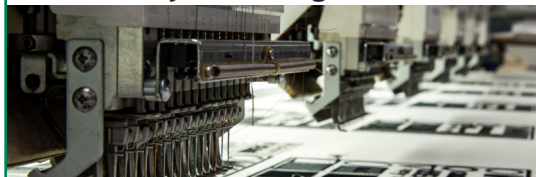
Tested for harmful substances,  
[www.oeko-tex.com/standard100](http://www.oeko-tex.com/standard100)

Use HC thread for low voltage applications up to 9V only!

We can only guarantee the properties of unused thread. Please make sure that your final applications are thoroughly tested and compliant to your local laws and regulations. We recommend to carefully test with prototypes to ensure that the thread and designs meet your technical and functional requirements.

# How to work with Madeira HC

## Embroidery and sewing



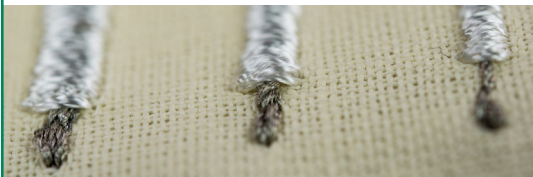
### Embroidery machines:

Best results with 500–700 stitches per minute

### Sewing machines:

Double lock stitches up to 3,000 stitches per minute (when using HC top and HC bobbin thread or only HC bobbin thread, not working with HC top thread only).

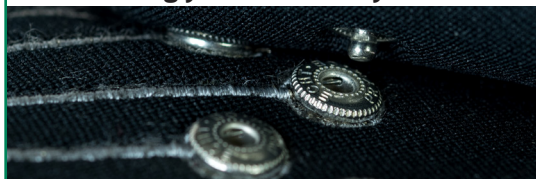
## Electrical resistance



The resistance can be altered to meet your needs.

- The more material, the lower the resistance
- Lowest resistance per metre with top and bobbin thread or bobbin thread only
- **Most robust circuitry when using both HC top and bobbin thread at the same time**

## Connecting your HC circuitry



- With the embroidery machine (10+ stitches of HC top thread)
- Mechanically by crimping
- With conductive glue
- Create detachable elements with **conductive press studs**

## Washing recommendations



- The washability of the finished garment depends on the electrical components, the way it has been embroidered and the washing process. For HC threads, use the following guidelines:
- Protect the circuitry with insulating thread or waterproof film
  - Wash up to 30 °C/86 °F without bleaching or acid agents
  - Always use a laundry bag

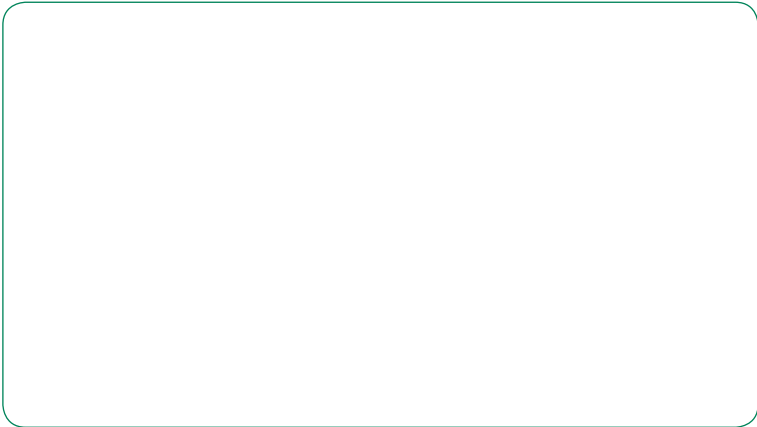
Start with smart textiles using HC conductive threads:

## [madeira.de/smart-textiles](https://madeira.de/smart-textiles)

- ✔ discover inspiration and examples
- ✔ check for available prototypes/demonstrations
- ✔ get the technical data sheet
- ✔ get DST files for testing

We are happy to support you.

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# MADEIRA



# Creating smart textiles is teamwork

We are happy to supply you with our premium-class conductive threads. Creating smart textiles is a great business opportunity in a quickly developing market. With the right team, you can get started in no time.

## MADEIRA

- Conductive and insulating threads
- Embroidery supplies

## Supplier of technical components and accessories

- LED sequins
- Chips
- Software
- Etc.

## Design and calculation of electrical circuitry/ components

- Electrotechnician or engineer
- Technical embroidery specialist and/or puncher
- Interactive textile designers or universities of applied science can provide development support



## IT

- For interactive use, you can connect your smart textiles to other devices or create apps to control them

## Production

- Skilled embroiderers and/or sewing technicians
- Industrial embroidery machines, with or without a sequin tool, or sewing machines, depending on your needs

We are happy to recommend you suitable partners. Don't hesitate to contact us.