## Developing innovative solutions

Example: hearing aid substrate for Phonak AG

### The challenge

- **Miniaturization**
  - Weight
  - Space/volume
  - Fit-to-design construction
- **Reliability and functionality**
  - Fault-resistant
  - Data transfer bandwidth for large data volumes
  - Remote control
- **Stability**
  - Resistant to external influences and environmental factors
- **Cost optimization**

### Requirements

- **Base material**
  - Innovative high-tech materials: durable and flexible
- **Precision production**
  - High-performance, high-precision presses
  - Maximum cleanliness
  - Guaranteed process quality
  - Preventative maintenance with dedicated monitoring of chemical baths
  - Selective plating processes
- **Traceability**
  - Guaranteed homogeneity and consistency from batch to batch
- **Partnership**

### The Cicor solution

- Multi-layer, flexible, ultrathin polyimide PCB
- Fit-to-design thanks to miniaturization
- Laser direct imaging photolithography
- Electronic and optical testing
- Absolute fault resistance
- Large bandwidth for data transfers
- Guaranteed product lifecycle support

### Benefits for Phonak

- Everything – from idea to prototype to series production – from a single source
- Maximum security thanks to guaranteed quality
- Technically advanced
- Optimized cost-benefit ratio

### …..for the end-user

- Optimum functionality
- Operational reliability
- Resistance to external influences and environmental factors
- Maximum benefits but comfortable to wear thanks to miniaturization

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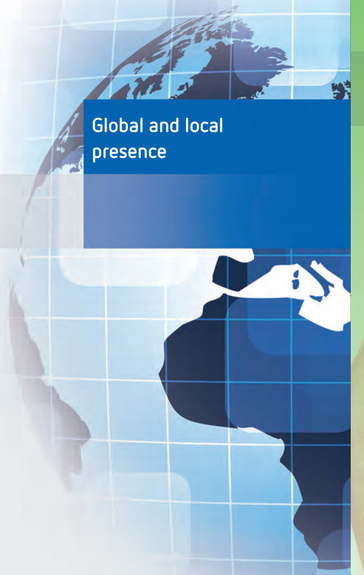
## Global and local presence



## Cicor – the dynamic, high-growth technology group

**Cicor worldwide**

Cicor is a Swiss group of leading companies in the electronics industry. It is organized into four divisions: Printed Circuit Boards (PCB), Microelectronics (ME), Electronic Solutions (ES) and Asia. The group's companies provide complete outsourcing services and a broad range of technologies for the manufacture of highly complex PCBs, hybrids and electronic modules. With around 1200 employees in 11 production sites in Switzerland and abroad, and more than 20 representative offices worldwide, the group supplies high-quality custom-made solutions to its clients all over the world.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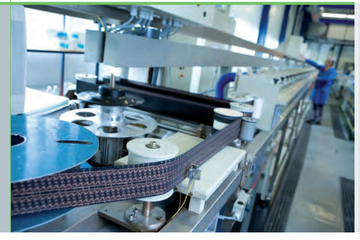
## Successes in the medical sector

From PCB to multifunctional component
Hearing aids, Phonak AG, Switzerland

## Solid partnership for the future

**Cicor Printed Circuit Boards and Phonak AG are working together to develop hearing aids that set new standards in miniaturization and performance.**

Phonak AG, a member of the Sonova Group, based in Stäfa, Switzerland, has been developing, producing and selling technologically advanced hearing aids and wireless systems for more than 60 years. Phonak offers a full range of products providing digital hearing and supplementary wireless solutions. With its worldwide presence, the company pursues innovation and sets new standards in miniaturization and performance.

## Leading innovator

Phonak is a leading innovator within the industry and one of the major drivers of the rapid development of hearing aid technology. A constantly growing team of researchers, global cooperation with universities, and investment in research and development equivalent to six or seven percent of turnover ensure that Phonak always stays one step ahead of the market on trends like miniaturization, wireless connections, acoustic quality, ergonomics, design and user friendliness. All the central technical components of its hearing systems are made in Switzerland, including by Cicor Printed Circuits Boards in Boudry, Switzerland.


«With our creative approach to overcoming technological barriers, we produce solutions that help people to hear, to understand and to experience the rich world of sounds. To do this we need the right partners – from the idea, to the technology, to the finished product.»
Phonak Switzerland

## High demands – customized

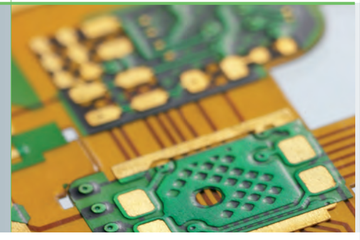
Technical requirements and client needs are covered in one solution: Modern hearing aids should be as small as possible, reliable, fault-resistant and cost-optimized. The challenge for Cicor Printed Circuit Boards when developing the PCB lies in choosing innovative, highly durable and flexible base materials. This requires development support, extreme precision in production, reliability, a high level of expertise and the ability to guarantee traceability. Quality, flexibility and delivery service are all essential.

Cicor Printed Circuit Boards has comprehensive expertise in flexible substrates, multilayer boards (MLBs), high density interconnects (HDIs) and reel-to-reel technology. Working closely with Phonak, the industry-leading company develops and produces solutions that meet the highest standards – and even exeed them.

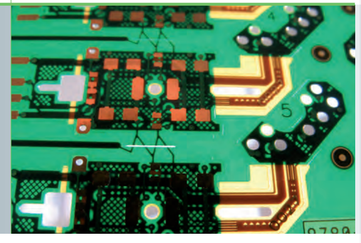
«Thanks to over 40 years of experience and our comprehensive expertise, we are well in a position to develop and produce high quality solutions to meet the most complex challenges – from the idea, to the prototype, to bulk production.»
Cicor Printed Circuit Boards

# Cicor Printed Circuit Boards

## From simple PCB to multifunctional component



The result is a 4-layer solution with an overall thickness of less than 200µm. Multi-layer, flexible polyimide PCBs are used. For the actual manufacture, Cicor Printed Circuit Boards uses panel fabrication, laser technology and laser direct imaging photolithography. It also carries out electronic and optical tests. With its high level of development expertise and its product lifecycle support, Cicor Printed Circuit Boards guarantees optimum end-to-end customer care – from the idea, to prototypes, to bulk production.



The 4-layer PCB offers exceptional functionality, stability, fault-resistance, quality, safety and, not least, miniaturization. It can also cope with very high loads and is very flexible and reliable – even when dealing with large volumes of data.

This is how we develop technology and products – in partnership. For the future.