Bringing together experts in high-reliability PCB technology
Progress through PCB technology

At DYCONEX, we ensure that we have the right knowledge, quality, reliability and traceability so that our customers can fully rely on our technologies and our processes – all while complying with regulatory requirements.

**Products**

**DISCOVERING A WORLD OF EXCELLENCE**

DYCONEX manufactures every type of leading-edge PCBs and organic substrates with the highest degree of commitment and flexibility. For this, we rely on state-of-the-art equipment, cleanroom technology and highly skilled professionals. Producing PCBs at DYCONEX, full traceability is guaranteed from the lot level down to the individual print on a panel as well as for all base materials used.

**FLEX & FLEX RIGIDIZED**

DYCONEX has full mastery of cutting-edge multilayer FPC design requirements and the most demanding quality standards applicable to the markets.

- Ultra-HDI multilayer flex PCBs
- Ultra-fine line technology
- 3D miniaturization
- Filled and stacked microvias
- Buried, blind, staggered and stacked vias
- Profiles, fold lines, cavities and grooves

**RIGID-FLEX**

DYCONEX has more than two decades of rigid-flex technology experience. Today we focus on state-of-the-art solutions, seeking the highest reliability and smallest footprints.

- Ultra-HDI multilayer rigid-flex PCBs
- High-grade 3D miniaturization
- Sequential and parallel build-ups
- Versatile combinations of base materials

**RIGID**

Proven high-reliability multilayer rigid technology from DYCONEX is applied in Class III implantable medical devices, defense and aerospace applications.

- Ultra-HDI multilayer rigid build-ups
- Buried, blind, staggered and stacked vias
- Thermal management solutions including various metal-based heat sinks
- Profiles, cavities, cut-outs and castellations

**PACKAGING SUBSTRATES**

At DYCONEX we provide advanced organic packaging substrates and interposer solutions for small runs and prototyping.

- Substrates for BGAs, CSPs, SiPs, MCMs, folded packages and smart cards
- Stacked vias and via-in-pad
- Flip chip pad pitch down to 150 μm
- Die cavities
- LCP substrates for HF applications up to 110 GHz

**ENABLING TECHNOLOGIES**

Innovative thinking and advanced technology development are an integral part of our corporate culture. That mindset not only enables DYCONEX to meet today’s most demanding customer requirements but also to prepare for upcoming PCB challenges. Hereby we focus on:

**ULTRA-FINE LINE TECHNOLOGY**

- Microvia technology
- Via stacking and filled vias
- LDI technology
- LDI imagable solder masks
- Thin materials
- Sputtering

**LIQUID CRYSTAL POLYMER (LCP)**

- Multi-layer technology
- Ultra-fine line technology
- HF packaging flex substrates
- Mixed materials prints (LCP/PF/P4)

**MATERIALS**

High performance base materials
- Imagable resistive foils
- Bioinert conductors

**EMBEDDED COMPONENTS**

- Embedding in flex PCBs
- Liquid embedding

**ENGINEERING SERVICES**

Only close cooperation with our customers, from the early R&D phase until the product phase-out, can ensure a technically optimal and cost-optimized PCB solution. That’s why DYCONEX offers comprehensive engineering services that accompany customers throughout the product life cycle.

**DESIGN & LAYOUT**

- Feasibility study support
- Consulting on build-up and materials
- Cost optimization support
- Form factor and weight optimization
- Technical training

**PROTOTYPING**

- R&D partnership
- Engineering support
- Wrap-up on first prototype run

**PRODUCTION & LOGISTICS**

- Hand carry
- Express shipments
- Buffer stock
- Consignment stock
Adding value for high-reliability industries

With its traditional, strong focus on the healthcare sector, DYCONEX understands the unique needs and characteristics of high-end, high-reliability customers. We manufacture under stringent conditions and according to ISO 13485 standards.

**Medical technology**

**ACTIVE MEDICAL IMPLANTS**
We have been delivering high-end PCBs for Class III life-sustaining active implants for more than 15 years. Being a reliable partner is imperative when serving this challenging market. DYCONEX strictly follows your design rules and specifications. Detailed documentation and 100% process and material traceability are inherent aspects of this business.

- Pacemakers
- Defibrillators
- Implantable monitors
- Neurostimulators
- Implantable infusion pumps

**HEARING AIDS**
We supply high-end PCBs to market and technology leaders in the hearing aid industry. From development to prototyping through serial production, customers rely on ultra-HDI flex and rigid-flex PCB solutions from DYCONEX.

- BTE, ITE, ITC, CIC
- FM receivers
- Cochlear devices
- Hearing support devices
- Miniature components for hearing instruments

**MEDICAL IMAGING**
Substrates for medical imaging applications are technically extremely demanding. Ultra-fine line/flex build-ups, ultra-fine pitch transducer pad arrays and high connection pad densities characterize these applications. Moreover, maximum durability and long working life have to be ensured.

- Ultrasound probes
- X-ray sensor panels
- CT scanner and MRIs
- IVUS catheters

**AEROSPACE & DEFENSE**
Having its origins in the Swiss defense industry, DYCONEX has a genuine understanding of the challenging high-reliability characteristics and requirements of aerospace & defense electronics. We manufacture according to various industry standards and apply dedicated testing.

- Avionics
- Radar technology
- Satellites
- Missiles
- UAVs
- C41 applications

**TELECOMMUNICATION**
DYCONEX PCB solutions address the increasing speed and density requirements of the telecommunications industry. Our unique technology portfolio ranges from advanced material sets and dedicated design features through to the production of PCB trace antennas.

- Optical transceivers
- RF switches
- High-speed transmission control units
- Antennas

**INDUSTRIAL**
With a proven track record in various industrial segments, DYCONEX understands and responds to customers’ varying needs throughout their products’ life cycle. To bring added value to our customers, we provide the highest degree of flexibility to quickly adapt to their changing requirements.

- Printing equipment
- Sensor solutions
- Micro motors
- Measuring equipments
- Control technology

**OTHER MARKETS**
Our technological expertise and the high level of quality assurance are reflected in all DYCONEX PCBs. These factors make us the partner of choice for any high-tech industry in the electronics sector.

- Swiss electronic watches
- Full-body scanners
- Scientific applications
- High-end computing
- Transportation
Years of experience working in the field of life-sustaining medical devices and high-end industrial projects have led to our uncompromising quality management system. Our goal is to be an extremely predictable partner for our customers, delivering the highest PCB quality and reliability.

In order to meet this challenging expectation, we don’t simply inspect for final product quality; instead, we design it into our business and production processes.

**QUALITY TOOLS**

- The implementation of advanced quality tools and techniques provides accountability and is an essential ingredient in our effort for sustainable improvement.
- Complete process traceability for every single PCB
- First article inspection
- 8D reports
- DOE, SPC and measuring system analysis (MSA)
- Six Sigma methodology
- Change management
- IQ/OQ/PQ validation methodology
- Corrective and preventive action (CAPA) process
- Customized inspection concepts and reports

**INSPECTION & TEST**

- Enabled through sophisticated equipment and skilled professionals, we are determined to supply only high-reliability, Swiss quality solutions to our markets.
- 100% electrical testing and visual final inspection
- Automated optical inspection
- Micro-section control
- Interconnect stress test (IST)
- Bondability analysis
- Ionic contamination measurement
- X-ray inspection
- FPC bending testing
- Scanning electron microscope

**APPROVALS & STANDARDS**

- Our approvals and quality management system demonstrate the ability to provide PCB solutions that consistently meet applicable customer and regulatory requirements.
- ISO 9001 & ISO 13485 certified
- Manufacturing and testing according to IPC standards and customer-specific requirements
- Certified Six Sigma Black Belts & IPC qualified employees (CIT, CIS)
- RoHS and REACH compliance

**WHY CHOOSE DYCONEX?**

**TECHNOLOGY LEADERSHIP**

- Delivering state-of-the-art interconnect technology with the highest degree of production flexibility
- Significant investment in future technologies enabling your next generation development
- Part of the Micro Systems Technologies (MST) group with a unique set of technical capabilities

**GLOBAL LEADER IN MEDICAL FLEX PCBs**

- Long-term experience in high-reliability PCB manufacturing for active medical implants, hearing aids and medical imaging applications

**HIGH PERFORMANCE IN QUALITY AND RELIABILITY**

- Quality systems and culture derived from Class III life-sustaining implant, aerospace and defense markets

**CONSULTING AND TECHNICAL SUPPORT**

- Design for manufacturing, design-to-cost, design-to-performance
- Prototyping services

**PRODUCTION FACILITY**

- Leading-edge production and testing
- Well organized manufacturing environment

**STRONG FINANCIAL PROFILE**

- Privately owned, long-term perspective
YOUR RELIABLE PCB TECHNOLOGY PARTNER

Based in Switzerland, DYCONEX AG has been a provider of sophisticated, high-reliability PCBs for 50 years. As one of the true pioneers in the industry, DYCONEX has continuously applied the latest technology to derive innovative technologies for our markets.

We provide a competitive edge for your business through our high-end interconnect expertise and we are an extremely reliable and predictable partner who can deliver products and services with premium quality.

Due to our long-term dedication and expertise, DYCONEX has earned a solid reputation for being a technology leader and the partner of choice for providing leading flex, rigid-flex and rigid interconnect solutions.

DYCONEX is ISO 9001 & 13485 certified and a company of the MST group.

MICRO SYSTEMS TECHNOLOGIES

The Micro Systems Technologies (MST) Group provides innovative solutions from concept to volume production for medical devices, in particular for active implants, which represent a special application area for MST products. In addition, other technologically advanced industries that demand exceptional performance and the highest level of reliability rely on the expertise of the MST Group. Its synchronized operating facilities – located in Switzerland, Germany and the United States – allow MST to be active worldwide and maintain global business relationships.

Just some of the products and services that the MST Group currently offers include: HDI/microvia PCBs, ceramic substrates, electronic module design and manufacturing, advanced assembly and semiconductor packaging technologies as well as batteries and hermetic feedthroughs for medical implants.

The MST Companies:

DYCONEX AG
LITRONIK Batterietechnologie GmbH
Micro Systems Engineering GmbH
Micro Systems Engineering, Inc.