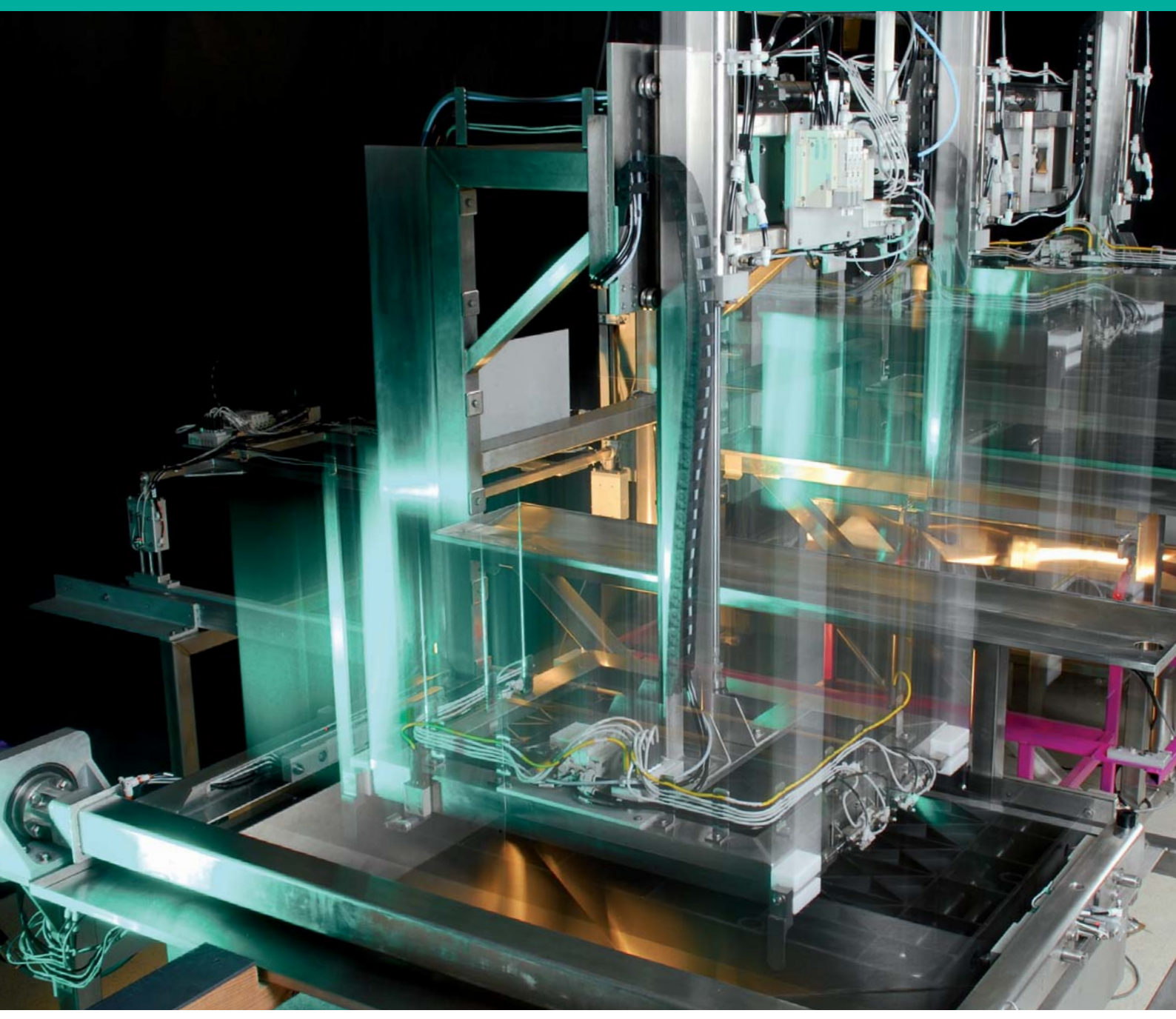
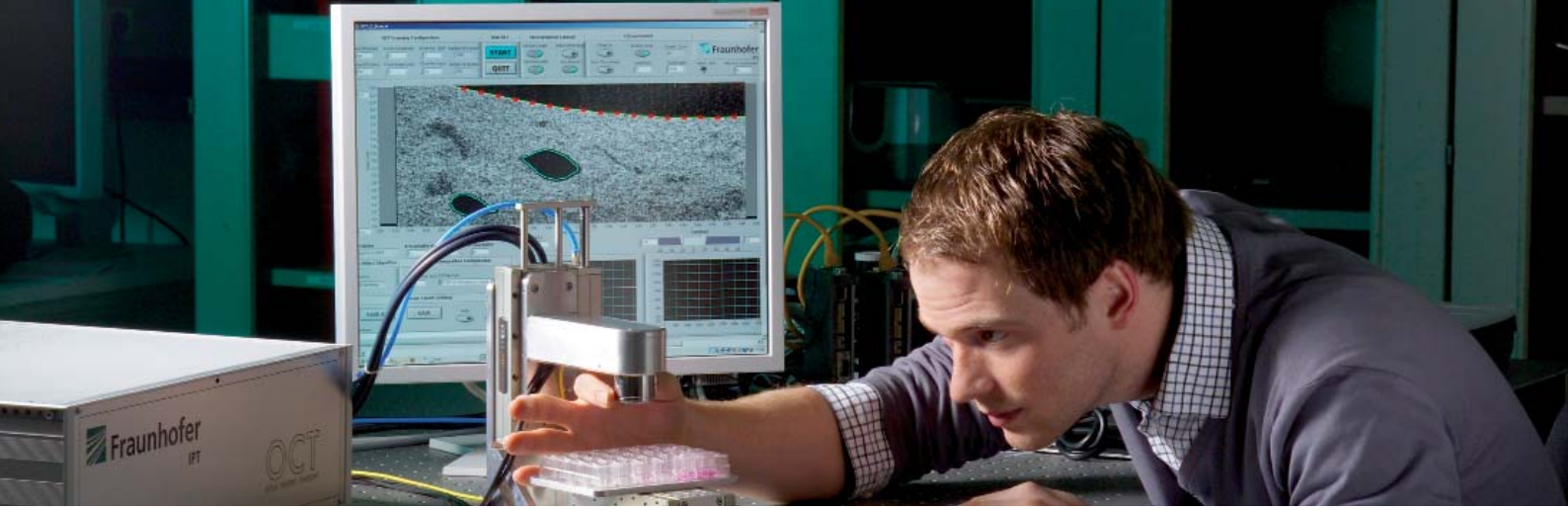
Fraunhofer

PROVIDING TECHNICAL SOLUTIONS FOR BIOLOGICAL PROCESSES AND MEDICAL DEVICES





ABOUT LIFE SCIENCES ENGINEERING

The joint Life Sciences Engineering business unit of Fraunhofer IPT and CMI has offices in Boston, MA, USA and in Aachen, Germany. We provide applied research, advanced engineering designs, and build custom prototype devices to fully functional instruments and automation systems. We have experience in many fields of production technology including process technology, production machines, technology management, metrology, and quality management.

Due to our access to the Fraunhofer Gesellschaft's large industrial expert network and to our locations at the prestigious Boston University (BU) and RWTH Aachen University campuses, we possess the know-how, infrastructure, technical resources and customer proximity that are required to fulfill challenging application requirements. In our laboratories and fabrication facilities we can realize comprehensive solutions and develop new manufacturing technologies, customized stand-alone electromechanical products, and turnkey automation systems. Our clients comprise industrial companies of all sizes and all sectors of industry.

The Fraunhofer IPT and CMI's Life Sciences Engineering business unit addresses the distinctive needs and constraints at the intersection of life sciences and engineering. Through collaborations with academic institutions, such as our formal Alliance with Boston University in the area of Medical Devices, Diagnostics, and Instrumentation, we work together closely with scientists, engineers, and clinicians.

Our core strengths in the areas of "Medical Instruments and Devices" and "Automation of Biological and Biomolecular Processes" provide a unique resource for your industrial R&D, design and automation needs.

ABOUT THE FRAUNHOFER-GESELLSCHAFT

Research of practical utility for private and public enterprises lies at the heart of all activities pursued by the Fraunhofer-Gesellschaft. Having developed and leveraged revolutionary technologies such as the MP3 format, its services are solicited by customers and contractual partners in industry, the service sector, and public administration.

At present, the Fraunhofer-Gesellschaft maintains more than 80 research units worldwide. The majority of more than 17,000 staff are qualified scientists and engineers, who work with an annual research budget of € 1.7 billion ($2.2 billion) (2010)

COOPERATIONS, CLIENTS AND PARTNERS

Our R&D services range from strategic background research and bilateral industrial projects to the coordination of industrial project consortia in, for instance, joint projects funded by the EU or NIH. Throughout our work, we focus on generating practical solutions that can be directly implemented in industry. Depending on the problem and its complexity you can choose from several possibilities to cooperate with us. The most common collaboration forms are:

- Direct project contracts: After an all-encompassing analysis of your problem we prepare a fixed price quote for you.
- Partner in publicly funded projects: In close cooperation with all partners of the consortia, we work on specific aspects within the publicly funded project. We have extensive experience with many different kinds of funding schemes and support you during the preparation of the proposal and the acquisition of competent partners from our large industrial expert network.
- Subcontractor in publicly funded projects: We work for you as subcontractor on specific aspects in your publicly funded project. During proposal writing as needed, we support you in choosing the most adequate funding scheme and the preparation of the proposal. After the funding approval, we offer you a fixed price quote to be subcontracted directly.
- Coordination of publicly funded projects: Based on your long-term development targets, we coordinate the preparation of proposals and the realization of publicly funded projects. We take the complete responsibility for planning and the project management work within the project.

OUR SERVICES

Our service portfolio offers a wide range of professional expertise and technologies. We offer our customers integrated solutions comprising the whole value chain, ranging from applied product and process R&D to production ramp-up and commercialization. With more than 350 highly qualified professionals located at the United States East Coast and in the heart of Central Europe, we possess the experience, facilities and location which are required for the development of unique and successful solutions.

Our core strength is the application of advanced engineering to biological problems. We have numerous high precision technologies for developing solutions for complex machining, handling, and process tasks that allow us to prototype unique solutions that we design. Utilizing the resources at our disposal, we develop customized, integrated products and processes, employing the latest computer-assisted procedures and methods.

Relying on this platform of core strengths, we specialize in two areas of the Life Sciences Sector: Automation of Biological and Biomolecular Processes and Medical Instruments and Devices

TO ADVANCE THE STATE OF MEDICINE THROUGH THE INTEGRATION OF ENGINEERING TECHNOLOGIES AND MEDICAL SCIENCE

	Biotechnology	Medical Engineering	Diagnostics
Automation	• Automated tissue engineering • Vaccine production in plants • Automated stem cell factory • Automated tissue processing	• Automated (micro-) assembly • Welding of suture material • Automated manufacturing of fiber Reinforced plastic	• Assay design for automation • Automation of biomolecular processes • Point-of-care diagnostics
Devices	• Handling solutions for cells and tissues • Micro-structured surfaces for cell culture research • High throughput sample preparation	• MRI safe applicators and guide wires • Optimal design of ultrasonic surgery compounds • Design of novel surgical tools with integrated multiunctionality	• Microfluidic design • Lab-on-a-chip technologies • Single molecule biosensors
Metrology	• Sensors for cell cultivation processes • Non-invasive monitoring technologies • Automated quality assessment	• Development and application of OCT devices • Optical sensors for cancer diagnostics • Interferometry of microstructures	• Assay development for novel biosensors • Development of detection systems and instruments • Optical and mechanical high precision lab-on-a-chip interfacing
Manufacturing	• High precision technologies for surface modification • Custom designs for manufacturable consumables	• Implant manufacturing (turning, milling, grinding) • Surface treatment (laser texturing, polishing, coating) • Design for manufacturing	• Precision micro-machining of macro-and micro-components • Chip manufacturing: mold making and replication in glass or polymers(hot embossing, injection molding), chip bonding

Life Sciences Engineering

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