INTERNATIONAL REFERENCE AND DEVELOPMENT CENTRE FOR SURGICAL TECHNOLOGY

supported by KARL STORZ
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The IRDC combines the latest high-tech medical technology, patient safety and convenience with the particular demands of the special surgical disciplines and the building. We have placed high importance on a very efficient implementation. I believe we have achieved it.

Felix Aries

The IRDC is the product of many years of research and development between KARL STORZ and outstanding engineers such as Prof. Dr. Tim Lüth in the field of auto-mated surgical techniques. In many respects, the IRDC is breaking new ground. We hope this allows us to introduce the technologies and surgery techniques developed by us to as many colleagues as possible.

Gero Strauß

The IRDC unites the KARL STORZ systems and competences in one overall concept. The center’s particular challenge is the integration of micro instruments and high-tech support systems. To meet today’s challenges, all developments are undertaken on site in close collaboration with surgeons and in line with established KARL STORZ principles.

Dr. h. c. mult. Sybill Storz
ILLUSTRIOUS LEIPZIG AND ITS SPECIAL RELATIONSHIP WITH KARL STORZ

City of music, books and trade shows – Leipzig goes by many names. This is where important cultural icons such as Johann Sebastian Bach, Johann Wolfgang von Goethe and Felix Mendelssohn Bartholdy lived and worked. However, it has primarily been the trade shows that have set the pace of life in the city. The peace prayers in the Nikolai Church and the Monday marches in 1989 made history, triggering the peaceful revolution and German reunification. With a population of 500,000, Leipzig is considered one of Germany’s most promising cities today.

Home to Science and Surgery

The Alma Mater Lipsiensis, the University of Leipzig, was founded in 1409 and is the second oldest continuously operating university in Germany. The chair of surgery and anatomy was established in 1580. Today, Leipzig is once again an important center for medical education, world-class research and clinical practice.

Leipzig and its special relationship with Dr. Karl Storz

After completing his three-year apprenticeship as an instrument-maker, Dr. Karl Storz decided to go to Leipzig in 1928. He became a merchant with Frenzel, a trading house for medical technology, where he came to know and appreciate the high quality of the products from the instrument-maker C. G. Heynemann.

At the age of 35, Dr. Karl Storz returned to French-occupied Tuttlingen in 1945 and, with the help of his father, founded today’s KARL STORZ.

»For me, my position in Leipzig was a stroke of luck. we sold practically all endoscopes from all companies in existence at the time. My work was varied and I really enjoyed it. And it got me started. After all, we had an instrument workshop at home. I knew exactly what I was doing«

Dr. Karl Storz*  

*In an interview with H. Mainusch on April 3, 1996
The history of the IRDC

Transforming surgery with medical technology

One of the most exciting areas of innovation in modern surgery is medical technology, using micro device technology, information technology, electrical engineering, electronics, sensor technology etc.

The growing range and versatility of medical device technology also places greater demands on surgeons in all areas of their daily activities. Today, automation in surgery has a positive connotation. Special emphasis is placed on the safety and efficiency of treatments, making them more comprehensive.

For more than 10 years, KARL STORZ has been part of this development in virtually all areas through its own innovations and research collaborations. A large number of tests and trials were carried out for products such as the NPU mobile navigation system or the safe training systems (STS) for petrous bone and specialist surgery, giving rise to numerous publications.

It was time to take the next step

The International Reference and Development Center for Surgical Technology (IRDC) aims to combine all products and prototypes of automated surgery developed by KARL STORZ and partners into one functioning system. The Center provides a basis for presentations, evaluations, training and the further development of individual building blocks into one large entity.

THE IRDC IS THE LOGICAL STEP FORWARD IN A LONG-TERM COLLABORATION
The KARL STORZ overall concept

Why are surgical workplaces still purchased in individual components?

The operating room is the most important and also the most complex component of a hospital. Apart from the need for comfort and convenience, patients primarily come because of the services provided. Yet operating rooms are still purchased as individual components and planned, built and maintained by a vast number of companies. This leaves the surgical workplace open to chance and temporary measures.
A COMPLEX MOSAIC OF NUMEROUS INDIVIDUAL TASKS

At the IRDC in Leipzig, KARL STORZ in conjunction with its partners presents an integrated overall system that meets the demands of select surgical disciplines. It provides everything from the shell space to the surgical instrument in one unit, comprising primarily the following components:

Hospital architecture and workflow: MEDPLAN Engineering
OR logistics: ORchestration
System integration for operating and examination rooms, surgical data management and documentation, telemedicine: OR1™

Navigation, surgical assistance and training schemes, micromanipulators, training systems: KARL STORZ Surgical Cockpit

Endoscopes, (HD) camera systems, light sources, motor and irrigation systems, instruments for surgical disciplines: Endoscopes, surgical instruments and devices
Imaging and recording in FULL HD quality: HD video microscopy
»But surely surgeons know best what they need?«

»With all due respect, there are just too many individual components in a surgical unit!«
A fascinating world emerges behind the curtains of a modern operating room. From the server for image data routing to data lines, from navigation systems to surgical burrs through to lighting systems and air conditioning – the operating room has long become a high-tech product for specialists. Precise planning and adapting to surgeons’ individual requirements is a challenge.

As a specialist provider, MEDPLAN Engineering has many years of unrivalled experience with planning and setting up operating rooms and hospitals. For KARL STORZ, MEDPLAN uses a specially developed software based on the expected workflow and can design the architecture from the shell space down to the finest detail. Implementation is undertaken in collaboration with trusted partners.

MEDPLAN Engineering ensures compliance with country-specific requirements for building and medical technology. In addition, the modularity of the solutions allows flexible system expansion.
»Health is not a commodity!«

»That’s true. But why shouldn’t a hospital work like clockwork?«
A hospital must function perfectly to ensure sufficient time to focus on the essentials: the patient.

It is not just the patient and the successful operation, however, that are paramount; productivity and thus improved efficiency and profitability of the entire process chain are also vital – as today’s operating rooms must be managed like a profit center. Efficient OR and personnel scheduling, not to mention a smooth information flow between operating rooms and hospital information systems, would be difficult to achieve without OR software solutions such as ORchestrion.

ORchestrion supports the planning and coordination of all relevant OR resources in order to provide the best patient care while realizing high throughput and optimal utilization.

- Staff, patients, equipment and supplies can, therefore, be located at all times. It also allows the control and monitoring of key hospital processes in real time.
- The instrument management system provides automatic and full life cycle coverage and optimized use.
- Automatic data tracking enables the complete documentation of workflows and establishes transparency throughout the entire value chain.
- Key performance indicators can be evaluated and presented quickly and easily.
»But aren’t there already enough integrated systems on the market?

»Really? We think integration is something completely different!«
INTEGRATED SOLUTIONS FOR OPERATING AND TREATMENT ROOMS: OR1™

Integration is more than just the control of the operating table and lighting or the generation of still images and video sequences. In today's operating rooms a huge proliferation of information from various imaging systems comes together and must be suitably stored and processed.

Already in the treatment room, information relevant to the operation is collected, processed appropriately and kept up-to-date.

Operating room specific checklists, prepared under the guidelines of the World Health Organization (WHO), facilitate the preparation and approval of the operation for staff and surgeon alike.

Findings for the patient can be retrieved from the Surgical PACS (Picture Archiving System) before, during and after surgery.

A surgical terminal and screen system is also available. A special motion sensing monitor serves as a digital information source of available patient data for the surgeon (MI report).

Video conferencing, live surgery broadcasts, video streaming and audio communication via teleconference systems, i.e. between operating rooms to the department head's office, the auditorium or any other external location in the world, are now possible anytime thanks to an intelligent communications solution.
»But won’t this make the surgeon just another member of the team?«

»Sure, but he’ll be the most important member!«
SURGICAL ASSISTANCE SYSTEMS: KARL STORZ Surgical Cockpit

The surgeon can access an ever-increasing amount of patient data before, during and after an operation. Each data set must be prepared and presented according to the individual case. Both existing instruments and newly developed surgical instruments need to be ergonomically integrated into the OR (workplace).

KARL STORZ believes that a surgeon’s workplace has to adapt to these developments and offers appropriate solutions – each individual discipline with a corresponding surgical cockpit (KSSC).

Depending on the specialty, the KSSC for a specific surgical discipline offers the following systems:

- Planning and training using virtual and real models
- Navigation of active and passive instruments
- Performance control of active instruments (Navigated Control)
  - the instrument is switched off just prior to reaching any risk structures.
- Intraoperative dynamic measuring of a variety of (vital) parameters of patient and instruments
- Endoscopic guidance system
- Micro- and telemanipulators with input terminals
- Micro instruments
- Information display

The patient benefits from increased safety, more precise access and fewer complications. The surgeon benefits from the ergonomic set-up and the support required for highly complex procedures.
»Endoscopes, instruments and motors are available for sale everywhere.«

»But never with the unrivaled quality and enhanced performance achieved through integration in the KARL STORZ overall concept.«
Together with the latest developments in telescopes, flexible systems and FULL HD technology in particular, endoscopy has just experienced a new surge of innovation. Anyone who has ever used HD quality during surgery wonders how they ever managed without it. IMAGE 1™ HD, integrated in all examination and operating rooms, offers the highest quality imaging in a wide 16:9 format similar to natural vision in Full HD with 2 million pixels – the highest possible image resolution in medical technology.

The complete KARL STORZ video chain also allows for a new form of visualization: HD video microscopy. The H3-M microscope camera head offers the best overview of the surgical field when looking at the monitor with a 1920 x 1080 pixel FULL HD image.

The KARL STORZ product range includes modern, fully digital 3-chip cameras as well as mobile ALL-IN-ONE solutions for clinical practice and the necessary accessories such as monitors and storage systems.

Innovative special surgical instruments with state-of-the-art technology such as micro double spoons, nasal forceps with extra smooth jaws, bipolar combination instruments for transnasal rhino-neurosurgery or micro forceps for endolaryngeal surgery are presented at the IRDC in theory and practice.

Surgery motors with interfaces to the integrated OR OR1™ and the KARL STORZ Surgical Cockpit are a further component of the overall surgical concept.
SPONSORS AND PARTNERS

SPONSORS

TRUMPF
Medizin Systeme GmbH & Co KG, Puchheim

Trumpf supports the IRDC with patient positioning systems and their interface to OR1™ and KSSC.

Carl Zeiss Meditec, Jena

Carl Zeiss provides IRDC with the use of OPMI Vario S81 operating microscope.

Siemens Enterprise Communication GmbH & Co. KG, Healthcare Sector, Leipzig

At the IRDC, the Siemens patient information system offers a variety of options for patient comfort (Tel+TV, Internet) through to providing excerpts of patient files and acting as input media for the surgeon.

KLS Martin GROUP
Gebrüder Martin GmbH & Co. KG, Tuttlingen

With the KLS Martin Group, new lighting concepts and their integration into the surgical-assistance systems as well as the ergonomics of the surgical cockpit are being developed.

Ergosurg GmbH, Garching

Ergosurg and KARL STORZ have teamed up to work on the development of mechatronic assist systems that will improve patient safety, the quality of the surgical procedure and the ergonomic layout of the surgeons’ work area.
COOPERATION PARTNERS

MediStar Praxiscomputer, Hannover
dantschke MEDIZINTECHNIK GmbH & Co. KG, Markkleeberg
Christian Friedrich Oder GmbH, Taucha
Arcforge GmbH, Hannover
Deutsche Telekom, Leipzig

CLINICS

Acqua-Klinik® Leipzig, Hospital for Specialist Surgery
University Hospital Leipzig AÖR

UNIVERSITIES

Faculty of Medicine, University of Leipzig
The Institute of Micro Technology and Medical Device Technology (MiMed), Technical University of Munich
Innovation Center Computer Assisted Surgery (ICCAS), Faculty of Medicine, University of Leipzig
TRAINING COURSES AND SHADOWING: THE IRDC ACADEMY

For over 60 years, KARL STORZ has always been at the forefront of medical innovation. The IRDC intends to provide Germany with a unique training center for specialist surgical disciplines with a focus on surgical-assistance systems as well as offering training sessions tailored to individual needs. The surgeon-to-surgeon training model offers the opportunity to exchange experience with other experts.

The courses at the IRDC Academy include the latest “gold standard” in micro- and endosurgery, supported by the skills and knowledge of the “KARL STORZ Surgical Cockpit” instruments and systems.

Surgeons can regularly train and evaluate new methods at the highest level. In addition, the IRDC also offers introductory and advanced courses for individual medical technological systems (e.g. navigation, HD).

With this comprehensive training and shadowing program, the center is making an active contribution to the training of medical specialists in working with medical innovations, equipment and procedures. All available hospitation and training programs can be downloaded at www.irdc-a.de.
»One has no right to change things without providing alternatives with a higher value. If one can create better value, one should put every effort into it.«

Carl Huter

Presentation possibilities at the IRDC

IRDC training courses, meetings and training sessions are available for groups of up to 40 people and take place in a pleasant, focused setting. All conference and training rooms are highly flexible and equipped with state-of-the-art presentation technology.

The many features include live broadcasts in FULL HD quality with audio-video cabling to and from both OR1™ and the University of Leipzig as well as transmission to anywhere in the world via streaming technology.

A glass pavilion at the IRDC’s idyllic riverside location in a park is the ideal location for presentations and talks by experts.

OR visitor lounge

A glass visitor lounge with a small kitchen in the OR wing accommodates visitor groups of up to 10 people. This allows participants to follow the surgical procedures conveniently from a close distance without disturbing the surgical team.
HISTORY OF THE VILLA BAEDERKER

In 1872, the sons of Karl Baedeker, Fritz and Karl, moved the headquarters of their successful travel guide business from Coblenz to Leipzig. Between June 1874 and December 1875, under building director Hoffmann, the future Villa Baedeker was built for Fritz Baedeker.
Twenty years later, the villa underwent complete refurbishment. The old stairway made way for a vast extension, while the hall- and garden-facing rooms were turned into one large, representative room. Architect Bruno Eelbo knows how to bring together the architectural and historical style of previous decades in an architectural design and how to set stylish accents in the conservatory-like extension. In 1953, the villa was transferred into public ownership until 1998 and was used as the “Georg Schuman” youth hostel. During this time, plaster and stucco were removed, a kitchen extension was built and the garden covered over. It is thus with great pleasure that we can now present the Leipzig Villa restored to its original splendor.