Celebrating 60 years of LINK: A success story
Friends and associates congratulate LINK. Norbert Ostwald on new products and growth targets.
Surgical practice. Technology. Staff.
Dear Readers,

60 years, two generations, one company – I’m sure you will allow me a moment of reflection. Since the company was founded in 1948, at LINK we have always focused our every effort on the welfare of the individual patient. The result, not least thanks to the fantastic cooperation and partnership with surgeons, is excellent-quality implants, which are held in esteem the world over. On that note, I would like to express my appreciation to our associates, doctors, hospital administrators and orthopedic specialists. And to our hard-working staff, to whom LINK owes its success.

Let’s look to the future. Our powers of innovation are undiminished. We will continue to extend our technological lead and far from relinquishing our quality standards, we will offer even better product quality – and better service.

Stick with us,

Helmut D. Link

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Readers’ letters

Thank You!

From friends and associates on this, LINK’s 60th birthday

You know the company well, have worked with many of its staff or spoken to them on the telephone, value the excellent service and the products that are unique in the world. Companions, associates and two celebrities from the public arena congratulate LINK, the family company, on its achievements.

01 Prof. Dr. Francesco Pipino: Policlinico Città di Monza
“I developed the C.F.P. hip stem in conjunction with Arnold Keller and Helmut D. Link, and brought it to the market. So I feel compelled to convey the high esteem in which I hold Waldemar Link GmbH & Co. KG, its owners and staff. “I warmly congratulate Waldemar Link Schleswig-Holstein. LINK is the key to success or failure in joint replacement surgery.”

02 Dr. Werner Marnette: Minister of Economics for Schleswig-Holstein
“I warmly congratulate Waldemar Link GmbH & Co. KG on its 60th anniversary of its foundation. Since Engineering, Production and Logistics were moved in 1978 from Hamburg to Norderstedt, LINK has been a native of the German state Schleswig-Holstein – of which we are proud. LINK is the perfect example of how successful a family-run company can be. LINK is where innovation, strong management, great flexibility and customer proximity meet. Thus, the hospital supplies store, founded by Waldemar Link 60 years ago, has grown into a pioneer in joint replacement surgery.”

03 Prof. Dr. Rodolfo Capanna: Centro Traumatologico Ortopedico di Milano
“I had the pleasure in the past five years to collaborate with the Waldemar Link’s team in the field of tumours and revision mega-prosthetics. I appreciated very much the Company’s high quality standards and particularly the competence of the whole technical staff. Their open-minded approach in discussing new ideas, solving emerging issues, proposing practical solutions brought a continuous exchange of knowledges and a friendly international cooperation. This allowed to optimize the efficacy and results of the treatment we can offer to our patients. Of course, this could not be accomplished without the foresight and bright intelligence of Helmut D. Link. Notwithstanding 60 years of age, the Company still looks young now. Happy Birthday.”

04 Dr. med. Götz von Foerster: Medical Director, Tabea Clinic, Hamburg
“Congratulations on your 60th anniversary. It has been a pleasure working with LINK this past decade. The company’s success is rooted in a tradition of top quality, precision and progress through innovation. I am looking forward to continuing our relationship.”

05 Dr. med. Heiner Thabe: Medical Director, Diakonie Clinic, Landshut
“Nothing is more constant than change. When change happens at lightening speed and precision, now that’s real progress. In my endeavors to provide patient-friendly treatment, Waldemar Link has been an excellent partner since 1978, providing me with technically feasible and successful implant solutions, many of which later went into serial production. For this, I extend my thanks and my best wishes for every success in the future.”

06 Dr. med. Philipp Lubinus: Medical Director, Lubinus Clinic
“The team at the Lubinus Clinic, myself included of course, is delighted to congratulate Waldemar Link on its 60th birthday. Since the partnership between us was forged at the end of the 60s, it has produced a large number of successful developments, which have had great international acceptance and patient benefit. We eagerly look forward to continuing our fruitful association.”

07 Frank Horch: Chairman of the Chamber of Commerce, Hamburg
“Congratulations on 60 years of LINK, a vital, innovative and successful firm. On the strength of craftsmanship, high-tech production and several hundred patents rights you have become a global leader for implants. Your quality production facilities here in Germany coupled with increasing exports can be held up as an example.”

08 Priv.-Doz. Dr. med. Klaus Lerch: Head of Orthopedics/Traumatology Landshut Clinic
“60 years of quality from a single source – where else would you find that among implant manufacturers these days? Congratulations on this special anniversary to proprietor Helmut D. Link and all his staff both in-house and in the field. They do great work and are the linchpin of continued success. Along with the surgeon’s skill, the quality of implants is the key to success or failure in joint replacement surgery.”
I would only develop a prosthesis I would use myself or give to a close relative. I simply wouldn’t make anything else just to make a sale.” Helmut D. Link states his quality policy with the same conviction that his father Waldemar Link always had. Superlative quality is a LINK trademark. Since foundation, it has combined a solid tradition of craftsmanship with engineering prowess.

The geographical mobility of workers is not new to Germany. After his apprentice years in surgical instrument making in Heidelberg, Waldemar Link traveled the country. “That’s what tradesmen did in those days,” his son Helmut recalls of his father’s tales. Right after World War II he worked for the medical supplies store AD. Krauth in Hamburg. This work brought him into contact with many doctors in the northern German city. They advised him to set up his own company and promised to support him if he did. With that, he founded his medical and hospital supplies store on January 1, 1948 with the

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60 years of craftsmanship, engineering and close partnerships

Text: Holger Iburg

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1948 Post-war turmoil: Waldemar Link only got his license to commence business for his medical and hospital supplies store after a neighbor, who worked in the government office, intervened on his behalf.

subtitle “Development of new medical technology”. Soon he was getting requests from orthopedic surgeons, ENT and eye specialists, hand surgeons and orthodontists from surgery departments to manufacture special instruments. Partnerships with surgeons and researchers were cemented: In the field of orthopedics, for instance, Waldemar Link developed additional instruments for intramedullary nails in conjunction with Prof. Dr. Gerhard Küntscher, the “Father of the Intramedullary Nail” and Medical Director of Hamburg Harbor Hospital.

First hip prosthesis

Waldemar Link consulted with the medical practitioners and realized their ideas or, indeed, improved them and began to develop products himself. And thus the first German total hip prosthesis came about. Around 1960 the English orthopedic surgeon Sir John Charnley began experimenting with new materials for hip implants. Sir John Charnley was the first to use high performance polyethylene in total hip prostheses.

Directed by Professor Buchholz, my father constructed the first German total hip prosthesis.” It was implanted in St. Georg General Hospital in November 1963.

Later the anatomical stem form of the Link SPII® prosthesis (1974), which was developed in collaboration with an orthopedic surgeon by the name of Lubinus from Kiel, decisively enhanced the fixation stability of implants.

Products for almost all joints

The basic principles of manufacturing a total hip prosthesis, as developed at that time for the St. Georg® model, prevail to this day. From then on, the close partnership with surgical practitioners was the basis for Link’s rise to one of the leading implant manufacturers in the world.

This breakthrough was soon followed by further orthopedic implants. New materials, research and surgical results meant that joint replacement burgeoned in the 60s and 70s. LINK grew along with it. Total prostheses for the knee, ankle, elbow and shoulder were produced. By the mid 70s the company could boast a complete set for almost all joints. The company was still supplying doctors and hospitals as well. Helmut D. Link joined the business in 1964. Prior to that he had done his training with George P. Filling in Philadelphia, a manufacturer of cardiovascular instruments. Back in Germany, he did the rounds of Hamburg clinics and took care of the surgery departments. Today he recounts his rounds with a smile. “I used to march into the theatres, gather up the instruments to be repaired and get new orders.”

Industrial production

It wasn’t until the mid 70s that the company in Hamburg began to gear itself towards industrial production. The name Arnold Keller is closely linked with the structural transformation of the company. The Technical Director switched production from hand-crafted to industrial starting in 1974: indeed, he built it up in the first place.

There were two guiding principles: Nothing short of top quality, and rigorous testing of the finished product. Each implant was individually inspected, and the inspection was documented with minute care. Helmut D. Link said, “From the practical side of things, quality management, which was later put into law, wasn’t a problem – the only difficult thing was the red tape.”

Research and development was going the same way as production. A tradition of craftsmanship went hand-in-hand with engineering and scientific discoveries in biomechanics, metallurgy and tribology. Working closely with Hamburg ENDO-Klinik, the company developed the world’s first rotating knee prosthesis, the total femur, the saddle prosthesis, and much more.

The big move

You need space to grow. The company offices on Barkhausenweg in Hamburg-Hummelsbüttel became too cramped. In 1978 Production and Development moved into a modern building in nearby Norderstedt, and continued expanding

“We had introduced quality management long before it was put into law – the only difficult thing was the red tape.”

Helmut D. Link
in the years that followed. At the moment, exactly 392 skilled workers, engineers, researchers and service specialists work at the 12,000 sq. meter plant. Another 100 people work in our head office in Hamburg. There are plans to expand (see interview with Norbert Ostwald on page 12).

Progress in joint replacement tends to be evolutionary rather than revolutionary. The ultimate beneficiaries are the patients, when they regain movement or can live pain-free again. Products of excellence emerge at the convergence of various disciplines: medical knowledge meets technical experience in handling materials and their skilled application in the manufacture of implants.

New findings, for instance, in materials technology and biomechanics are taken on board as they emerge. Such processes take time – the necessary tests are lengthy and the requisite documentation is becoming more and more complex. The ultimate aim is for the finished prosthesis to function for as long as possible, and to delay revision for as long as possible. The surgeon wants to be able to say to the patient, “I am implanting a product that is state-of-the-art but is based on vast experience that goes way back.”

Quality and experience

Product evolution, that is where products are developed over long periods of time, has some opponents, who believe that novelty is better. Joint replacement is no different. Helmut D. Link says, “It all depends on the correlation between development and experience and the depth of understanding of these links. One gains an understanding through constant observation and many years of experience with the products. That’s why we can say to people, we know such and such about this process and material. We applied this knowledge to evolve our product. That is how this new implant came about.”

LINK and its evolutionary product philosophy are in sharp contrast to the very marketing-driven campaigns of other, especially American, manufacturers. The company is not about to make gender-specific prostheses just because they are new. Anyway, you’d be hard pressed to find a surgeon in Europe who sees the sense of them, as Helmut D. Link comments with a smile.

Joint Replacement in the 21st Century

Meanwhile LINK, a rather small provider from an economic point of view, offers projects of international interest, where doctors can make a name for themselves, says Managing Director Norbert Ostwald proudly in an interview (see page 12), referring to the many scientific symposia and seminars that LINK organizes and holds year after year. The company is in a position to do all this because it is an example of balanced vertical integration. A major step in that direction was taken in 1997 with the acquisition of the precision casting factory Vacucast. The European leader in technology for medical precision casting supplies all the castings for LINK implants.

So LINK now has a production capacity that ranges from the liquid metal to the sterile packed implant. With its immense potential for research and development and the ever-growing range of services – from preparation for surgery to instrumentation and the implant service “LINK® TOOLBOX℠” – LINK has gone from being a medical and hospital distributor to offering the entire spectrum of orthopedic implants and services in the 21st Century.

The company has gradually become more globalized over the years. “Today, with more than 86 subsidiaries and distributors, we have bases on every continent,” says head of the firm Helmut D. Link, who has already arranged his succession. LINK will continue to be a family business, committed to the highest standards of excellence.
Onwards and upwards with quality products and high-tech

In an interview LINK’s Managing Director Norbert Ostwald, talks about the successful company philosophy, ambitious growth targets and the company’s constant innovation. He intends to further intensify the long-established partnership with doctors and expand the Hamburg and Norderstedt locations.

Globalization is affecting LINK too. What lies in store for the company? We intend to grow steadily and strongly on the global market. In many cases, we are already the market leader in revision surgery. In places where we are number one, we intend to remain so, of course, and to build on our position. In places were we aren’t number one, that is our target. In addition, we will be strengthening our presence in primary surgery.

In the face of stiff competition growth is not easy. How will you manage? For one, we will soon be launching new, forward-looking products. Secondly, we will increase our product range where it makes sense to do so. The aim we have fixed in our sights is to cover the entire standard segment. We will round out our product range so that is meets exactly the needs and requirements of our customers.

Can you give an example? For example, one of our development projects will soon be ready to go to market. This we developed in conjunction with noted surgeons in the field of tumor and revision surgery from CTO Florence, University Hospital Innsbruck and University Hospital Hamburg. The project concerns revision surgery. It is a modular system, which gives the doctor the greatest possible degree of intraoperative flexibility.

Your focus therefore, as in the past, is on the company’s strength in innovation? Yes. Our innovativeness has always accounted for much of our success and gave us our technological edge. We intend to extend our lead and are therefore investing more. This will boost our rate of innovation. This means that we slash the time between the point when there is market demand for something and the point when a new product to meet it is launched. That benefits doctors as well as patient wellbeing.

Isn’t there a danger that the introduction of more products within a shorter timeframe will come at the expense of quality? Not at all! Our customers can continue to expect to get the undisputed LINK quality. It is still based on our ethos of craftsmanship, our years of proven engineering experience and our sophisticated high-tech production technologies. LINK is still the only joint replacement company offering everything from the liquid material to the packaged product – all “Made in Germany”.

LINK has worked in-depth for many years with surgeons and renowned facilities. What role do doctors play in your drive for innovation? In future, we will consult even more closely with surgeons, researchers and clinics and further intensify the relationship. LINK will become the first port of call – especially for the younger generation of doctors, which will produce the new medical directors. These doctors want to do something special. We want LINK to be the first contact they call when they want to work on projects of scientific interest. Unlike most of our foreign competitors, we can offer just such projects. In addition, we have an active presence in many countries throughout the world, and are happy to pass on these contacts to our partners on the doctors’ side.

“We offer the entire spectrum of replacements and are still a technological leader – the product of decades of dedication.”

Norbert Ostwald, 54, has been Managing Director of Waldemar Link GmbH & Co. KG since spring 2008

Celebrating 60 years of LINK: Interview
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Are you referring to the SPII®? Yes. The Swedish Hip Arthroplasty Register shows that the SPII® from LINK has the best survival rate of all hip implants over the past 15 years. But in reality the patient goes to the hospital but has no say in what implant he receives. The situation with replacement options is similar. The only way a patient can have a say in the surgical method and implant system is in his choice of doctor. But the patient is given hardly any information.

Is that the doctors’ fault? No, it’s the way the system works. The hospital might not offer our implant because it cannot get by on the DRG, or flat rate per case. We can’t blame the hospital administrators for opting for the cheaper implant to increase their margin. But it’s the patient that suffers the most, since the quality of care takes a back seat and revisions arise more often, as the Hip Arthroplasty Register shows.

Do you regard the system of flat rates and the patients’ inability to pay extra to get a high-quality prosthesis a typically German problem? It’s true that things work differently in many other countries. In countries where people can decide and have to pay for their prostheses themselves we sell lots of implants and have larger market shares. Most of the prostheses we export to China are paid for by the patients there. It’s the same in Russia. And I’m not talking about five or ten implants for every patient. China and Russia are the main growth markets.

Vision 2018
LINK is in a state of flux. The company is currently plotting a course for growth and new products in order to retain its position as one of the leading manufacturers of orthopedic implants in the world in ten years’ time.

02 LINK intends to intensify its relationship with practicing surgeons all over the world. To that end, Link will put its contacts and experience at the disposal of young medical directors in particular and involve the orthopedic specialists in major projects.

03 Growth on global markets and new jobs in Germany are not mutually exclusive. LINK will further expand the Hamburg and Norderstedt locations. Production partnerships and new jobs at LINK itself come into this plan.

04 Waldemar Link GmbH & Co. KG intends to be the innovator in joint replacement. This will achieve by investing in new high-tech products and through steady economic growth both at home and abroad. China, India and Russia are the main growth markets.

Where do you see LINK in ten years’ time? With the many new, innovative and high-quality products we will launch, we will be the innovator in joint replacement. We are only starting to live up to our potential.

What is the biggest challenge facing LINK in light of globalized competition and greater cost pressure? To ensure that the quality of products and patient care remains the focus of our attention. In this respect, LINK offers great advantages for patients and insurance companies.

Are you talking about the problem that a patient in Germany may not have a choice in what implant he receives? It doesn’t make sense. If you go to the dentist, you can choose what restoration you want. That’s not possible with orthopedic implants. While the products we offer may cost more, they are proven to last longer than cheaper implants. The choice of prosthesis is of immense importance to the success or failure of a hip operation, for instance.

Do you think it’s possible to effect a change of policy? We haven’t yet, but we would love to. We believe, as do many doctors, that our current health system is not wholly patient-centered. It doesn’t encourage the best possible treatment above all else, but sets it against economic considerations. I am sure, however, if the patient had a choice, he would opt for our high-quality, long-life implants. So, I am arguing that patients should be given the chance to pay extra for prostheses.

What do you advise a patient who is looking for the best hip? I would recommend the patient to inform himself fully of the treatment options beforehand. When making his decision, he should examine closely the differences of quality in the implants and demand this quality from his doctor. After all, it’s a decision the patient will live with for the rest of his life.

You are based in Hamburg and Norderstedt in Schleswig-Holstein. What do you expect from the city and the country? I wish we were taken more seriously – by the politicians and the media. Schleswig-Holstein. Where do you see LINK in ten years’ time? With the many new, innovative and high-quality products we will launch, we will be the innovator in joint replacement. We are only starting to live up to our potential.

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Interview: Holger Iburg
Leap in quality The first LINK prosthesis is implanted in the Philippines

On August 9, 2008 the first total hip prosthesis from the Lubinus SPII® system was implanted in a hospital in the Philippines. With that, the high-quality LINK replacement is now available in the entire production process, emissions are monitored and energy consumption is continually improved.

Environmental protection Commitment is tradition

LINK’s own water treatment plant and the use of nothing but fully recyclable packaging are just two of the company’s latest steps in the pursuit of its ambitious and responsible environmental policy. LINK has always been sensitive to environmental concerns. Not only has the company given a commitment to comply with all the prevailing legal provisions relating to the environment but also to implement numerous more far-reaching measures to conserve natural habitats. Respected environmental firms are consulted on the entire production process, emissions are monitored and energy consumption is continually improved.

SPII® copies Uncertainty remains in the market, German Supreme Court to decide

Annotation of the world-renowned Lubinus SPII® hip prosthesis is causing great uncertainty among doctors and buyers. The Swedish Hip Arthroplasty Register regularly reports that the Lubinus SPII® total hip prosthesis, which has been in production for more than 20 years, has the best survival rates and testifies to the superiority of the anatomical stem. For some time, a competitor has been offering a similar-looking imitation of the SPII®. Its appearance is causing extreme uncertainty among buyers and surgeons in hospitals. This is because the imitator cannot match the SPII®’s performance. It does not have the same quality and survival rates the SPII® has demonstrated in long-term studies. Hamburg Regional Court of Appeals (OLG) highlighted the massive differences in quality in its decision. It warned repeatedly of the dangers of using the imitation implant. The court made special mention of the responsibility of experts in hospitals. It is up to them to choose between the proven high-quality SPII® from LINK and the copy for which there is no evidence of performance. The OLG stressed the enormous responsibility of purchasing departments to buy the “right prosthesis” for the patient’s sake. With a medical device made of a metal alloy which is exposed to constant load, the cast quality and surface finishing are all-important. Nobody knows if the imitator is as accomplished in this regard as the original has proven to be. The court also went into accidental mix-ups during an operation. It also highlighted the ethical responsibility of the surgeon. The surgeon must check what he is implanting, especially if there are no studies of how the copy performs. The German Supreme Court will soon decide in the case against the manufacturer of the copy.

Attendance Congress and trade fair in Berlin.

The firm’s 60th anniversary was a central feature of LINK’s appearance at the industry trade fair that accompanied the German Congress on Orthopedics and Traumatology from October 22 to 25, 2008, at the International Congress Centre (ICC) Berlin. To mark its anniversary, the company displayed its products and services in a more modern light than ever before. At the newly designed stand in Hall 15.1, Stand No. 27, LINK gave insights into its unique success story and presented innovative flexible solutions for knee and hip replacement, such as the SL Knee System. Dr. Klaus Lerch headed the Link Gemini SL Lunch workshop, part of the official scientific program. The experienced surgeon focussed on the versatility of the system.
Of all the product groups, the hinge knee replacement best tells the story of this tradition-steeped company.

It all began in 1969, when LINK brought the St. Georg® sled prosthesis to market in conjunction with St. Georg General Hospital Hamburg – a minor revolution in knee replacement at the time. “The St. Georg® rigid hinge prosthesis was the first German knee replacement with a plastic-bearing hinge. With its predecessors, the Young or Walldius knee, we were forever struggling with metallosis, which substantially reduced the life of the prostheses and also damaged the patients’ bone. The St. Georg® model did away with this problem,” recalls Dr. Götz von Foerster, who used to work at St. Georg Hospital then and today heads up the Centre for Orthopedics and Arthroplasty in the Tabea Clinic in Hamburg-Blankenese in the capacity of Medical Director.

Mobility and reliability

Building on its positive experience with the St. Georg® rigid hinge prosthesis LINK came up with another innovation in 1979: Endo-Model® rotating hinge knee. “That, too, was a milestone in joint replacement, because the rotating knee introduced a second plane of motion, which the rigid hinge variant didn’t provide. So an active patient could remain active even after revision surgery,” says von Foerster. The Endo-Model® rotating hinge knee raised the bar in the reliability stakes as well. A long-term study of more than 1830 cases conducted by Endo-Klinik Hamburg between 1981 and 1989 showed that 95% of implants had not failed at the seven-year follow-up.

From primary implantation to revision

The Endo-Model® rigid hinge knee prosthesis, was added to LINK’s range of products in 1988. The Hamburg-based company today offers outstanding products for all areas of knee replacement – from primary care to revision. They include the Endo-Model® sled prosthesis, the German SL® total knee replacement and the Endo-Model® SL modular rotating and hinge knee system. For many surgeons, hinge knee prostheses from LINK have become indispensable. “Nowadays we could not work responsibly without these products, especially in revisions. If, for instance, the ligaments fail, hinge prostheses are, in most cases, absolutely essential,” says von Foerster. But a stabilized knee can also be of benefit for the primary indication in patients with extremely severe axis deviation and lacking ligament elasticity, “because it solves all the problems in the one operation”.

Rigid hinge or rotating knee?

The decision as to whether a rotating or rigid hinge knee should be implanted is of great importance. A rigid hinge knee is recommended for older people whose gait is altered by an extreme valgus deformity. Von Foerster says, “The majority of these people have such muscular deficiencies that they wouldn’t be able to control a rotating knee. The same applies for very overweight people. They would not be able to build up enough muscle mass to give the rotating knee the stability it needs.” The rotating knee is ideal for younger patients. Their musculature is, in most cases, good enough to control a rotating knee and to be able to straighten the knee from rotation when extending it. “If their gait is otherwise relatively normal, a rotating knee is the best replacement for them,” says von Foerster. Hinge knee prostheses will be central to the future of joint replacement, of that the Hamburg surgeon is quite sure. He says, “As the population ages, the number of revisions will continue to rise. Plus there will be more and more overweight patients, meaning that the number of people who need a hinge knee from the outset will also rise. We will continue to rely on the three systems available to us today. Unless, that is, some groundbreaking innovation turns the market on its head.” LINK is working on it.

Optimal care

Rotating and rigid hinge knee prostheses from LINK enjoy an excellent reputation worldwide. Dr. Götz von Foerster gives an account of the hinge knee replacement from the Hamburg-based company from the very beginning. His experience shows that a hinge knee achieves outstanding results, and not only in revisions.

Text: Stephan Siebenbaum

“Nowadays we could not work responsibly without hinge knee prostheses.”

Götz von Foerster

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“There is no universal standard for the Stem cone”

Numerous stem cones in hip replacement are designated “12/14 Eurocone”. But that is the only thing products from different implant manufacturers have in common. Heinrich Wecker, Business Manager Central Europe for the Medical Products Division of CeramTec, explains what to look out for when pairing a stem cone with a prosthesis head.

Mr. Wecker, CeramTec is the world’s largest manufacturer of ceramic heads for hip implants. Your products are combined with most manufacturers’ implants – including LINK’s. Is the problem of potentially incorrect combinations with the “Eurocone” not a thing of the past? Unfortunately not. A good ten years ago, great efforts were made to standardize the different cone types. The “Eurocone” was to be the standard. But the project must be regarded as a failure. There are no valid standards and regulations for the stem cone. If one comes across the term “Eurocone” now, one should take great care and question what it actually means.

Why do you advise caution? Is there a risk? One would be wrong to think that all cones designated 12/14 are identical. There are, for instance, any number of differences in the cone geometry and in the design, structure and quality of the finish. The danger arises when a cone is combined with a head that doesn’t match: The results can be disastrous.

Please describe the most important differences that may exist and their consequences. The cone angle can vary greatly. Every manufacturer has its own tolerances, which can result in further variation. If the internal and external cone angles are very different, sticking and overloading can occur in places. It also affects the seat of the ball. The increments between neck lengths S, M, L and XL aren’t standardized either and may be 2, 3, 3.5 or 4 mm, depending on the manufacturer. This of course gives rise to differences in joint geometry, with consequences for soft tissue balancing and leg length. Any differences in cone geometry and structure can impact on dome play. If there isn’t enough play, there is a danger the dome will collide with the cone end.

How does CeramTec deal with this variety? We produce a large number of different types of head, whose internal geometries match around 35 different cone types. The heads undergo various standard tests and the interaction between stem cone and ceramic head is extensively tested in each case. It is up to the implant manufacturer to approve a particular stem cone/head combination. They also supply the clinic with both components.

What should the surgeon look out for? He must follow the manufacturer’s directions in the enclosed leaflet. It lists the permitted combinations. So the surgeon should only use these combinations and nothing else.

What happens if the surgeon uses a different combination? This would make the surgeon the “manufacturer” of the system he is implanting. He would bear full responsibility. And if problems arose, he would have to take the consequences.

Dome play: Standard or best case
Geometry and structure of the stem cone match the properties of the prosthesis head exactly: there is sufficient clearance between the end of the cone and the dome of the head. The system as a whole therefore has sufficient dome play and, by extension, the interface is functional – this ensures that the stem/cone pair will have a long life.

Worst-case scenario: The individual components of the system are at the upper tolerance limit. If the geometry and structure of stem cone and prosthesis head are not a perfect match, the clearance between the end of the cone and the dome will be insufficient. Under load, the end of the cone may collide with the dome. In the worst case, the ceramic head may rupture.
LINK’s summer party – in glorious sunshine
Staff and their families gathered at the Norderstedt site to celebrate 60 years of LINK.

The weather couldn’t have been better and more than 900 staff enjoyed coffee and cake with their partners and children. During the factory tours, kids picked up and handled workpieces in wonder. In workshops, colleagues explained how hip and knee implants work. Helmut D. Link recalled the early days. Guest speaker Dr. Götz von Foerster told of how he could always rely on LINK. Dr. Thorsten Gehrke praised “the unique quality of LINK products on the world stage” and said he was looking forward to working with the company “until the next anniversary.”
Caught on camera in Norderstedt: Just some of the pictures of an excellent family day-out; all smiling faces, in relaxed company and good spirits. Everyone was full of praise for the way it was organized.
“Quality assurance is becoming more and more important”

Prof. Dr. Günther, what are the future issues of relevance to an orthopedics company and joint replacement in general in your view as an orthopedic surgeon? The following three issues, I think, are the main considerations: Firstly, we should continue developing materials, for instance in relation to surface coating, tribology or the modification of bone cement. We should also push ahead with technologies like the conclusive assessment of less invasive approaches or optimized instrument sets. Secondly, quality assurance will become more important in orthopedic implants in general. This goes both for surgical clinics and for pre- and post-operative institutions – for example, it concerns the inter-departmental introduction of clinical pathways or other forms of procedural improvement. At the level above that, the significance of quality assurance will also grow and, I hope, an arthroplasty register will be established across the board in Germany as well. The third and possibly the most important future issue, as I see it, is the collation of better data on the effectiveness and efficiency of joint replacement as a whole. Even though we ourselves see the results first-hand day in day out, we must work on providing a better system to generate inter-disciplinary data. The danger here is that medical services, which today are reimbursed under insurance schemes financed by the solidarity principle – something which is taken for granted – will have to be paid for in future. If we want to ensure that our patients get the benefit of this in future, we should support them in the resource allocation conflict, which I fear may occur, by having a good collection of data.

What are the challenges relating to material allergies and hypersensitivity? What needs to be done most in relation to this is to check the clinical relevance of experimental data that has already been gathered and case-based information from individual studies. It will only be possible to get a full picture of the clinical relevance of this matter if we initiate broad-based and appropriately financed studies. To my mind, the debate so far has been too wrapped up in case-based experience with individual materials and is not always free of preconceptions colored by emotion.

In your opinion, how will the area of integral solutions in the theater develop in connection with CAS techniques? We are headed towards modular control units, which contain several elements for assisting surgery and can optimize interfaces. This includes intraoperative diagnostic imaging like X-ray, slice techniques and endoscopy as well as computer-assisted surgery with both orthopedic and traumatological indications. Ultimately, these modular systems must comprise an appropriate interface to document images from various sources, since this is important for quality control purposes. Various initiatives – like the multicenter OrthoMIT research project funded by the Federal Research Ministry – play a key role in that respect. One of the major challenges will be to adapt the platform that OrthoMIT proposes to clinics of various sizes in order to enable the project to be widely implemented.

Where is progress needed in relation to patient-oriented surgical techniques and where can progress be expected from the industry? Our every deed is patient-oriented, and it is worthwhile to remind ourselves of that time and time again. If we consider all the different facets there are to focusing on the patient, I think too much emphasis is being put on aspects associated with the implant at the moment. I imagine it would make sense to pay greater attention to the needs of our patients, especially when it comes to diagnosis and proposing treatment and designing clinical pathways. We probably do so anyway as a matter of course, but it can be worthwhile for everyone concerned to work out, based on thorough studies, which patients benefit from a replacement under what attention. I, personally, see great promise for the implant industry in this area as well as in the above areas. Since public funding for such research activities is rather limited, it could be of great strategic importance for implant manufacturers to coordinate or support activities of that nature.
This image shows a TiCaP® coating, comprising a double layer of highly porous titanium and calcium phosphate, magnified 2000 times. This coating promotes osseointegration into the surface structure of the prosthesis by means of osteoconductivity.