

COMPANY HISTORY

What began with a good idea at the beginning of the 1990s, has developed into a globally active company to this day. The Christoph Miethke GmbH & Co. KG is a Potsdam-based medical technology company that develops innovative neurosurgical implants for hydrocephalus patients. In historic walls from the 19th century, each implant is individually produced with the most modern production technology and care and is constantly questioned and further developed. The atmosphere here is above all, one thing: human. The open cooperation is immediately noticeable as soon as entering the company building and comes from each individual, above all Christoph Miethke - founder and managing director of the company, who led his idea to success.

1992 Founding of the Company

With the aim of developing an innovative hydrocephalus valve, Christoph Miethke turned to the Federal Ministry of Research and Technology in the early 1990s to apply for public development funding from standard funding programs for his ambitious project. In June 1992, he received a grant from the Ministry and founded his company with a team of one engineer and two students in the Innovation Park Wuhlheide on July 1 of the same year.

1995 First Research Results

After two years of intensive research and development, the company, then known as Christoph Miethke KG, presented its *DUAL SWITCH* – a hydrocephalus valve made of biocompatible titanium, which was characterized by a new type of gravitational valve technology. This was followed by the initiation of clinical studies and finally, on February 1, 1995, the first valve was implanted in Berlin, Germany.

Christoph Miethke – Founder and Managing Director.

»Showing responsibility means: helping people to lead a normal life through modern medical technology.«

Christoph Miethke, born in Krefeld in 1960, grew up with six siblings in a loving and supportive atmosphere. He was the inventor of the family, always coming up with creative ideas. After school he did his civil service in the hospital and discovered a microcosm of society that fascinated him. Being helpful and serving a useful purpose meant a lot to him. Christoph Miethke finally studied medical technology at the Technical University in Berlin. Already as a student he came across the problems of valve systems for the treatment of hydrocephalus through his work in a medical technology company and already developed first ideas for their improvement. After the successful completion of his studies, his own research ambition and the suggestion of his Berlin TU professor Klaus Affeld drove him to consider finding his own company.



1996 Market entry

In 1996, the *DUALSWITCH VALVE* was approved in accordance with the Medical Devices Act and was the first product of the company to be officially approved for the German market. Already in 1997 the valve was sold on the European market and shortly afterwards other products followed, such as the *SHUNTASSISTANT* and the pediatric valve *paediGAV*.

1999 An Economic Milestone

The Christoph Miethke GmbH & Co. KG increasingly strengthened its own market position and entered into a sales cooperation with B.BRAUN Aesculap, which is still successful today. With the conviction for the own idea as a proper treatment option in the patient's interest, with the strength to implement such an idea and with the help of the partnership to B.Braun Aesculap, Christoph Miethke and his company soon became the only German and youngest competitor among the five world leaders in their industry. Already in 2000, the company sold its products to South America and Australia and shortly afterwards also to the USA.

2010 Sharing Expertise

B.BRAUN Aesculap has developed from a sales partner to a minority shareholder. The collaboration between both partners, which was already very close and fruitful, became

even more intensive. The company sold its growing product portfolio in over 50 countries on five continents.

Innovation

In recent years, the company has received several awards for its innovative strength. The company won the Innovation Award of the State of Berlin-Brandenburg for its pioneering technological developments for the first time in 1999 and for the second time in 2006. It became "Selected Landmark 2008 in the Land of Ideas" for its visionary and innovative product - the *proSA* valve.



[We understand
the gravity of the situation
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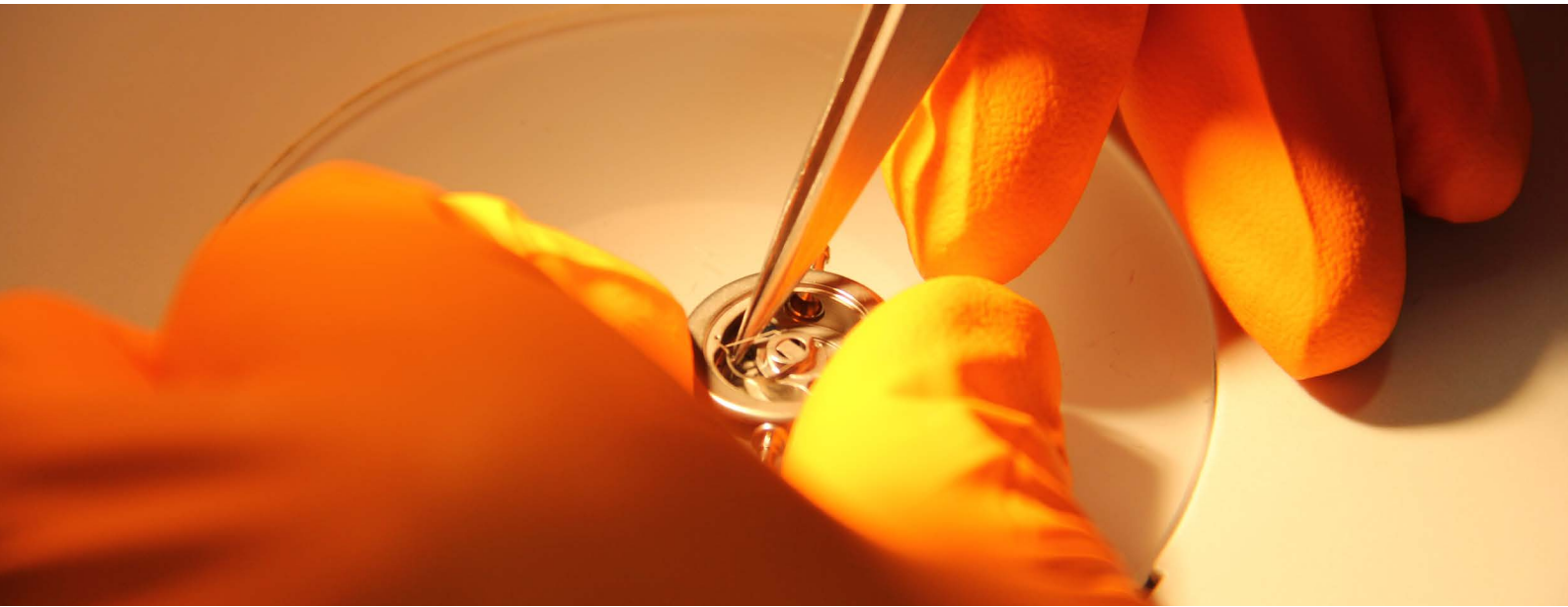


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THE CORE OF THE COMPANY

Anyone who develops, produces and sells medical products is inevitably faced with a great responsibility of his own and focuses on people as well as on the improvement of the living conditions of sick people in particular. The focus of Christoph Miethke GmbH & Co. KG is placed on the best possible treatment of hydrocephalus patients. With an innovative technology - based on a deep understanding of the physical and physiological relations of the disease and its treatment - Christoph Miethke was one of the first to sustainably improve a very large and frequent deficit in the treatment of hydrocephalus: over- and underdrainage.

Innovation Gravity Technology

If a shunt system is used to connect the head and the abdominal area, two communicating vessels are created - physically speaking. If the patient is lying, they compensate their water level. When the patient stands up, the upper one runs empty until the water levels are at the same level again. A valve must therefore take into account the different requirements in the lying and upright body position of the patient. Conventional valves often only have one opening pressure, which inevitably had to compromise between both body positions. Over- and underdrainage - i.e. the drainage of too much or too little cerebrospinal fluid - is the result.

Miethke gravity valves counteract this basic physical principle with different opening pressures for different body positions and thus was able to impressively improve the treatment results. By means of gravity technology, the valves "detect" the patient's position and close or open before dangerous over- or under-drainage can occur.

A milestone in the development of hydrocephalus valves was the introduction of additionally adjustable gravitational valves. This enables the treating physician to adjust the opening pressures post-operatively and non-invasively, simply by means of magnetic force. For the first time, it was possible to react to possible changes in the pati-

ent's organism (e.g. growth in children) without having to expect the patient to undergo surgery again.

Innovation in the Future

Since the production of the first valve, Christoph Miethke GmbH & Co. KG continues to develop its products, even the most successful ones. The proximity to physicians and patients and the resulting understanding for each other is always the engine that keeps us going and further improves our products.

Today, the company focuses on the treatment of hydrocephalus. But even beyond that, with their old and new experiences, developers are already working on making completely different medical products marketable for new market segments.



Use the App to better understand how Miethke valves work: more under: www.miethke.com



Global Player of Hydrocephalus

Since 1992 Christoph Miethke GmbH & Co. KG is one of the five largest suppliers of hydrocephalus valves worldwide alongside companies like Codman, Medtronic and Integra. In Germany, Christoph Miethke GmbH & Co. KG is the market leader.

Hydrocephalus

Hydrocephalus refers to a condition whereby the volume of the "water" (hydro) in the "head" (cephalus) continually increases.

Normally the production and resorption of cerebrospinal fluid (CSF) are balanced. Healthy adults produce approximately 500ml of the cerebrospinal fluid daily, whereas small children produce about 250ml per day and infants about 100ml per day. Hydrocephalus patients suffer from a disturbed balance between resorption and production of CSF. If the amount of CSF that is produced exceeds the amount that is resorbed, the ventricles will expand.

Medical science distinguishes between congenital hydrocephalus (hydrocephalus is present before birth) and acquired hydrocephalus (the disease develops later in life).

Treatment Methods

To this day, there is rarely an alternative to implanting a derivation system ("shunt") for the treatment of hydrocephalus. Such a shunt system directs the excess brain water into other body cavities, usually the abdominal area. The heart of the system is a valve that ensures that neither too much nor too little cerebral fluid is drained.

Shunts are usually implanted 1. ventriculo-peritoneal (VP) (from the head into the abdominal cavity) or 2. lumbo-peritoneal (LP) (from the spinal canal into the abdominal cavity). The most common method is the VP diversion.

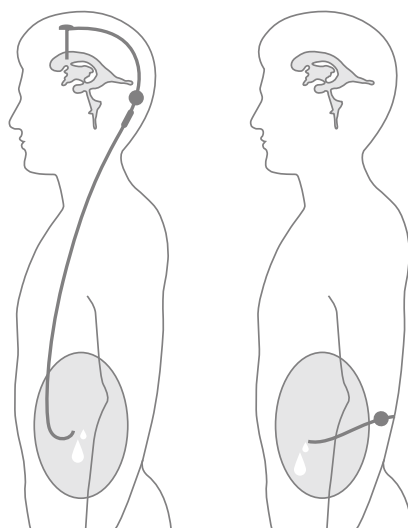


Fig 1.

Fig 2.



»Everyone has to carry their baggage - some more, some less. The important thing is not to give up and live your life.«

Sarah, Nurse & hydrocephalus patient

more information on our website:
www.miethke.com/hydrocephalus

If you want to receive more information,
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THE CORPORATE CULTURE

Christoph Miethke leads his company on an equal footing with his employees. He has three sons of his own and is passionate about guiding them in their development. For him as a father and entrepreneur, combining family and career is a social responsibility and a self-concept that he lives beyond his own family boundaries. When walking through the company this sense of connection is strongly noticeable.

Responsibility

As a manufacturer of neurosurgical implants, the company and therefore each individual involved in production bears a great responsibility for quality. For the entrepreneur Christoph Miethke, responsibility is not be enforced by pressure, but only by a deep understanding of it. Rules, standards and work processes are regulations for medical device manufacturers and they are justifiably narrowly defined. "But they must be lived by all at all times. This is best achieved by conviction. Because if we make a mistake, someone has a big problem," says Miethke.

Family & Career

For Christoph Miethke, a family-friendly corporate policy is not a policy but an attitude to life. Children and family are our future and our center of life. Both provide support and strength.

For the employees, this company policy means trust, freedom and understanding, which they in turn reward with motivated work. Here, we deliberately refuse working time systems or time lists. Working hours are based on trust. Many employees have the possibility of working from home, which not only benefits working parents.

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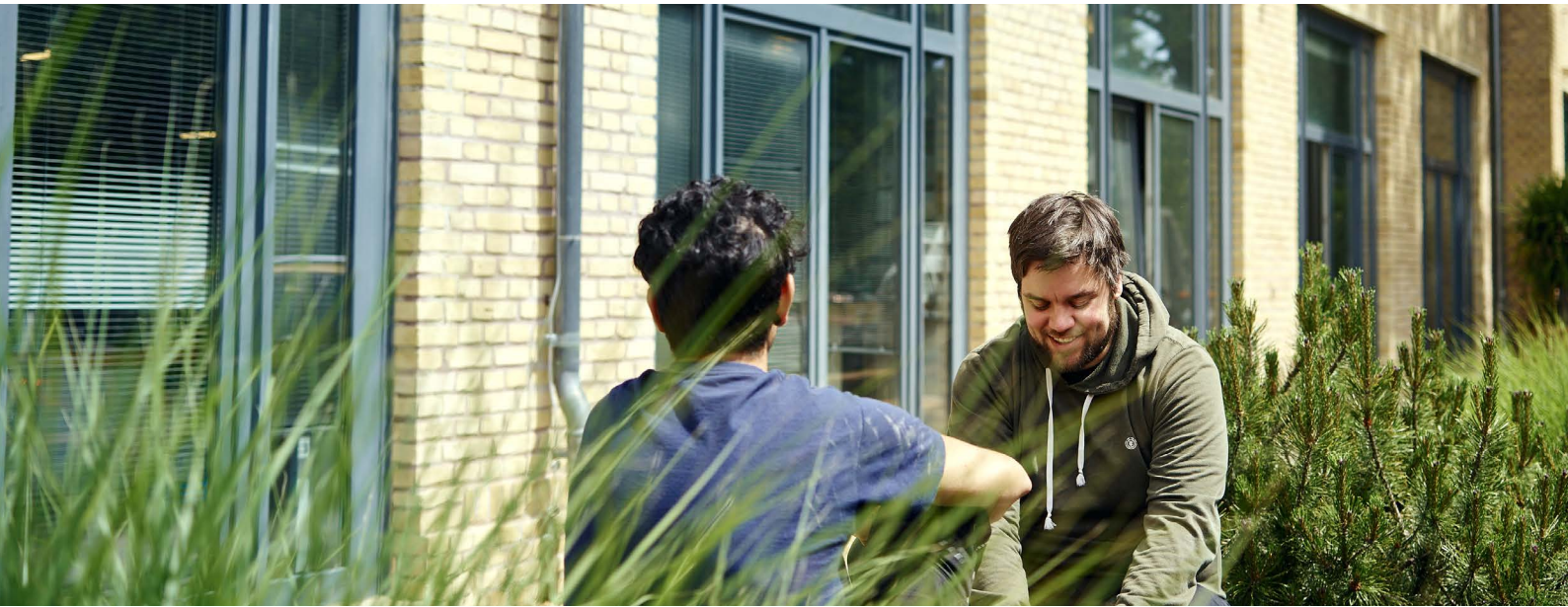
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Life at Miethke

"We spend more time each day at work than we do with our family. It is good if we like what we do and if there is an atmosphere that is enjoyable," says Christoph Miethke. "Human dignity is inviolable" - this is the headline of the company philosophy. Miethke understands this as follows: "An important basis for respect and dignified cooperation is the degree of closeness - resulting from interest - that we can show to ourselves and to everyone else. To feel, create and live close to one another contains many facets of social values with one goal in mind: a social living space, in which everyone feels comfortable. It is about understanding, questioning, taking on different perspectives and meeting each other at eye level."

The lifestyle at Miethke includes weekly sports courses or the free use of the cafeteria rooms for private events for every employee. There is a regulars' table, company events, a soccer tournament, an annual two-day company outing and much more. A safe workplace as well as collegial cohesion in the company plays an important role.

Quality & Innovation

Innovations have made the company successful worldwide. To this day, Miethke and his developers constantly travel the world and are in active contact with treating physicians and patients: at congresses, in personal conversations and in joint developments. The human being is at the center of all our internal and external activities. Trust and closeness automatically give rise to a special responsibility for quality and the creativity that is needed for innovations. This includes not resting on one's laurels, but also accepting criticism for very successful products and further improving them for the benefit of the patient. Sometimes it also means the decision to develop products whose economic efficiency was doubtful right from the start, but of which Miethke was very convinced.

