

TQ-Medical-PC

Maximum competitive advantage for your product. Maximum success.

[Whitepaper – Medical technology with TQ.](#)

Six good reasons why TQ can give you the competitive advantage in medical technology.





About TQ – a family run company

The TQ-Group was founded in 1994 as a 2-man company and today consists of about 1,700 employees at 15 locations in Germany, Switzerland, the USA and China. As one of the largest technology service providers and electronics specialists in Germany and Europe, the TQ-Group implements customized and innovative solutions for the different industries, both in the hardware and in the software sector – from development, production, testing assembly, logistics, certification, approval, product lifecycle management, after-sales service and obsolescence management.

For you, this means: TQ offers competence, experience and vision for the areas of E²MS, embedded modules, electronic drives, energy management, medical technology, aviation and robotics.

TQ is also consistently growing with a diverse portfolio of forward-looking proprietary products in the current economic megatrends such as digitalization, Industry 4.0, Artificial intelligence and e-mobility.

On the basis of our modular service and solution packages, we have been successfully developing and producing customized products for 27 years.

Six good reasons why TQ gives you the decisive competitive advantage in medical technology.

In the field of medical technology, it is becoming more and more important to shorten the time-to-market and to focus on innovative technologies in the long term. This Whitepaper explains in six steps how TQ reduces your time-to-market and creates additional competitive advantages.

As a systems provider, we enable our customers in the medical technology industry with reliable solutions throughout the entire product life cycle. This all-inclusive feel-good package delivers the decisive competitive advantage: Getting to the market faster thanks to modular, innovative solution modules combined with the highest quality.

» TQ provides you with the key advantage in six steps. «

- 1 On the safe side – highest quality verified by certifications.
- 2 Development competence ensures Design for Excellence for your application.
- 3 One-stop shop – your system supplier with long-term vision.
- 4 Fast and secure time to market with embedded modules.
- 5 Realization of integrated mechatronic systems with TQ-RoboDrive.
- 6 Ready to integrate solution modules for your individual system.

1 On the safe side – highest quality verified by certifications.

TQ stands for "Technology in Quality". Numerous certifications confirm this – and have done so from the very beginning. Already in 1994, the year of its foundation, TQ faced the first certification in compliance with DIN EN ISO 9001 and thus laid the foundation for further certifications. Next to aviation, the medical technology sector has the highest requirements and is one of most demanding disciplines for system suppliers. TQ meets these high requirements of the medical sector and holds important certificates such as EN ISO 13485 for the development and production of systems for use in active medical devices as well as the 93/42/EEC Medical Device Directive (MDD). With TQ, you have a strong system provider for the highly regulated medical technology market by your side.

TQ manufactures flexibly, individually according to customer requirements and with the highest standards.



Manufacturing with TQ: Your advantages at a glance

- ✓ State-of-the-art manufacturing technologies
- ✓ Process-controlled quality assurance
- ✓ Traceability (material, assembly, quality & process)
- ✓ Worldwide production sites
- ✓ Production from prototypes to large series
- ✓ Design for Robofactoring (partial automation with cobots from our own production)

2 Our development expertise ensures Design for Excellence for your application.



Reactive Robotics x TQ

Our customer Reactive Robotics is the world's first company to bring intelligent assistive robotics to intensive care units and has thus written a real success story. Find out how we helped Reactive Robotics to set the right course.

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From the very beginning, the idea of our company founders was to offer development and production from a single source. TQ is thus both a production and development partner and bundles the most important competencies under one roof. By closely linking development and production, we are able to achieve measurable competitive advantages for our customers, because we are strongly convinced: The decisive course for product success and production costs is already set within the development process.

Design for Excellence is the claim we have for every project. From the very start, we guarantee a seamless transition to series production and fully exploit all potential improvements. "Design for Robofactoring" is also an integral part of our credo in order to continue to secure manufacturing in Germany as a production location through innovative development.

» I recommend TQ to anyone wanting to develop products and innovations in highly regulated markets and to get them off the ground. «

Alexander König, Managing Director
and Founder of Reactive Robotics

For a holistic development, TQ internally bundles multi-layered competences in order to guarantee continuous development services – from the definition of requirements to series transition and product maintenance.



Our multilayered development know-how in detail
Get to know what makes TQ unique in development.

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Our services in the area of product development

- 
- ✔ System development
 - ✔ Electronics development
 - ✔ Software development
 - ✔ System-on-chip development (SoC)/logic design
 - ✔ Printed circuit board layout/PCB design
 - ✔ Mechanics development
 - ✔ Project management
 - ✔ Electromagnetic Compatibility
 - ✔ Product qualification/verification, validation and accreditation
 - ✔ Test equipment development and construction
 - ✔ Series transition

3 One-stop shop – your system supplier with long-term vision.

One contact person – all challenges solved. For you, this reduces the number of interfaces and the communication effort: A central contact person takes responsibility for your entire product life cycle and ensures that all process steps are efficiently inter-linked. TQ already has an eye on all certifications and approvals during the development process and, unique in the industry, internally creates the best conditions for your product qualification with its own Product Compliance Center in Augsburg. This saves you valuable time when entering the market.

» Keeping an eye on approval, product qualification and safety right from the start ensures a time-optimized overall process. «



TQ Product Compliance Center

International certifications and accredited testing for your products – now available at TQ! Discover the advantages of our own Product Compliance Center.

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In medical technology, it is particularly important to ensure long service lives and to avoid costly requalifications and approvals due to unexpected discontinuations. Thus, active obsolescence management is an indispensable part of our product life cycle measures to minimize your risk here.



TQ Obsolescence Management

Discover our obsolescence management services

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4 Fast and secure time to market with embedded modules.

After intensive development and qualification processes, medical devices must be offered on the market unchanged for as long as possible. If changes are nevertheless necessary, these must be adapted with as little effort as possible.

Our embedded modules, developed in-house, provide the perfect answer. From the idea to serial production, TQ advises you as a partner in the integration of central intelligence that is cost-efficient, reliable and available in the long term – throughout the entire product life cycle. In this way, we enable customers to achieve the shortest development times and significantly reduce the time-to-market duration.

» In-house expertise in embedded processor technology shortens development times for medical technology users. «

Important for you: TQ keeps the quality of the embedded modules under its own control through in-house development and production.

The requirements, such as for MRI devices, are constantly increasing due to the high data throughput. This requires more and more computing power and high-resolution graphics. AI-supported evaluation of the data is also becoming more important. For all these requirements, TQ finds the appropriate intelligence in the form of an embedded module. The modules make the latest, high-end processor technology incl. AI boost and 8K visualization optimally usable for your medical technology applications.



Mentastim – gentle electrostimulation device with powerful effect.




5 Realization of integrated mechatronic systems with TQ-RoboDrive.

In addition to complete electronic systems for medical technology, TQ also implements complete mechatronic systems. TQ relies on high-torque frameless motors and combines expertise in electronics and mechatronics like no other company in the industry.

>> The motor-gearbox solutions entail unique design freedom, maximum control accuracy, and outstanding thermal qualities. <<

The high-torque frameless motors from TQ also make it possible to generate the desired torque without a gearbox, for example in a dialysis machine or blood pump. The application is thus low-noise and makes treatment much more pleasant for patients. At the same time, the motors offer an enormous cost advantage by eliminating the gearbox, as wear is reduced by up to 80%.



Servo motors, frameless motors and drive systems for demanding medical technology applications

Get to know our innovative electric drives now

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6 Ready to integrate solution modules for your individual system.

With its own solution modules and products, TQ reduces your development times, risks and costs. A highlight of the TQ modular system is the best-in-class technology for professional real-time video transmission: The ultimate real-time wireless HD video system.



Real-time video transmission in HD

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>> Individual system development based on strong, proprietary solution modules reduces project effort and ensures process-optimized implementation. <<

TQ realizes individual, customer-specific system development on the basis of strong, proprietary solution modules.



Medical technology products & services

Learn more about TQ's solutions for the medical device market.

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A selection of our references



System for whole body training (EMS)



Intelligent assistance robotics



System for the treatment of cardiac arrhythmia



Intelligent cycle computer for a natural observation of the female cycle and an accurate determination of one's own fertility



**Therapy system from
Reactive Robotics.**

Source: Reactive Robotics

Contact us now and find out how you can bring your products to market in the best possible quality and in the shortest possible time.

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