PRODUCTION SYSTEMS

ASSEMBLY AND TEST SYSTEMS FOR MEDTECH
Recognised worldwide

teamtechnik is an international market leader providing innovative production technology. Over 1000 specialists develop and build automation solutions for the medtech, new energy and automotive industries.

Optimized solutions for medtech and pharma

Our customers in medtech expect reliable and cost-effective production systems for their sophisticated products. Our engineers are well-versed in complex assembly and testing process technology for production applications, including turnkey systems.

Once teamtechnik, always teamtechnik

For decades, teamtechnik has stood for modular and flexible assembly and test systems, supporting state of the art device production around the world.

A high level of satisfaction is demonstrated by numerous long-term customer collaborations.

High speed for the production cycle

Up to 120 cycles per minute teamtechnik provides a full spectrum of automation systems, including high-speed assembly. More speed, higher efficiency. Around the world, customers are benefiting from teamtechnik’s mechanical, cam-controlled systems.
We concentrate on products for which we have a high technological expertise. For this focus devices we offer a wide range of expertise in assembly, testing and feeder-technology.

**Product experience**
- Point-of-care diagnostics devices
- Injection systems
- Contact lenses
- Inhaler devices
- Plastic assemblies

**Solutions from a single source.**
- Consulting
- Planning
- Process development
- Design
- Software development
- Manufacturing
- Feeding technologies
- Palletizer
- Assembly and installation
- Commissioning
- Qualification
- Training
- Post-installation support and service
- Turnkey solutions
teamtechnik engineers are experienced and skilled in developing and designing processes. They address complex assembly and test challenges, such as measuring and testing extremely small values at high resolutions.

Examples of processes in our portfolio include:

- Vision inspection with 3D Code reading and evaluation
- High precision distance measuring to < 0.001 mm tolerance
- Presence check and geometric evaluation
- Needle measurement and tolerance compensation
- Torque testing down to 0.001 Nm
- Force testing in the 0.01 N range
- Liquid dosing
- Gluing systems (LED, UV)
- Lasermarking to 0.02 mm absolute positioning accuracy
- Controlled compensation for components variations
- Welding path tolerance < 0.1 mm at high speed
- Tube coiling up to 1.800 mm
Not only do we build production systems, but we also supply the necessary test technology. With teamtechnik, you support maximum product safety.

**Precision is our standard**

We are proud of the long-term stability and high measuring accuracy of our quality test system. The TEAMED platform can integrate 100% in-line testing, as well as offline SPC testing.

*The current generation is equipped with a successful package of test software. Optionally this allows users to compile testing cycles and to optimize them without programming knowledge.*

**Maximum product safety**

Example of a graph for force and torque distribution of an injection pen drive.

TEAMED Injector Test:
The compact precision system for safe testing of injection devices.
Responding to your needs

Whether a standardized linear platform or cam-controlled high-throughput system. We provide the optimal solution for your task.

Proof of principle

We work with customers from early stages of development, although a device design may still be evolving.

Often starting with prototype production, our experts can provide assistance in establishment of assembly processes. PoP offers an ideal platform, particularly for the clinical trials production.

Critical processes, which are typically semi-automatic, are fully qualified and can form the basis for subsequent higher levels of automation and output.

For special applications

Wherever special processes cannot be accommodated with linear or rotary assembly systems, the TEAMED Stand-alone offers an ideal solution.

Typical applications include robot stations and fully-automated functional testing systems. Our library of proven processes is available within these applications.

Serial production

This modular linear platform is designed for quick ramp-up and high reliability for commercial-scale production.

Superior process technology as well as functional testing can be easily integrated.

Single or multi-track systems are offered, with components fed in bulk or via tray handling systems.

High volume production

Is higher speed the goal?

The TEAMED RTS is a rotary transfer system which combines reliability, high availability and short cycle times – ensuring economical mass production.

The mechanical cam-controlled TEAMED RTS minimizes operational and energy costs, benefiting both the environment and profitability.
Proven in real-world use
The TEAMED LTS platform has been developed specifically to integrate assembly and test functions for medical device production.

Your benefit
The TEAMED LTS is flexible in regard to process and modular configuration and upgradeable from start-up to serial production. It is available with a linear or oval indexer. Integration of rotary indexing tables as a satellite can be accommodated – as can be integration of customer specific processes and special technologies. TEAMED LTS forms the basis of the assembly system for numerous complex medical devices. A roof top cabinet is saving clean room space.

Clean rooms
TEAMED LTS is designed with the automation technology largely separated from the drive area which is located under the machine table. TEAMED LTS is classified up to 10,000 (ISO 14644-1 class 7), and prepared for laminar flow units to achieve a class 6 production environment.

TEAMED LTS - Technical data

<table>
<thead>
<tr>
<th></th>
<th>Up to 60 cycles/minute; single or multi track</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle time</td>
<td></td>
</tr>
<tr>
<td>Transport system</td>
<td>Indexed product conveyors</td>
</tr>
<tr>
<td>Design</td>
<td>Powder-coated or stainless steel</td>
</tr>
<tr>
<td></td>
<td>Combination with rotary index system (TEAMED RTS)</td>
</tr>
<tr>
<td></td>
<td>Combination with manual work stations possible</td>
</tr>
<tr>
<td></td>
<td>Can accommodate laminar flow units</td>
</tr>
<tr>
<td></td>
<td>Stations can driven / servo or pneumatic</td>
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<tr>
<td></td>
<td>Drives situated underneath level of device assembly processes</td>
</tr>
<tr>
<td></td>
<td>Doors with safety glass panels for easy cleaning</td>
</tr>
<tr>
<td>Controls &amp; operating interface</td>
<td>Siemens, Beckhoff</td>
</tr>
<tr>
<td></td>
<td>IEC 61131-3 programming (i.e. Siemens TIA or Beckhoff TWINCAT)</td>
</tr>
<tr>
<td></td>
<td>WinCC flexible or FactoryTalk® View, Capa-data, Zenon</td>
</tr>
<tr>
<td></td>
<td>HMI / SCADA user interface with 21 CFR Part 11 compliance</td>
</tr>
<tr>
<td></td>
<td>Panel Siemens IPC 277E 15”</td>
</tr>
<tr>
<td>Qualification</td>
<td>GAMP 5, risk-based approach</td>
</tr>
</tbody>
</table>

System platform for assembly and testing. Proven and reliable.
HIGH SPEED PERFORMANCE

TEAMED RTS

Fast and efficient
With up to 120 cycles per minute and technical availability of up to 98%, TEAMED RTS represents reliable and economic high output. TEAMED RTS drive can be configured with cam-controlled kinematic and/or flexible asychronous servo motor, according to the requirements of a particular assembly.

Your benefit. Economics and energy conservation.
Mechanical cams and servo motors provide significant reduction of invest in pneumatic infrastructure such as compressors and air preparations. Offering robustness and reliability, mechanical cams and servo-motors offer lower cost of ownership. TEAMED RTS is an excellent platform for high volume production with low energy requirements.

Compact footprint
TEAMED RTS requires minimal floorspace, offering high output with a minimal footprint.

Clean Room operation
TEAMED RTS is configured with its automation technology largely separated from the drive area, which is located under the machine table. TEAMED RTS is classified up to 10,000 (ISO 14644-1 class 7), and prepared for laminar flow units to achieve a class 6 production environment.

TEAMED RTS – Technical data

<table>
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<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle time</td>
<td>Up to 120 cycles/minute</td>
</tr>
<tr>
<td>Transport system</td>
<td>Rotary index system up to 32 stations, Servo drive</td>
</tr>
<tr>
<td>Design</td>
<td>Powder-coated or stainless steel, Combination with linear transfer system (TEAMED LTS), Can accommodate laminar flow units, Roof top cabinet capability, Drives situated underneath level of device assembly processes, Doors with safety glass or macrolon panels for easy cleaning</td>
</tr>
<tr>
<td>Controls &amp; operating interface</td>
<td>Siemens, Beckhoff, IEC 61131-3 programming (i.e. Siemens TIA or Beckhoff TWINCAT) / STEP 7, WinCC flexible or FactoryTalk View, Capa-data, Zenon, HMI / SCADA user interface with 21 CFR Part 11 compliance, Panel Siemens IPC 277E 15”</td>
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Inhouse feeder technology is a fundamental element of our integrated production systems. Components are sorted, presented and fed at the required speed. Teamtechnik’s centre of excellence for feeder and tray handling systems develops solutions for presenting the most problematic components without interruption or loss of efficiency. These feeder systems with optimised interfaces, enable us to reliably achieve higher and stable output.

You benefit from:
- Fewer interfaces for turnkey systems
- Screw-joined and reproducible baffle plates, whenever possible
- Individual solutions using standardized high-quality components
- Exploitation of potential fast cycle times

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Teamtechnik bowl feeders, sound-absorbing hoods and hopper systems can be combined for a dedicated solution.

Tray handling systems
To guarantee process stability, single parts must be fed and presented correctly in the required cycle time, then reliably palletized. We supply tray handling systems that reliably handle a wide range of disposable trays, ensuring optimal flow between feeding and separation. Our proprietary tray handling systems are an integral part of our machine concepts, providing optimal, cost-effective interfaces for turnkey systems.

You benefit from:
- Integrated feeding and assembly processes
- Consistently reliable tray separation
- Individual solutions using standardized high-quality components
- Optimised cycle speeds
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Customer Service
Global and Always Nearby.

**Personal and individual**
teamtechnik ensures that customers with global production facilities, always have their production equipment available around the clock.

**Efficient and scalable**
teamtechnik’s global service management reinforces efficient operation of our systems after delivery. Before final acceptance, customers can select from a range of service modules, managed from our control centre and delivered by an experienced service organisation.

**Local support around the world**
Complex systems can be supported by a resident engineer based at the customer’s site, ensuring immediate support whenever it is needed.

**Overview of services**
- Spare parts and original equipment packages
- Remote support
- Retrofit – adapting a system to new products
- Technical support
- Machine relocation
- Production support, inspection and training
- Service agreements
- Individual service packages

**What we stop in a heartbeat:**
Standstill