



MEDICAL ASSEMBLY SYSTEMS



- Your partner from project concept to serial production
- An experienced and continuously evolving team
- Modular qualified platform technology MediTec®
- Global customer service

The medical industry is developing dynamically, creating the necessity for superior production systems that can quickly be put into operation while maintaining the highest quality levels.





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Making high-quality products available to everyone – sustainable and worldwide – that’s what we stand for at PIA.

Thomas Ernst, Co-Chief Executive Officer (Co-CEO)
PIA Automation Holding GmbH

MEDICAL



When only absolute quality counts

Demographic dynamics in society call for ceaseless new medical and pharmaceutical technologies and products. For more than 60 years, PIA Automation has been a reliable partner and innovative system vendor in the field of cost-optimized assembly of complex components.

PIA Automation develops and manufactures versatile, technically and economically mature assembly automation systems – including rotary indexing systems, linear transfer systems, customized systems and robot cells. The future-oriented complete solutions from PIA Automation are valued as the benchmark for specific assembly tasks in the medical and pharmaceutical industry. We support our customers with manual workstations for clinical trials or proof of principles, with semi-automated production lines for small lots and with fully automated systems for serial production.

A high degree of standardization, in connection with proven in-house expertise in qualification and documentation, enables PIA Automation to realize short time-to-market cycles when compared to competitive systems. Together with our customers, we develop testing concepts in order to design devices which are safe in functionality and handling. PIA Automation's design-for-automation principle achieves decisive cost advantages in regard to return on investment. Thus, the benefits of partnering with PIA Automation begin in the early stages of a design. Especially with sustainability and efficiency included in our primary objectives!

The perfect technology for every requirement:

- Transfer needles
- Auto injector
- Inhalor
- Dosing counter
- Insulin pen
- Troponin tests
- PCR tester
- In-vitro diagnostics
- etc.



SPECIAL MEDICAL PROCESSES

- precision filter stamping
- heat sealing
- liquid media dispensing
- siliconization
- separating, placing and gluing needles and tubes
- ultraviolet curing
- ultraviolet sterilizing
- ultrasonic welding
- laser welding
- assembling springs and membranes
- product marking
- leak testing
- flow testing
- electrical testing
- functional testing
- optical testing

MEDITEC® - SERIES

Innovative Product line for medical systems

Medical technology places very high demands on technology, qualification and validation. Process security is crucial, as well as documentation. PIA meditec® meets these high requirements on technology, hygiene and quality.

Meditec® has been on the market since 2009 as a longitudinal transfer system created in accordance with ISO Class 6. Continuously developed since then, today meditec's flexible process module series includes a portfolio of cells, pick & place handling, drive systems and HMI/SCADA software. We look forward to expanding meditec® further with our team's revolutionary technologies.

ASSEMBLY CELLS

PIA Automation's meditec® assembly cells combine the advantages of preassembled cells - namely high availability and short delivery times - with options for customizing and upgrading according to customer demands without neglecting GMP requirements. The cells are scalable in size as well as design and are suitable for manual workstations, semiautomatic machines or fully automated assembly systems with highly dynamic transport systems. For optimum space utilization within the cell and cleaning ease, electric and pneumatic components can be placed below the base plate. By the optional use of controlled inlet and outlet openings or ventilation boxes, the cell can be equipped with laminar flow.



DRIVE SYSTEMS

To transport components between single processes, PIA Automation uses workpiece carrier systems, rotary indexing tables, along with highly dynamic, flexible linear direct drive systems. The drive systems themselves, as well as the interaction with further PIA meditec® solutions, provide a cost effective assembly system for different cycle times perfectly usable in GMP regulated environments.





PICK & PLACE HANDLING

To handle components according to GMP, PIA Automation uses handling systems developed inhouse or conventional systems, qualified for medical applications. The handlings are designed to avoid movement above components. Process and component specific movements above the parts will be covered accordingly to rule-out out contamination of parts. Closed surfaces and low dead-space design provide cleaning ease. Meditec® pick&place handlings can be equipped with servo drives, cam drives or pneumatic cylinders according to task and cycle time.



HMI/SCADA SOFTWARE

Software validation and compliance with international rules (e.g. FDA CFR Part 11) play an important role in medical technology. Therefore, PIA Automation counts on well-proven and standardized software products which meet all requirements and can be adjusted according to customer needs. The advanced user interface offers an intuitive operation and allows a quick overview of various relevant machine and process data.



- Audit Trail
- Electronic Signature
- User Authentication
- Login Controls
- Batch Report
- Data Security

YOUR PARTNER FROM THE PRODUCT IDEA THROUGH THE MACHINE LIFE CYCLE

Together we ensure efficiency in every project phase

We combine efficient system solutions for our customers with five phases of project support that begin with collaboration during concept development, through product development and warranty, to service. Customer-specific requirements such as flexibility, variant diversity, cycle rate, and even the available assembly area play a central role throughout. As partners, we are always by your side.



PHASE I

Support with concept development from PIA Automation's perspective

Result:

- Feedback
- Preliminary definition Proof of Principles for Phase II



PHASE II

Support with design, creating manufacturing concepts, provision of necessary proof of principles

Result:

- Manufacturing concepts (HV draft, LV final)
- Completed PoP



PHASE III

Creation and qualification of production systems

Result:

- Qualified production systems creating devices for des

DESIGN & DEVELOPMENT

PRE-SER



PHASE III

LV

Systems for design verification



PHASE IV

Creation and qualification for manufacturing systems for mass production

Result:

- Qualified systems for mass production



PHASE V

Production support for ongoing production e.g. optimization, service, maintenance

Result:

- Efficient ramp-up phase with higher output

PHASES

MASS PRODUCTION



PIA
AUTOMATION

DIAGNOSTICS OF HEART ATTACKS

Immunoassay assembly systems protect lives

PIA USA has been contracted by a leading medical diagnostics manufacturer to build an immunoassay assembly line for tests used in the detection of troponin in fluid samples used to aid in the diagnostics of heart attacks. Once more, through their work, PIA has the honor of helping to protect and save lives.

PIA's assembly and testing equipment is fast, safe, accurate, and delivers high-quality products that help protect and save lives worldwide.

The automated high-speed assembly line is composed of two main sections: One that produces the basic bottom half of the immunoassay and one that produces the top half of the product, with lids and filters of the product, before laser welding the two halves together. Both sections have a number of specialized processes, such as high-precision dispensing units, a precise filter placement followed by heat-stacking, and multiple lasers which are scribing, etching, and welding. The quality of these processes are checked by multiple camera inspection stations along the line before applying a final product label at the end.



” Our experience with low cycle times, where precision and compliance with high quality standards are equally important, make us the ideal partner for such projects.

Falc Borchard, Vice President Sales & Applications
PIA Automation North America

The special characteristic of this line is the extremely low cycle time.

- 20 stations
- 3 seconds cycle times
- 1.200 parts per hour

PIA INDUSTRIAL APP SUITE



The digital package of the future

The PIA Industrial App Suite (piaIAS) is a modular software package and contains smart apps to meet the challenges of assembly line operation and optimization. In developing the apps, the knowledge of custom machine builders - especially the expertise of PIA Automation - and customers from a wide range of industries were combined to create a digital solution portfolio that is perfectly aligned with customer requirements. Assembly and test systems can be analyzed worldwide, their weak points localized and their productivity optimized whether it is a single station or a complex interlinked assembly line locally on site or remotely at another location.

PIA's smart tools address different user groups with their features by providing information for line workers, evaluations for shift managers and the maintenance team, or reports for management. All apps share the following advantages: (1) Increasing the degree of digitalization of production, (2) future-proofing thanks to modular, expandable design, and (3) reduction of travel through location - and device-independent access.

ADVANCED

DATA ANALYSIS



ET piaOEEtracker
to increase
Availability

Target groups: Production Manager

Key-Features:
Classification of errors

Benefits:

- Increasing availability at line and station level
- Increase of output by avoiding standstills
- Efficient use of existing assembly line capacity



AN piaAnalyze
to improve
Quality

Target groups: Quality Manager

Key-Features:
Analysis of measurement and process data

Benefits:

- Increase in the quality of production
- Reduction of costs by avoiding rejects or increasing the OK rate
- Avoidance of rework and thus increase in assembly line profitability



OP piaOptimum
to optimize
Efficiency

Target groups: Production Manager
Optimization Team

Key-Features:
Analysis of cycle times and sub cycles

Benefits:

- Increase in efficiency, output and thus assembly line profitability
- Reduction of costs through earlier production start (short ramp-up phase)
- Support of optimization measures during operation

BASIC

DATA ACQUISITION



VB Visibility Box
to raise
Digitalization | Transparency | Insight

Target groups: Production Manager | Operator

Key-Features:

- Dashboard for production data
- Calculation and visualization of the OEE key figure
- Visualization and localization of assembly line bottlenecks

Benefits:

- Increasing the information base (transparency) through a global and flexible assembly line insight in real time
- Reduction of costs due to the ability to react quickly to changes in key figures
- Reduction of costs due to less time and personnel needed to locate bottlenecks

CUSTOMER SERVICE

Our service ensures maximum availability

With our modular and configurable service packages, PIA Automation offers professional solutions to optimize the uptime of your machine. PIA Automation offers a wide range of customer services such as reactive service, preventive service, adaptive service and even predictive service.



We make high-quality products available to everyone – sustainable and worldwide.



creating efficiency.
in global medical assembly systems.

Austria. Canada. China. Croatia. Germany.
Mexico. USA.



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