



Small Scale Autoinjector Assembly



RAYA 2025 Finalist Event

Speakers



**Dr Sebastian
Trennheuser**
Vice President Operations



Fabian Stutz
CEO



About Pharmabotix



- Swiss-based automation & robotics specialist for pharmaceutical and biotech industries.
- From Consulting & Engineering – to Turnkey solutions and special projects (Annex1)
- Focus on flexibility, GMP compliance, and digital integration
- Innovative, modular machine concepts enabling fast changeovers and future-ready automation.



About PSM



- Family owned German end-to-end **CDMO** (1.5 hrs west of Frankfurt Airport)
- Approved according to new EU GMP Annex 1
- Fill and finish services for clinical trials and commercial batches
- RTU syringes, vials and cartridges for batches up to 600 L (20 L for orphan drugs)
- Focus on biological products, biosimilars, mAbs, mRNA,...and also small molecules

About PSM

End-to-End from clinical phases through commercialization of products



About the project

- Clinical phase project
- Requirements of filling 1500 cartridges including pen assembly (end-to-end)
- Required processes:
 - Compounding
 - Filling of pre-crimped cartridge (A in B)
 - Vacuum Stoppering (A in B)
 - Manual VI (D)
 - (Automated) Gerresheimer pen assembly (D)



Drivers for the Automation of this Process

- Follow strategy of automating key processes
- Manual non-critical handling steps for cost efficiency reasons
- High force and accurate press fit requires a mechanical support anyhow
- «It's fun to explore new technological solutions»

Requirements

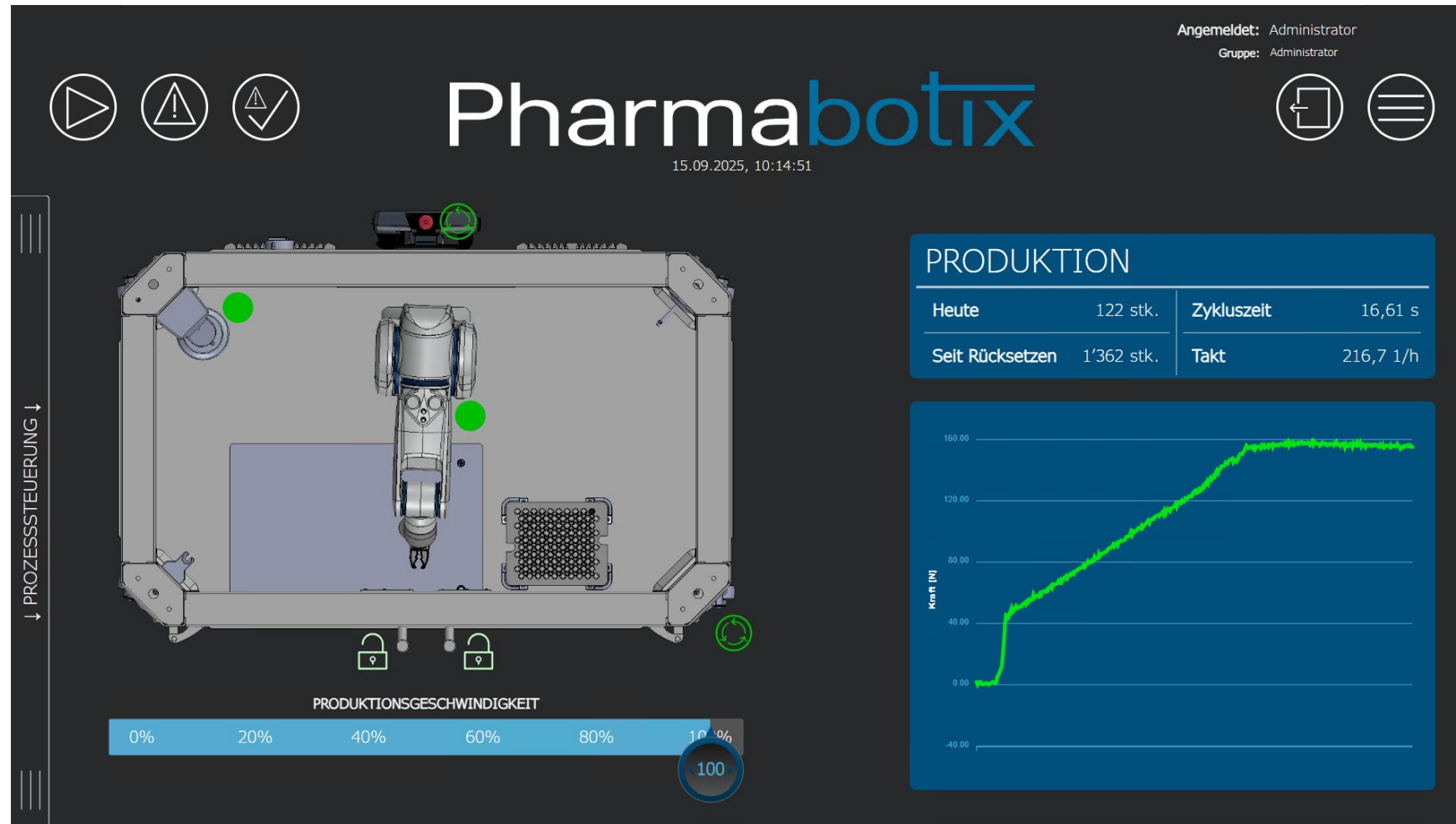
- Small Scale Autoinjector Assembly for Clinical Studies
- Infeed / Outfeed Ports for front and rear assembly
- Infeed station für cartridges
- Servo press for the process-reliable pressing together of assemblies
- Evaluation of servo press data, including force sensor
- 3 pcs / minute
- Autoinjector Gerresheimer Gx Inbeneo



Equipment overview



Robot Integration and HMI



Robot Integration and HMI



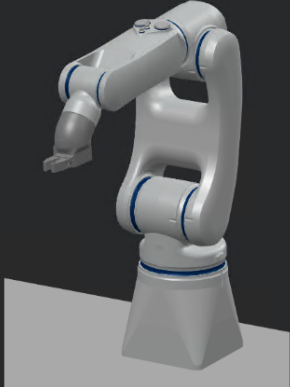
Pharmabotix

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Angemeldet: Administrator
Gruppe: Administrator



STATION 1: ROBOTER



Zustand: Bereit



Aktives Wechselteil: Autoinjektor 1
Aktives Teil: Leer

GERÄTE

Handling
MOTOMAN HD8
YRC1000micro
/

Greifer
Zimmer GmbH
GEP2006IL-00-B
-

JOBS

11002 - Initialization
Bringt die Station in Grundstellung
und führt einen HwCheck aus

11003 - ToServPos
Bringt die Station in
Service-/Wechselposition

11010 - Get Tray or Tab
Teil aus Tray oder Tab entnehmen

11011 - Put Tray or Tab
Teil in Tray oder Tab einlegen

11012 - Get Regrip
Teil aus der Umgreifstation
entnehmen

PARAMETER

Maschinenparameter

Unterteil

Innengreifen

AUS

Telleposition

10,0 mm

Positioniertoleranz

1,0 mm

Greifkraft

1

Oberteil - Tray-Griff

Innengreifen

AUS

Telleposition

10,0 mm

Positioniertoleranz

1,0 mm

Greifkraft

1

Oberteil - Presse-Griff

Innengreifen

AUS

Telleposition

10,0 mm

 ISPE®

Connecting

Pharmaceutical

Knowledge

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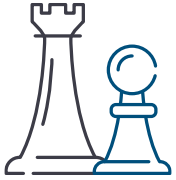
Design & Cleanability



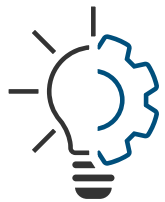
Summary



- Attractiveness:**
- Adapted to customer process, compact and easy to use
 - Reliable and stable production speed

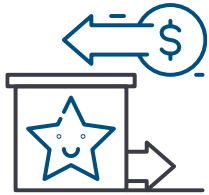


- Flexibility**
- Suitable for different types of Gx Inbeneo Injectors
 - Very short setup times - ideal for small batches



- Easy operation**
- Graphical User interface insures smooth operation
 - Recipe / product-based, calculated positions
teaching unnecessary

Summary



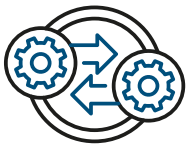
ROI

- <3Y by enhancing production efficiency and multiplying the overall output compared to the existing solution



Plug and play

- all shipped on one Baseframe – becoming operation after 2 days



Integration

- Anyone can buy it, apply without customization

Your vote for the audience award

- **Precision & Quality**
6-axis Yaskawa robot with servo-press ensures validated force control, full traceability, and GMP compliance.
- **Flexibility for Clinical & Small Batches**
Rapid adaptation to different autoinjector formats via recipe-driven HMI
- **Efficiency & Risk Reduction**
Automates all critical steps (3 pcs/min), minimizes human error
- **Plug & Play Integration**
Fully qualified system, immediate deployment in GMP environments, no hardware customization needed.
- **Sustainability & Future-Readiness**
100% electric drives, low energy consumption





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