



AUTOINJECTOR FINAL ASSEMBLY

500 000 - 2 500 000 PCS / YEAR



AutomationsPartners robotic assembly solution is based on proven processes developed for high volume machines for devices such as the SHL Molly Autoinjector. The robotic solution has a small footprint and is flexible in its design. With only minor re-programming and change of tools, adaptations to fit other Autoinjector devices can be made to a low cost. The flexibility of the machine make sure that also future needs can be met quickly and cost effectively. Compared to a bench top assembly solution the robotic solution offers high production rates and flawless precision. One operator only is needed to refill the machine with components from trays. The robotic solution also perform control after each assembly step in order to guarantee quality in each step of the process. Different options can be added to the solution, such as vision control of printed labels or in-line Process Control according the test ISO-standards.

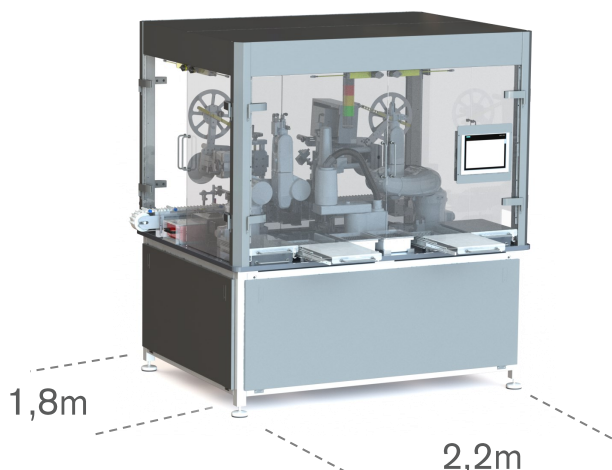
BENEFITS

- Proven assembly processes
- Flexible and future-proof
- High precision with quality control
- Adaptable for different Autoinjector platforms
- Small footprint

PLATFORM

- One stand-alone unit
- CE machine directive compliant
- Designed for cleanroom (ISO class 8)

FOOT PRINT



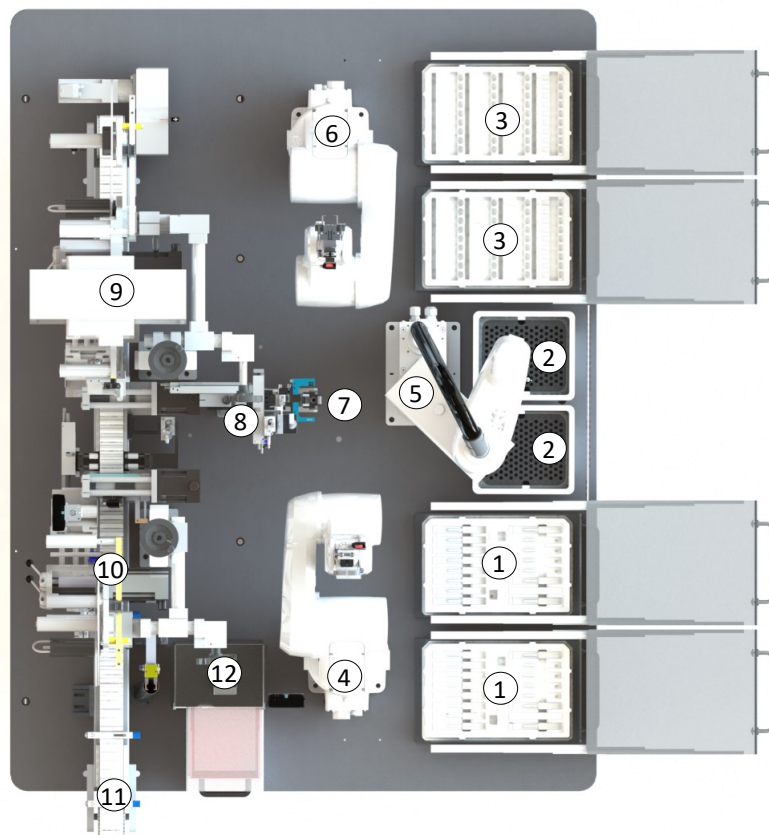
FUNCTION

The operator manually load component trays using the drawer function. The machine indicates when a tray is empty and ready to be replaced. Change of trays are performed without interrupting machine assembly. The machine picks components from the trays and perform assembly and quality controls. After the assembly the autoinjectors are placed on the conveyor for labeling of tamper evident labels and product labels. The product label is printed with customer specific production information such as pharma code or similar.



LAYOUT

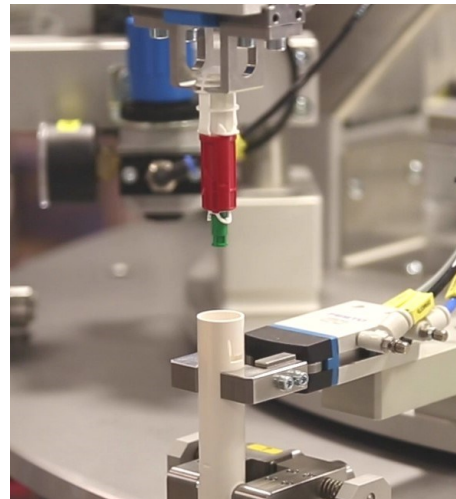
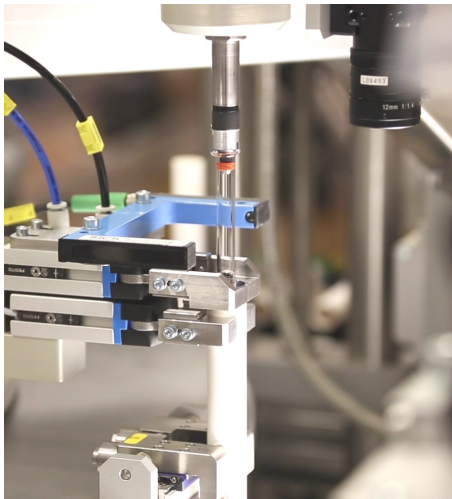
- ① Housing Tray
- ② Syringe Tray
- ③ Power Pack Tray
- ④ Robot nr:1
- ⑤ Robot nr:2
- ⑥ Robot nr:3
- ⑦ Assembly Fixture
- ⑧ Control Functions
- ⑨ Product Label
- ⑩ Tamper Label
- ⑪ Out-feed
- ⑫ IPC (Option)

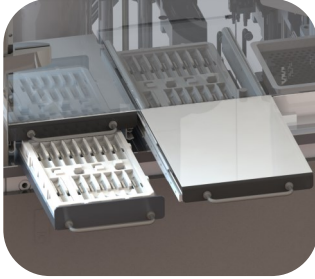




PROCESS STEPS

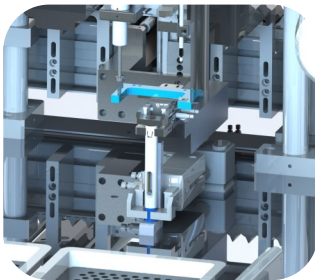
One operator manually load component trays using the drawer function. Two trays for each component. The syringe trays are loaded directly into the machine. The machine indicate when a tray is empty during production. The machine keep on producing during the tray change by using components from the second tray. The change will be performed according to CE-safety standards. The syringe trays are changed by stopping the machine approximately once every hour. Finished and approved products are transported to the outside of the machine safety cabinet by the conveyor.





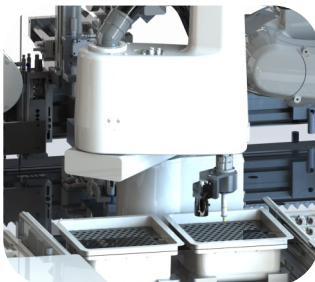
STEP 0:

Product trays are loaded in the drawer. The drawer is pushed in and the safety cover is retracted. The safety cover function enables tray changes during production.



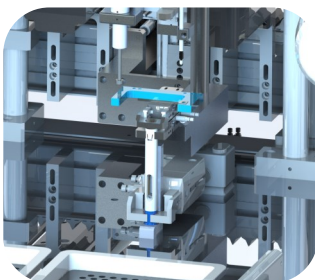
STEP 1:

The housing is picked by robot number 1 from one of the two trays and is placed into the assembly fixture.



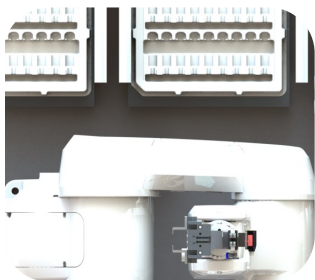
STEP 2:

Robot number 2 picks a syringe from the syringe trays with guidance of a vision system and assembles it into the housing. The vision system performs a control of the syringe flange geometry to detect damages.



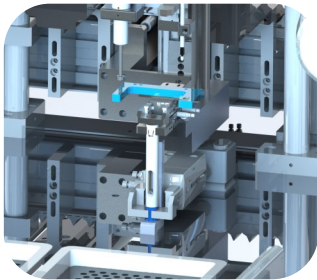
STEP 3:

The assembly of the syringe is checked by a sensing probe to make sure the assembly has been performed correctly.



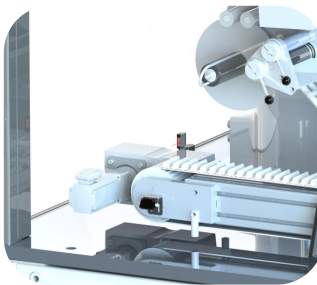
STEP 4:

The power pack is picked by robot number 3 and is reoriented and assembled into the housing.



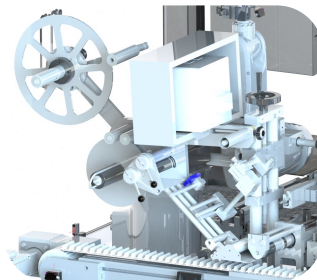
STEP 5:

The assembly of the power pack is checked by a sensing probe to make sure the assembly has been performed correctly.



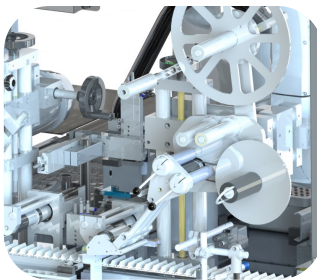
STEP 6:

The assembled and approved autoinjector is placed on the conveyor by robot number 3.



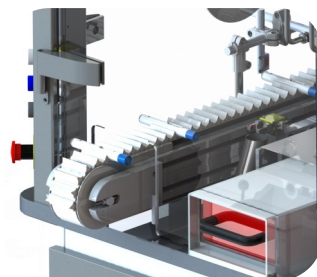
STEP 7:

The conveyor indexes and the product label is applied. The product label will be printed before applied with customer specific information such as pharma code.



STEP 8:

The conveyor indexes and the tamper label is applied.



STEP 9:

The conveyor indexes outside the machine cover and the approved autoinjectors can be collected into bulk. Options can be supplied such as a longer conveyor buffer or a placing of the autoinjectors into a tray.



CAPACITY

Machine production pace is 5 parts per minute.

Examples of yearly production.

5ppm x 60min x 8 hours/day x 210days/year \approx 500.000 pcs/year

5ppm x 60min x 21hours/day x 365days/year \approx 2.600.000 pcs/year

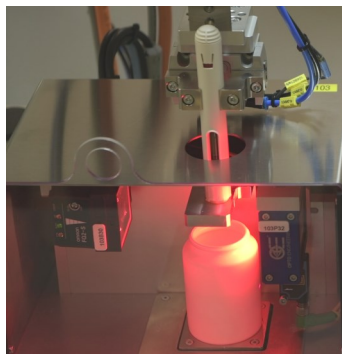
DELIVERY TIME

The delivery time is 4-6 months to FAT depending on the options added and current orders within Automationspartner.

OPTIONS

Optional functions and equipment can be offered to the standard solution. Functions required by some depending on the specific use and customer requirements.

- Vision inspection of print on product label
- Force sensor for syringe assembly
- Extended outfeed conveyor
- Tray placement of approved products
- Control System Validation (CSV)
- IQ and OQ, support with protocol and reports
- Integrated IPC (In-line process control) according to ISO-standards
 - Cap-removal force.
 - Activation force
 - Injection time
 - Dose accuracy
 - Injection depth





AUTOMATIONSPARTNER

AutomationsPartner designs and delivers production lines and production support systems for the medtech and pharma industries.

World-leading medtech companies enlist AutomationsPartner to engineer innovative, robust standardized and custom-made solutions. Since the early 1990's, AutomationsPartner has successfully supplied more than 400 automated production lines to the life science industry.

AutomationsPartner was founded 25 years ago in Helsingborg, Sweden and employs just over 50 people. It is built on strong and innovative Swedish engineering traditions.

AutomationsPartner utilizes fully implemented procedures for qualification and validation (DQ, FAT, SAT IQ and OQ) and a PDM-based system for project management, which ensures high quality equipment and on-time delivery.



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