

AUTOMATIC ASSEMBLY AND GLUING MACHINES

Apiel produces machines and automated lines to make even complex assemblies. The assembly can be realized for screwing, gluing or by interlocking.

We can provide from simple pick and place systems to complex systems for multi-axis assembly of several tens of elements, manufactured as a single machine or as automatic assembly line.

To store the individual components are used: port piece pallet, accumulation tables, vertical loaders, baskets. If the component allows, vibrating feeders are also used.

We have developed systems for the assembly of fittings, guides for the furniture industry and for the production of displays and samples.



Here are some achievements.

AUTOMATIC MACHINE FITTINGS ASSEMBLY

The two figures above and on the left depict an assembly machine for brass fittings shown in the figure below. The fitting consists of a body (component with larger dimensions), by a retaining ring (smaller component) and by a ring (component left). The machine can assemble 10 different types of connection: 1/2", 3/4", 1", 1 1/2", 2" both male and female.

The machine has a magazine that contains the trays with the fitting body (right part). A 3-axis Cartesian robot picks up the body and puts it in one of two groups of screwing.



On an accumulation table ,made with steel slat chain, there are sleeves (left) and rings of the fitting (right). The table, moving forward, pushes the rings and the sleeves into two funnels with mobile guides. A manipulator (2nd photo of the page) places the ring on the body and then the ring that is tightened. Completed the mounting, the robot removes the fitting itself by tightening group and puts it on a conveyor.

The photo on the left shows the automatic storage of trays bodies. On the right side the stack of trays with the fittings is inserted. On the right side you extract the empty trays.

The machine is controlled by a PLC Omron CJ1M that drives the servo motor drives brush less Panasonic. The operator interface is realized with a panel Omron.

A special feature of the machine is the automatic size change of the accumulation table. The guides of the funnel and the arrests of sleeves and rings are motorized and they automatically adjust to the size of the fitting.



Automatic pallet warehouse



Removed junction

GLUING MACHINE OF THE SAMPLES

The sample of the picture below on the left is an example of a product made with the machine to the left. The machine is constituted by 20 chargers that contain pieces of tile.

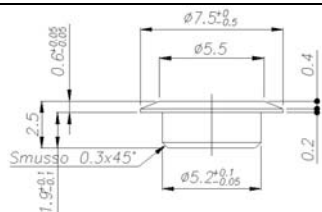
A robot picks up the carton from a warehouse and it is brought in the gluing station; moreover it disburses the hill at the marked positions.
A second robot picks up the tiles and it places them in the points of bonding.



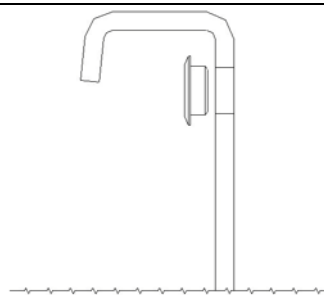
Macchina incollaggio campionari

MOUNTING PLUGS GROUP

In the right figure below, we report a semi-automatic machine for installation of anchors for drawer slides. The assembly diagram is shown in the drawing below on the left. The pieces are contained in the feeder vibrant wraps on a tape. The tape carries the pieces in an inserter that brings one under the punch.



Plug



Mounting of the plug



Inserter of plugs

The operator must place the guide over a dowel. With a press of the pedal, the punch force the plug into the hole.

Apiel deals with the design of the construction and installation of the systems.

The customer service is guaranteed by the same Apiel that, being the custodian of the know-how of the system, is able to ensure maximum efficiency in solving problems.

The end customer is also followed with the realization of changes additional systems and after sales service.

Should you have any processes to be automated, you can submit our technical department for a proposal.



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