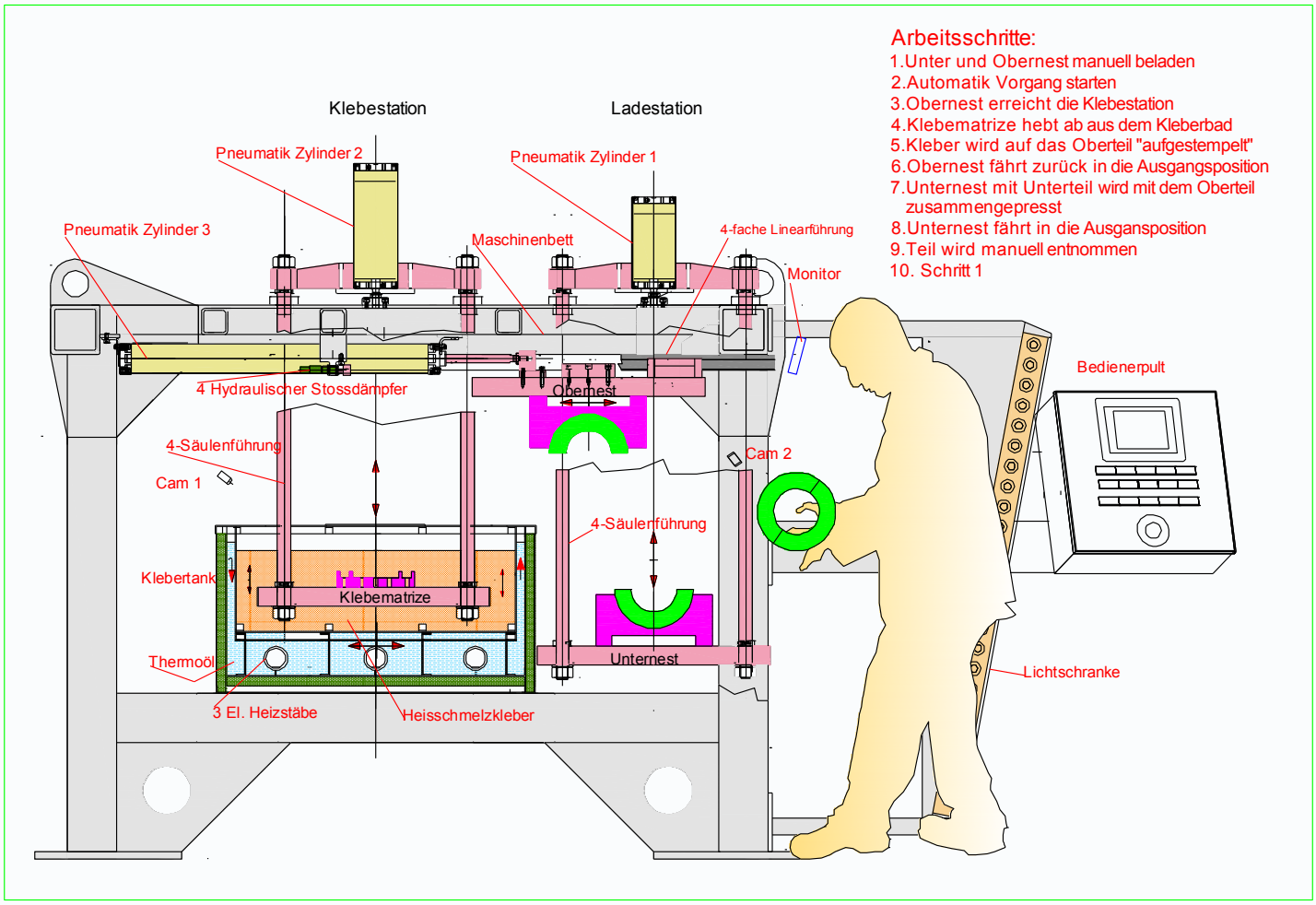
Hot melt glue machine CGp 11071

Designed especially for Lost Foam Technology



⇒ Principle of the method: The joining of two segments of pattern is carried out by applying melted glue on a segment by means of a contour printer and then joining it with the second segment.

⇒ In order to achieve an optimal connection, the most important factors are:

⇒ Tool design (especially design of the glue contour printer)

⇒ Volume of applied glue

⇒ Viscosity of the glue at the time of the segments assembly

⇒ Quality of the glue

⇒ Quality of the foam pattern segments

⇒ Process capability of the machine.

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Description of the machine

Mechanics

Both loading tables, sled and associated guide elements are built on a common machine bed.

For the horizontal guidance of the sled (upper loading table), precise profile linear guides are used, as is customary in high-performance machining machines.

To reach the OPEN TIME less than 5 seconds, the horizontal stroke is driven pneumatically. The de-acceleration at end position is fulfilled by means of hydraulic shock absorbers.

The vertical strokes of the lower loading table and gluing contour die are designed as 4— guide rods with bronze bushing, and are pneumatically driven.

Tapped holes are provided in the upper and lower loading tables for the attachment of the tooling.

The receiving table of the glue printer die is also provided with threaded holes.

In order to achieve the required accuracy, all mounting plates are milled, then stress-free annealed and subsequently sized.

The glue printe die , which usually has to be adjusted frequently, is easily accessible from the back of the machine.

Controls

Fully automatic control of all movement sequences for high repeatability at short cycle times.

Times for glue drain off phase, glue transfer (kiss) and dwell time are easy adjustable.

In order to maintain the viscosity within the optimum processing range, the glue, which is located in the double jacket tank, is heated by means of a thermo-oil circuit. The temperature of the glue and the oil is controlled by PID control. This provides the required accuracy of the glue temperature and the viscosity. Two agitators additionally ensure an even bath temperature profile.

The glue tank is in stainless steel, insulated with glass wool and covered with aluminum cover.

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Loading the segments

The top loading table (nest) is monitored with CAM for precise and fast product loading (insertion). The operator can inspect and enlarge the insertion of the upper segment from its position via a monitor and, if necessary, correct it. The second CAM monitors glue transmission and is primarily useful in setting up the tooling.

The control cabinet and main monitor are positioned on the front of the machine. The machine operator is constantly informed about the process status. In manual mode, the individual movements can be carried out via push buttons and selector switches.

For the holding or releasing the segments inside the nests vacuum or pressure can be activated.

For this purpose, there are 5 control work valves n board, which are freely selectable by software. A compressed air maintenance unit is connected upstream. Vacuum unit is part of the tooling configuration.

Operation, control, monitoring

The PLC in conjunction with "touch screen" informs the machine operator or set up personal about the temperature of the glue, the position of the tables, cycle times and process times as well as faults and more. All setting parameters can be stored and recalled as required.

The main electrical cabinet is attached into the machine frame and contains all control elements for the motors, PLC and related hardware.

An easily accessible pneumatic block for the movements of the lower table, top table and glue printer die are installed as close by the pneumatic cylinders.

Safety

An infrared light curtain, safety gates and corresponding emergency stop circuits, which are designed according to UVV, ensure the safety of the machine operator and the employees.

Note

Our application engineers are available for the conceptual design of the gluing tools as well as the choice of the suitable hot melt glue.

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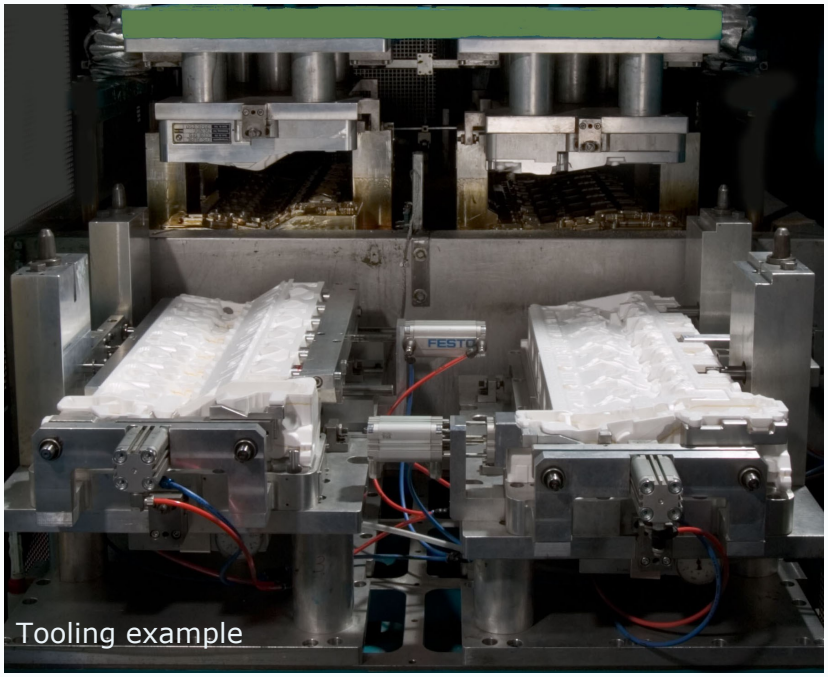

Tooling example


Visiual control

Technical data

Maximum opening between Lower and Upper table	560 mm
Table size	710 x 1100 mm
Stroke of lower table	200 mm
Stroke of glue printer table	300 mm
Maximum opening between Upper table and Printer table	280 mm
Stroke of upper table (sledge)	850 mm, +/- 0,1 mm
Connected electric power	48 kW / 220 V AC / 24 V DC (SPS)
Maximal table load	160 kg
Air consumption	…Nl / min at 5 bar * depended on tooling and Pattern configuration
Water consumption (to cool thermo-oil pump sealing)	3.8 l / min at 4 bar
Glue tank capacity	400 Liter (~240 kg)
Control of glue temperature	Integrated PID control loop +/- 2 °C

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