hitmark = robotics

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Laser Marking Stations for Insulation Elements in Water Tanks for Concealed Toilet Systems.

CASE STUDY

Client:

Tece Industrial Sp. z o.o.

Industry: Finishing elements

Location: Completion date: Strzelin luty 2024

Process safety is the key to success.

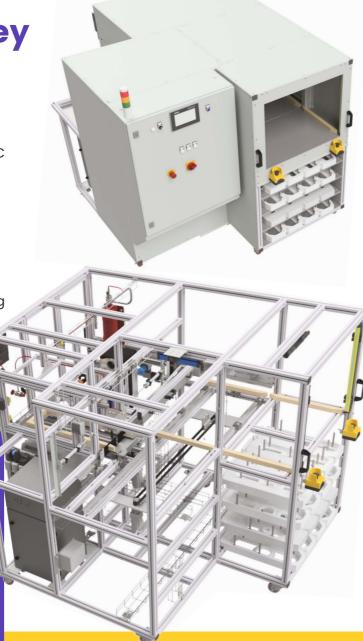


The client's goal was purely marketing - marking polystyrene insulation of WC water tanks with the TECE logo, so that the installer could see the TECE logo at the time of installing the concealed set. This goal was dictated by market trends as other manufacturers also mark their products in this way. It also helps in recognizing and distinguishing the manufacturer on store shelves.

CLIENT'S ORDER

Designing and building two laser marking stations

- Initially, there was a site visit to the HIRSCH factory, which produces insulation on behalf of TECE.
- Laser trials were performed because different styrofoam elements had varying moisture levels, and it was necessary to check how the laser would behave in specific cases.
- The first idea was to install the laser in the machine producing styrofoam elements, but due to a large number of variables plus human intervention, it was impossible.
- The biggest challenge was installing the
 extinguishing system due to the flammability of the
 product and the environment mostly made
 of styrofoam. It was necessary to get information
 from BASF (styrofoam manufacturer) on the type
 of material used for production and choose
 the appropriate extinguishing mixture that would
 most effectively extinguish the product.



MARKING PROCESS BEFORE THE IMPLEMENTATION OF HITMARK'S SOLUTION

The styrofoam insulation products were not marked

Tece company tried marking with labels, but it required employee involvement and there was a risk of label damage during packing or transport.

Thanks to laser marking, the TECE company's logo is durable and legible, and most importantly, the process is fully automated.

Implementation

The laser marking station was entirely designed and manufactured by HITMARK.

Challenges:

- Conducting discussions with several companies:
 TECE, HIRSCH, and the vision system supplier.
- Implementing the appropriate extinguishing system.

The solution proposed to the client and its functionality can be divided into the following stages:

- The operator places 4 pieces of insulation in dedicated molds.
- Transport to the marking chamber.
- Verification through the vision system
 of the number of products and their correctness
 according to the parameters selected
 by the operator.
- HITACHI CO2 LM-C331 (30W) laser marking process.
- Release of the marked product



Summary

The implementation of laser marking stations for insulation elements in water tanks for concealed toilet systems was a response to marketing needs for the entire product to be permanently marked. The client chose laser technology because other solutions, such as labeling, were unsuitable due to durability and resistance to mechanical damage.

Process completion time:

from initial discussions about 1.5 years, but the actual preparation process from signing the contract: 6 months.

Process efficiency:

4 pieces / 50 seconds

Station dimensions:

~ 175 cm x 198 cm x 153 cm

Weight:

about 800 kg

Printer:

LASER HITACHI CO2 LM-C331 (30W)

Benefits for the Client

- The ability to permanently mark the product according to the needs and guidelines of the marketing department
- The mobility of the station allows it to be placed in the most convenient location on the production floor and provides full flexibility in case of expansion of the hall

"Hitmark demonstrates high competence, punctuality, and attention to detail. Their dedication and professional approach to every stage of project execution allow us to wholeheartedly recommend their services to other companies."

Sławomir Krówka

CEO of Tece Industrial Sp. z o.o.

