

Automatic placement system

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Specialization Electromechanical Engineering Technology

Introduction




- Japanese company with factory in Genk
- Manufacturer of tapes, foils and foam rubber
- Products used as components in the manufacturing of products from other companies

Situation

- Foam rubber production line
- Adding 2 kinds of additives to the production line
- The additives causes a reaction in the natural rubber that results in foaming

Process



Problem definition

- Inefficient process of the placement of additives with a lot of human labour
- Possibility of wrong end product due to human errors
- Risk tearing of the additive bag

Objectives

Creating an automatic placement system that reduces the need of human labour. From arrival of the box with additives to the weighing and placement of the bags on the conveyor belt.

Design

1. Scissor lift:

Pallets with cardboard boxes full of additives are put on the scissor lifts and raised to the height of the box buffer.

2. Box pusher:

An actuator pushes the boxes into the box buffer.

3. Box buffer:

The frame of the box buffer helps to keep the boxes positioned in one place while the bags are being placed.

4. Multifunctional tool:

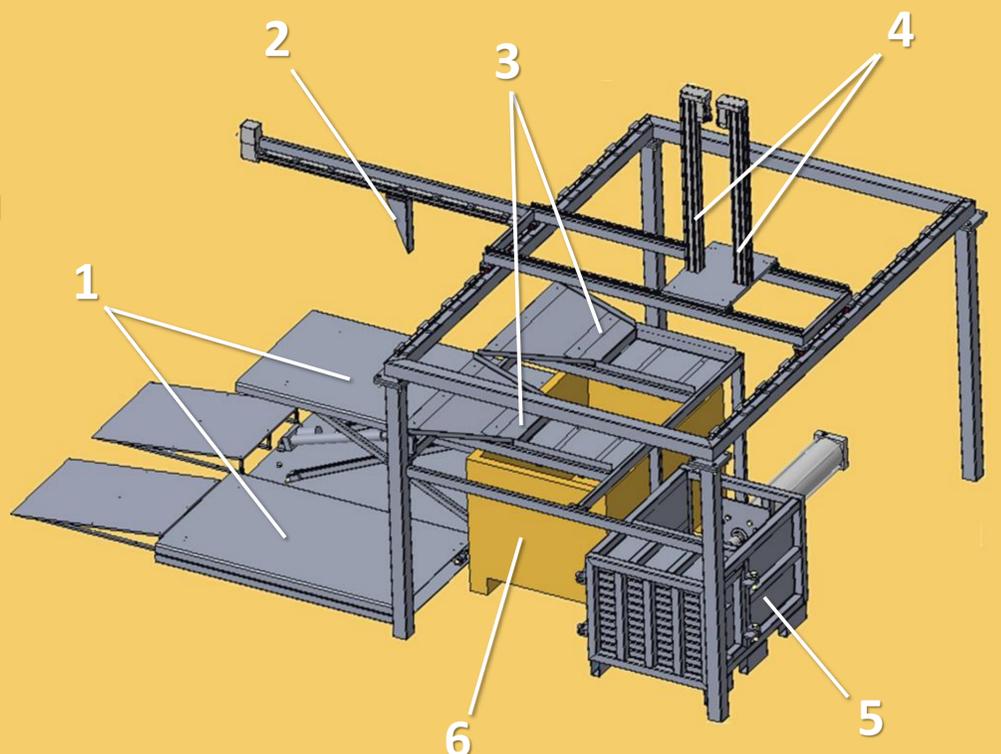
This consists of a knife for opening the boxes and suction cups to pick up objects, each on a separate actuator and placed on an XY-table. Both tools can move freely in the XYZ-dimensions.

5. Compactor:

All cardboard waste will be picked up by the multifunctional tool and placed in the compactor.

6. Pallet box:

Before placing the bags on the conveyor belt they are weighed, If the bag is the wrong weight it will be disposed in the pallet box.



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Sources information and photos:
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