# DIPLOMA THESIS

**Documentation**

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<tr>
<th>Author(s)</th>
<th>Leander Löschnig</th>
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<td>Robin Süssle</td>
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<td>Form</td>
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**Assignment of tasks**

The company Acmit GmbH, located in Wr. Neustadt, is specialized in robotics, sensors and micro optics. The day-to-day business is to perform development projects for their customers. A customer defined the requirement of full automatization of the wound compression packaging process. Currently, this process is carried out by hand. In order to remain competitive with low-wage countries, the customer wants to automatize the process. Directly from production, the compressions are delivered in a sterile box. The compressions should be picks out of the box and packaged subsequently. The "box picking" puts high demands on the gripping system:

- Picking of compression tilted up to 30°,
- Reliable gripping of the compressions,
- Safe transport of the compressions,
- Ability to grip compressions in two sizes.

These points were defined as the task to be completed by the undergraduate students and represented the origin of the work performed.

**Realization**

The first job was to find out which grippers would meet the requirements and what sort of grippers were currently available on the market. At the same time brainstorming provided the first practical ideas and concepts. In meetings with the company supervisors the following conditions were defined:

- Use of several small grippers, instead of a large, rigid Bernoulli gripper.
- Application of a linear drive, which in combination with the rotation of the robot spindle can grip and manipulate compressions in horizontal or inclined settings.
- The size of the gripper is adjustable.

Based on these conditions, design of the gripping system could be started.

**Results**

All parts were designed and currently are manufactured by Acmit GmbH. It was agreed that the gripper is assembled after delivery of all components and is presented in course of the oral part of the final examination.
Illustrative graph, photo (incl. explanation)

Design of the flexible gripper

- Compressed air supply for Bernoulli gripper
- Compressed air circuit for extension of the pneumatic cylinder
- Compressed air circuit for retraction of the pneumatic cylinder
- Flange
- Compressed air distributor
- Bernoulli gripper

Participation in competitions

Awards

No

Accessibility of diploma thesis

AV Hörlesberger

Approval

Examiner

Dr. D. Koller-Milojevic

Head of Department / College

G. Hörlesberger/Harald Hrdlicka