Application of sealing rubbers in window frames

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Specialization Electromechanical Engineering Technology

Introduction

Aluzon NV is a Belgian production centre of aluminium joinery located in Zonhoven. Aluzon constructs windows and verandas on small and large scales. They use innovating techniques and deliver high-end products. Aluzon strives for maximum automation to guarantee the highest quality for their costumers. In their pursuit for automation Aluzon needs a machine to apply the sealing rubbers in their window frames. Until now it is done manually. This process can occasionally halt all joiners for multiple hours.





Problem definition

- The manual application process is very slow, it can take many man-hours on large orders.
- The joiners have to quit their actual task to apply the rubbers and thus they are less efficient.
- Right now it is a manual and tiring job.

Main objectives

- Stop the joiners from having to leave their actual job.
- Shorten the application time by at least three times.
- Apply the two rubbers simultaneously.
- Guarantee a high quality seal.
- Products can't be damaged.
- Must work with five different profiles and three different rubbers.

Mechanical design

The walking beam

This system transports the profiles along step by step. In the middle of the table the profile drops into place ready for the application process. When the rubbers are installed, the walking beam is set in motion again to supply the upcoming profile.

The slider

This component brings two rubber strings to the end of the profile and inserts them. Then the slider slides over the profile (up to 6 m) while rolling the rubbers in further. Once the rubbers are installed a scissor cuts them to complete the application process.



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