

# Success Story

## Assembly of clamping rings with a cobot for KMH - Kammann Metallbau GmbH

Feasibility study for a semi-automated production line for  
assembling clamping rings.





# Assembly of clamping rings with a cobot

## Company description

KMH is one of the leading manufacturers in Europe of clamping rings or flange connected pipes, components and systems for aspiration and bulk materials of all kinds. The specialties are individual pipe systems and tailor-made special products of all kinds in order to be able to react quickly and flexibly to the individual requirements of the customers.



## Motivation/Starting Point

Currently, the rings are assembled completely manually. This is a monotonous and ergonomically unfavourable task that the worker has to do for 8 hours straight. In addition, some of the rings have to be assembled externally to achieve the required volume. By automating the process, KMH hopes to be able to assemble the rings

completely in-house again and at the same time achieve a higher production quantity and quality. They also hope that this first robotic application will be the foundation for more automation in the future.



## Analysis

Due to the many different diameters of the rings, the line must be very flexible. At the beginning of the project, two challenges were identified that had to be overcome. The ring halves cannot be provided in a lattice box as before, because separating them with a robot would otherwise be too complex and time-consuming due to the geometry of the parts. The second challenge is to align rotating threaded inserts in the rings so that a bolt can be inserted through both. At the end of the project, the line should achieve a cycle time of one ring per minute.

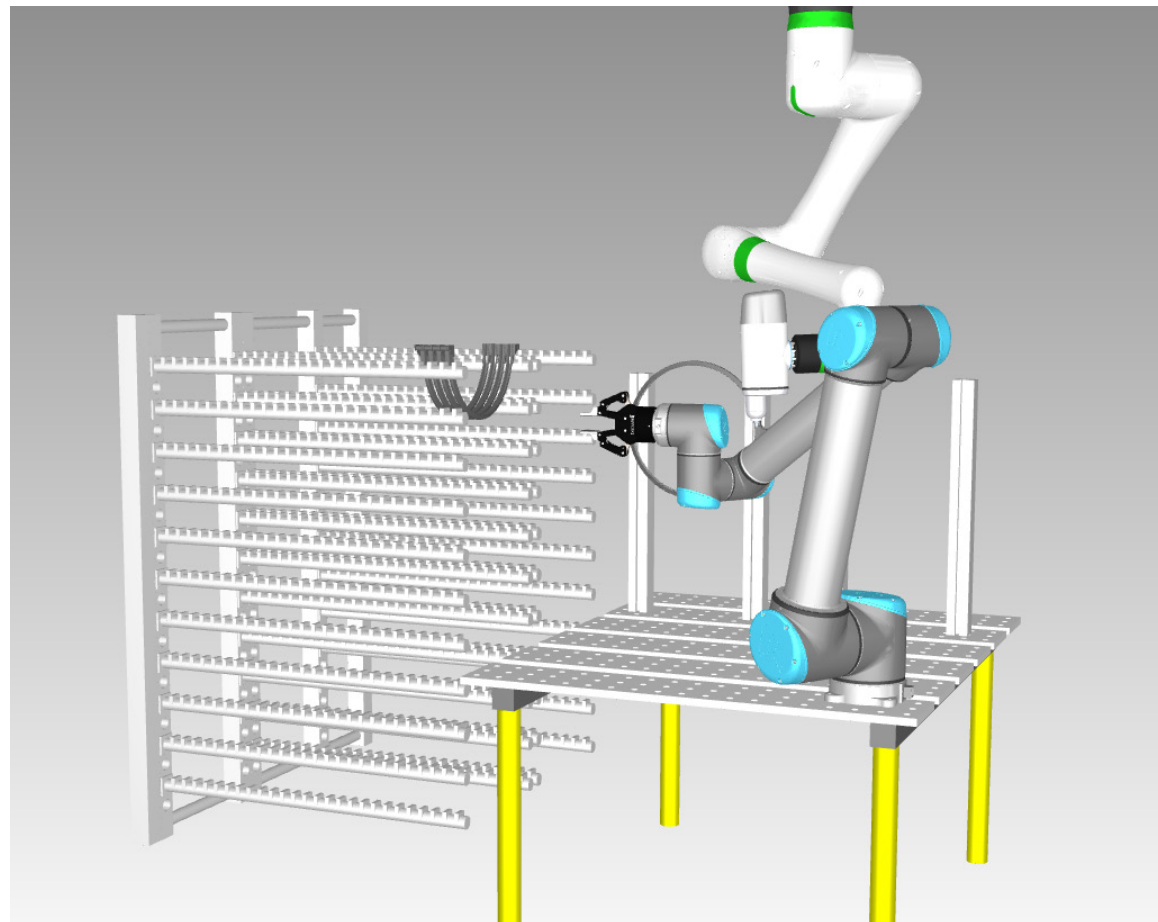
## Technical realization

To implement the project, a system with two cobots is planned. The first robot removes the ring halves from a material chute and positions them in a holding device. This robot also removes the assembled rings and places them in a grid box. The second cobot is equipped with a bolt-tightening tool and is responsible for assembling the rings.



## Result

The feasibility study has shown that it is necessary to load two fixtures at the same time in order to achieve the desired cycle time. In the tests, the material slide proved to be a good solution for feeding material (provided you choose the right angle).



## Interview

### How could COTEMACO support you?

The COTEMACO initiative and the cooperation between the project partners gave us the opportunity to find a solution for a more efficient assembly process. Realising this concept could secure the production and assembly for the product in a cost efficient manner. The project work with the university and the supplier combined made the concept forward-looking but also actionable. The initiative gave us a good platform for an open and cooperative project execution.



### What is COTEMACO?

The project, which is an initiative of Interreg North-West Europe, aims to support around 60 SMEs in the automotive and food manufacturing industries with so-called „test environments“ and to encourage them to integrate collaborative robotic systems and digital technologies into their business. Accordingly, in addition to increasing production flexibility, the relocation of production abroad will be curbed and the number of jobs in manufacturing increased, which will generally lead to an improvement in the competitiveness of the companies involved.

In the project new technologies are implemented in application examples - the aim is to move from the prototype in the laboratory environment to the transfer to production, taking into account the legal situation and certifications.

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