



1 *Semi-automated coil assembly.*

2 *Door assembly with human-robot collaboration.*

(Source: ARENA2036)

ASSEMBLY PLANNING WE'LL DEVELOP YOUR AUTOMATION SOLUTION

Status quo

If you have decided to automate some assembly processes or even a complete assembly line based on the results of an automation potential analysis, for example, the next step is to design and plan the right automation solution to do the job. Depending on a number of general constraints, such as the predicted component volume, amount of space available, spectrum of parts used, product life cycle, capacity to provide or singularize parts, as well as joining techniques, a range of alternative solutions can be implemented. Thereby both to automate the various processes as well as link them up with one another and design the corresponding material flow have to be addressed. We would be happy to help you develop an automation solution tailored to your requirements.

The IPA solution approach

We plan automation solutions in close collaboration with our customers using the methodical and structured procedure described in VDI Guideline 2221. This procedure has proved to be effective in numerous planning projects for automation solutions and can be described by the following steps:

Determine requirements and elaborate assessment criteria

From the given general constraints, such as product features or productivity targets of the later production process, the requirements of the various assembly processes are documented in a joint workshop by automation experts from Fraunhofer IPA together with the customer. Assessment criteria for the automation solution are then derived on the basis of these requirements.

Fraunhofer Institute for Manufacturing Engineering and Automation IPA

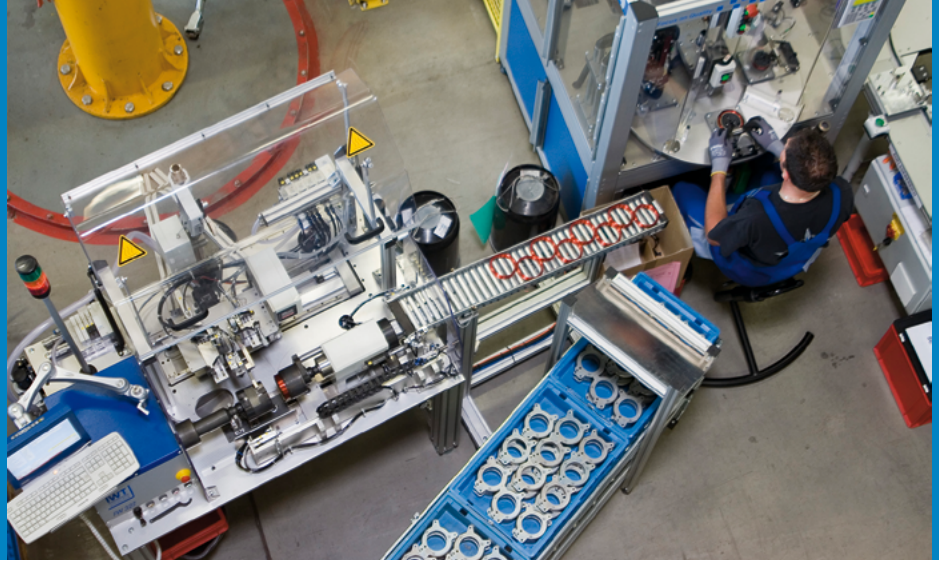
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Develop and evaluate sub-concepts

In line with the requirements noted, potential technical functionalities are developed independent of equipment manufacturers and documented for all identified sub-tasks, e.g. feeding and singularization, or handling and joining. To structure alternative solutions and support the development of synthesized partial solutions into alternative overall concepts, we apply the “morphological box” method.

Develop and agree on the overall concept

The alternative concepts developed by Fraunhofer IPA are compared against each other and discussed with the customer with respect to the assessment criteria as agreed upon. A favored overall concept is mutually identified and documented.

Elaborate on the overall concept

The chosen overall concept is then elaborated in more detail until the automation solution is sufficiently specified to enable a subsequent implementation decision. Besides specifying technical details, costs are also calculated and the time required to implement the solution is estimated. Technical risks are highlighted with mitigation strategies on how they can be further verified with the aid of simulations or feasibility studies.

Your advantages

Thanks to the structured procedure described, as well as our experience and market knowledge, you can rest assured that the best overall concept adapted to your specific requirements and general constraints will be selected in an objective and comprehensible manner. As your manufacturer independent partner our comprehensive

overview of the market for automation solutions, e.g. also in the area of human-robot-cooperation, and our knowledge on production means and strategies in the context of Industry 4.0 are a valuable addition to your application.

Sufficient details are added to the concept to give you all the information needed to make an implementation decision. The customer, or the system-integrator commissioned by the customer, can then start implementing the concept without delay. With our experience, we will gladly help you to choose a suitable system-integrator.

Our services

Get in touch with us to discuss your requirements. We would be delighted to send you a quote for an individual automation conceptualization project tailored to your specific needs.