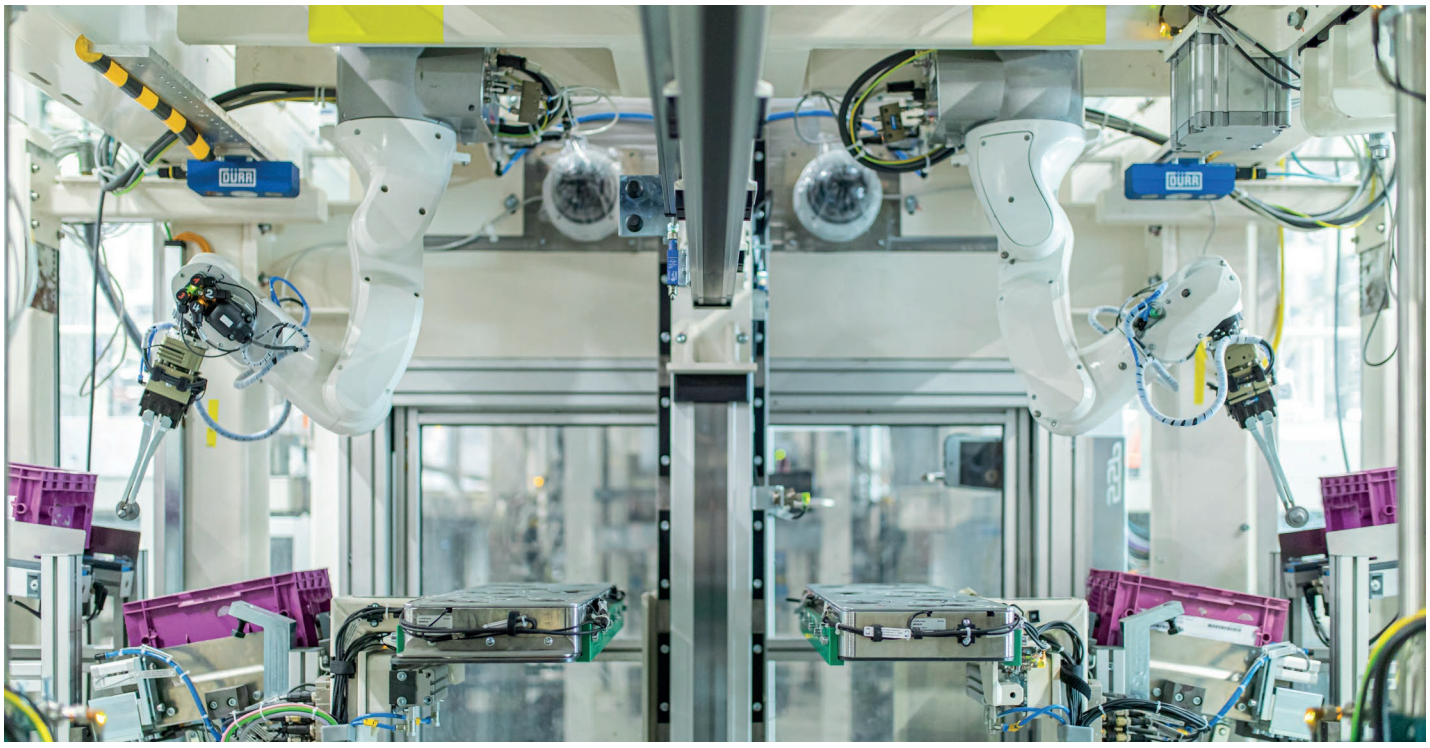


NEXT.assembly

Bolt Picking x-elect

The new automatic bolt loading system

The key element of x-elect is a 3D camera system that detects and selects the items in the original logistic container before picking them using a robot with a gripper and without the need for manual intervention.

x-elect can also be used for tasks beyond the marriage sector. Compared to Pick&Place systems, there is no need for additional sorting or vibrating systems. The bolts can be removed from the original transport packaging, therefore no additional handling is necessary. The system supports the fast integration of new component variants, reduces the number of manual work steps and prevents incorrect manual loading.

The commissioning of the system is simulated virtually, so that the compact design can be integrated into existing plants in a space-saving manner which prevents any risks that may arise. Industry 4.0-compliant interfaces for peripheral systems and data utilization for the IIoT add value for the customer.

CUSTOMER BENEFITS

- Highest system availability through automation
- Bolts selected from the original containers
- Compact dimensions
- Sustainable solution: low energy consuption, very little demand on pressured air
- Low operational noise compared to sorting pot systems
- Easy to maintain - resistant to dirt, few mechanical components
- High flexibility of bolt applications possible: M8 - M16, various head designs, up to 130 mm length
- Easy integration into existing bolting stations

Technical data

Bolt Picking x-elect

OPERATING PRINCIPLE

- CAD models are uploaded into the software
  - Robot
  - Gripping unit
  - Station layout (for collision check)
  - Bolts
- Bolt data
  - Gripping variants of the bolts are defined

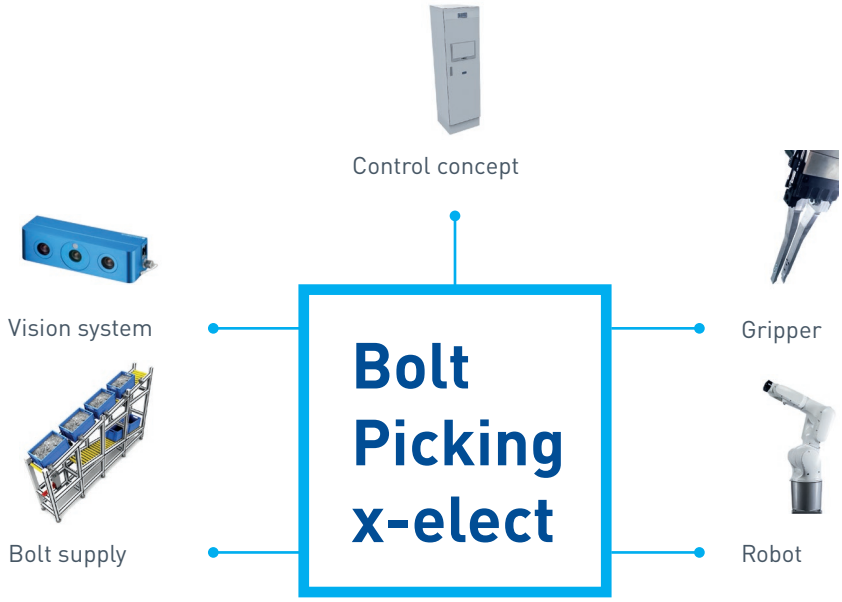
IMAGE PROCESSING SOFTWARE - PHASE 1

- Measuring principle
  - Stereophotogrammetry
- Projected 2D pattern
  - Both cameras can identify the same point on the pattern and assign a space coordinate to this point
- Image processing software processes the result data
  - Identification of bolts
  - Position of bolts
  - Comparison of CAD models to the images recorded by the vision system
  - Determination of bolts that can be gripped
  - Calculation of the bolt with the highest “score”
  - Robot path calculation

x-elect in action

  - Robot is activated and the bolt is removed from the container
  - Loading the nest, accurate positioning in the millimetre range, bolt is loaded “head-down” into the bolt nest

SYSTEM COMPONENTS



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