

COMPANY PRESENTATION

MAY 2021

AGENDA

1. HAHN GROUP OVERVIEW
2. DIVISIONS OF THE HAHN GROUP
 - ASSEMBLY & TEST
 - MATERIAL HANDLING
 - ROBOTICS
 - PROCESS TECHNOLOGIES
3. BACKUP

HAHNGROUP

advanced automation



HAHN GROUP | FACTS & FIGURES



>1,600
Employees



14
Countries



29
Locations Worldwide

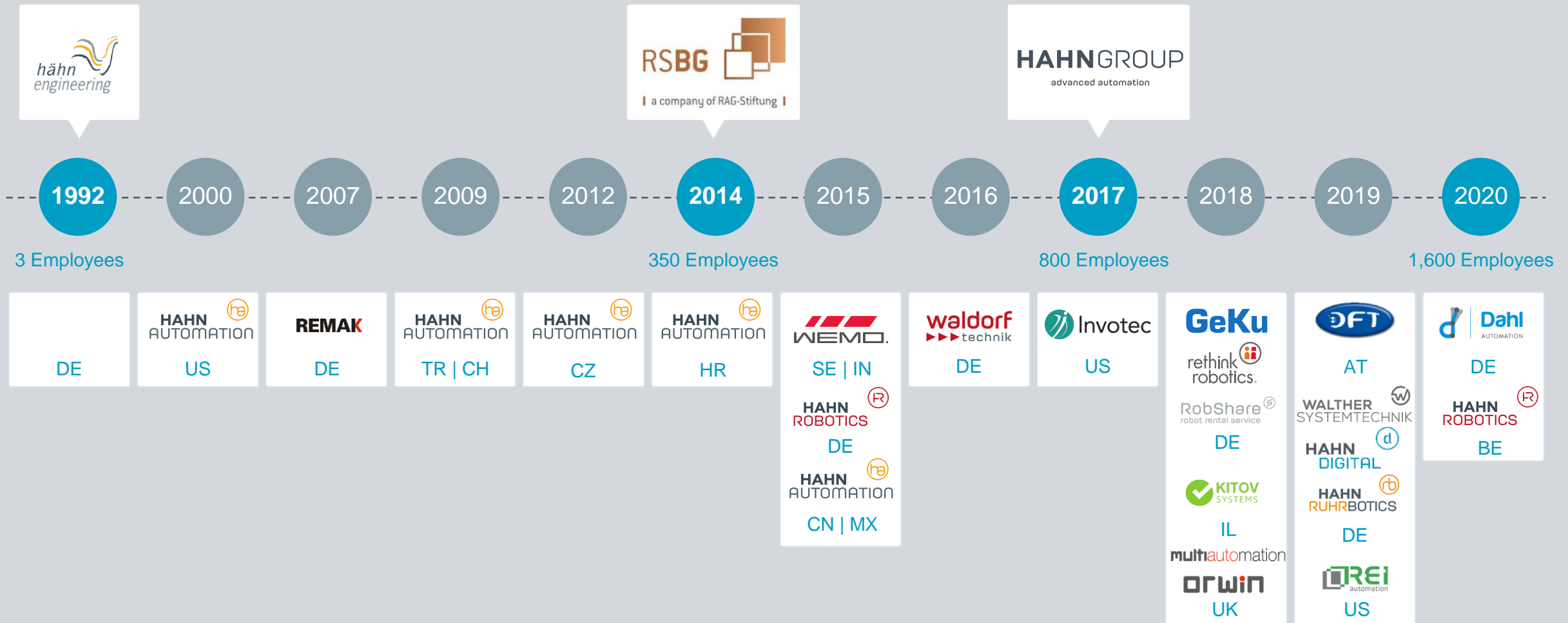


10 KEUR - 25 MEUR
Project Value Span

HAHN GROUP | HISTORY

HAHNGROUP

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HAHN GROUP | PART OF THE RSBG



944.1 MEUR

Revenue (2019)



1.1 BEUR

Investment (2019)



April 2014

founded



6,473

employees (2019)

RSBG SE, a wholly owned subsidiary of the RAG-Stiftung, invests in high-growth medium-sized companies whose products and services are of great importance for global changes in the areas of population development, climate change and new technologies. The aim is to develop these companies geographically and technologically together with their management as part of an active buy-and-build strategy.



Advanced
Manufacturing

18%

Sales

16%

Staff



Automation &
Robotics

HAHNGROUP

22%

Sales

20%

Staff



Information &
Communication

18%

Sales

11%

Staff



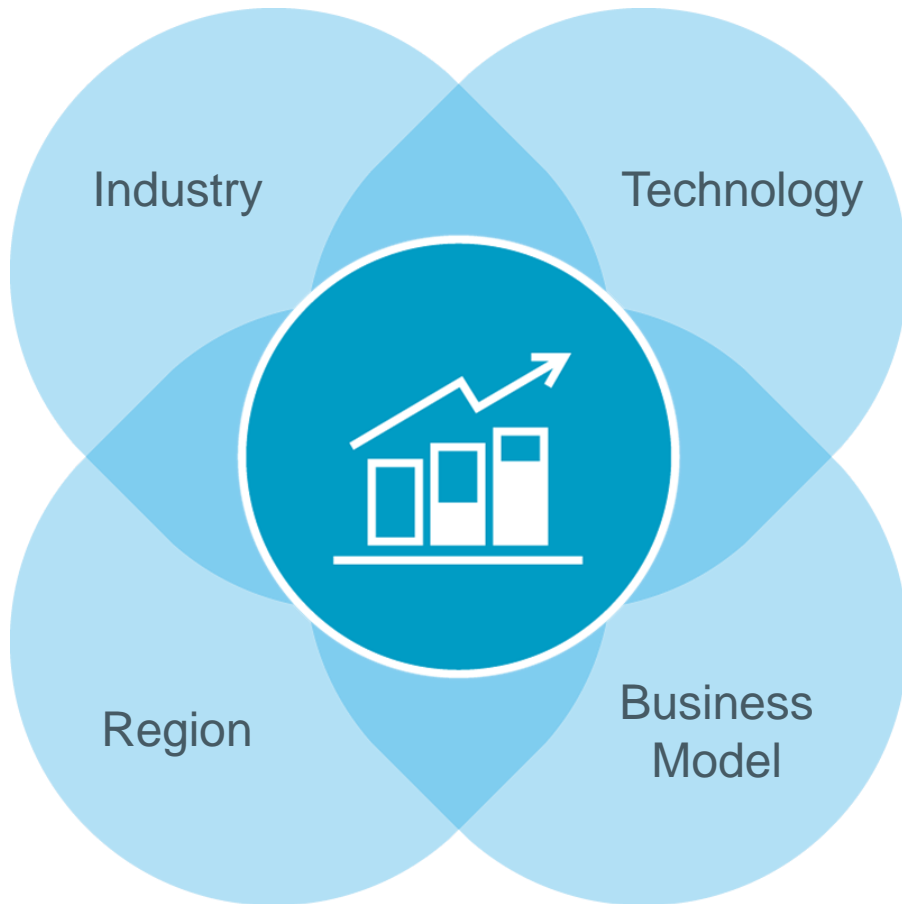
Infrastructure

42%

Sales

53%

Staff



GROWTH STRATEGY

HAHN GROUP | GLOBAL PRESENCE (I/II)

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A. EUROPE	next slide
B. Cincinnati, KY, USA	HAHN Automation
C. Istanbul, TR	HAHN Automation
D. Ahmedabad, IN	WEMO Automation
E. Kunshan, CN	HAHN Automation
F. Querétaro, México	HAHN Automation
G. Dayton, OH, USA	Invotec
H. Minneapolis, MN, USA	Invotec
I. Windsor, CT, USA	HAHN Plastics Automation
J. Columbia, SC, USA	REI Automation
K. Atlanta, GA, USA	Walther Systemtechnik

HAHN GROUP | GLOBAL PRESENCE (II/II)

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A.	Rheinböllen, DE	HAHN Automation HAHN Robotics HAHN Group
B.	Bettlach, CH	HAHN Robotics
C.	Prag, CZ	HAHN Automation
D.	Zagreb, HR	HAHN Automation
E.	Värnamo, SE	WEMO Automation
F.	Reinheim, DE	WEMO Automation
G.	Engen, DE	Waldorf Technik
H.	Villingen-Schw., DE	HAHN Automation
I.	Diepenau, DE	GeKu HAHN Robotics
J.	Frankfurt, DE	HAHN Group HAHN Digital Robshare
K.	Birmingham, UK	HAHN Automation
L.	Newcastle, UK	HAHN Automation
M.	Kremsmünster, AT	HAHN Automation
N.	Germersheim, DE	Walther Systemtechnik
O.	Recklinghausen, DE	HAHN Robotics
P.	Meinerzhagen, DE	HAHN Robotics
Q.	Bochum, DE	Rethink Robotics
R.	Eupen, BE	HAHN Robotics



HAHN GROUP | FOCUS INDUSTRIES

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Automotive



Electronics



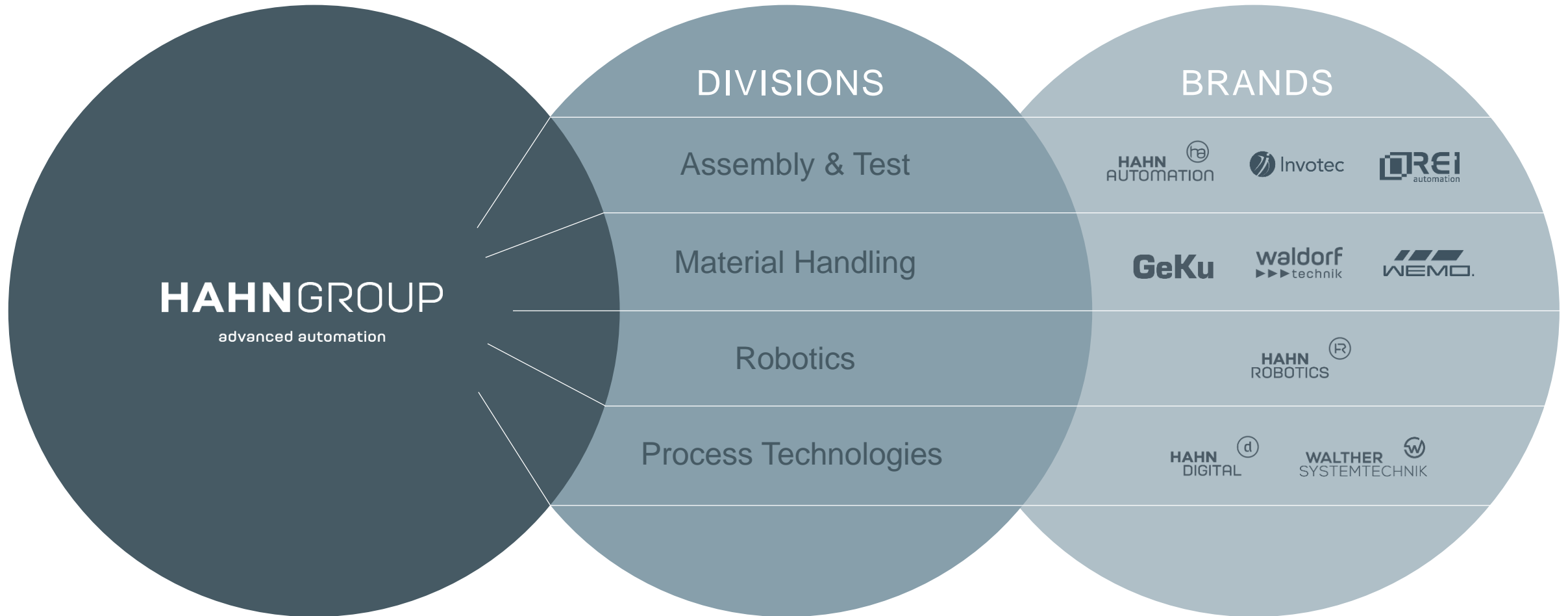
Healthcare

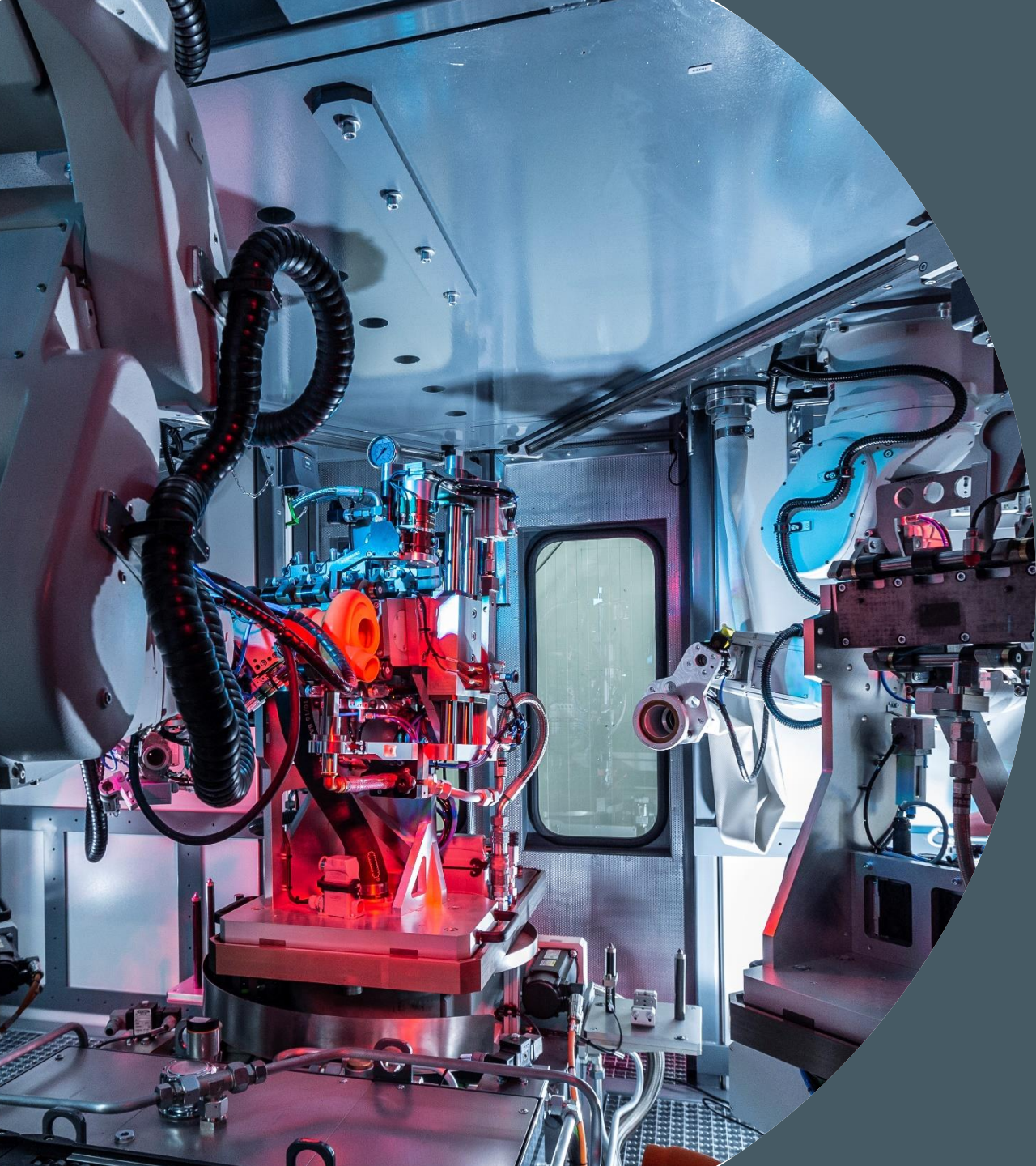


Consumer Goods

HAHN GROUP | DIVISIONS & BRANDS

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DIVISION
ASSEMBLY & TEST

DIVISION | ASSEMBLY & TEST

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1,000 employees



Up to 25 MEUR
Project Value



13 production facilities



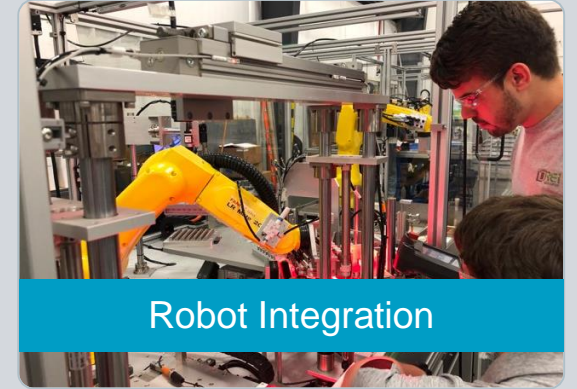
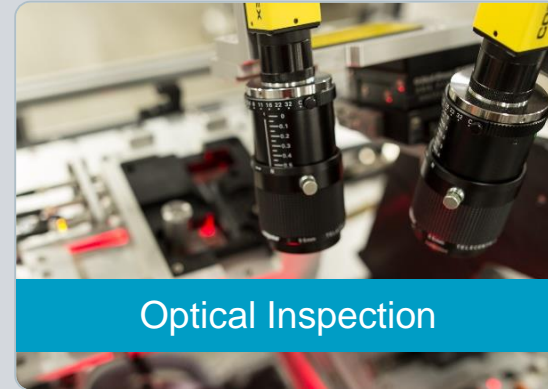
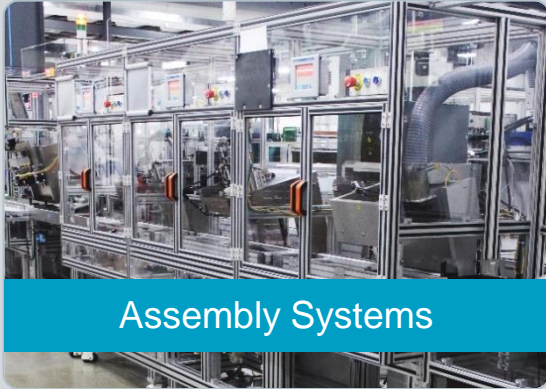
19 sales and
service hubs

Within the Assembly & Test Division, the HAHN Group combines the companies **HAHN Automation**, **Invotec** and **REI Automation**.

In close cooperation with their customers, these **special machine builders** develop **taylor-made production** and **test systems** with robust and reliable **semi- and fully automated** production lines.

ASSEMBLY & TEST | SOLUTION EXAMPLES

HAHNGROUP
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ASSEMBLY & TEST | PRODUCT EXAMPLES

HAHNGROUP
advanced automation



Suspensions



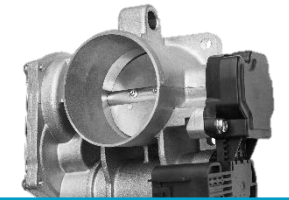
Electric Motors



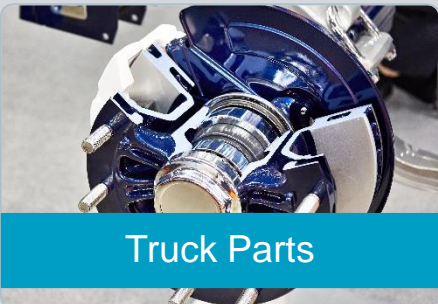
Mechanic Systems



Cockpit Electronics



Fluid Systems



Truck Parts



Mechatronic Parts



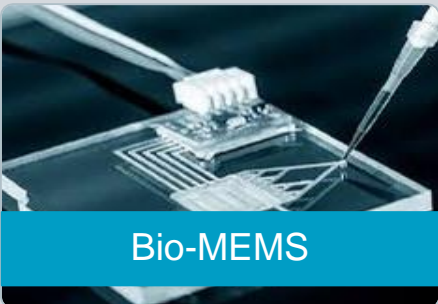
Medical Devices



Drug Delivery Systems



Diagnostic Devices



Bio-MEMS



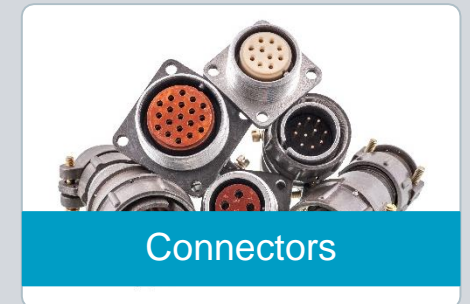
Care Products



Window Blinds



IV-Bags



Connectors

ASSEMBLY & TEST | KEY TECHNOLOGIES



Assembly
Technologies



Dispensing
Technology



Controls
Engineering



Testing Systems



Precision Joining



Process
Development



Process Integration



Micro Laser
Processing



Calibration



Vision Integration



Controls
Engineering



Database
Development

ASSEMBLY & TEST | KEY TECHNOLOGIES



Assembly Technologies

- Customized concepts for layout and design
- Various degrees of automation possible
- Modular cell concept (MasterCell)
- Flexible line-up



Process Development

- Identification of production automation potential
- Feasibility studies
- Prototype tooling
- Proof-of-concept
- Return on investment



Testing Systems

- Automated test processes
- End Of Line Testing (EOLT)
- Ensure products withstand field conditions
- Improve productivity and increase acceptance



Process Integration

- Multitude of special processes
- Integrated assembly
- Ideal automated solutions

ASSEMBLY & TEST | KEY TECHNOLOGIES



Dispensing Technology

- Gluing, Greasing, Oiling
- 6-Axis performance
- Application on 3D contour



Micro Laser Processing

- Sophisticated laser processing solutions, such as welding, ablation, cutting, marking and traceability
- Tight tolerance levels
- Operator safety protection
- Integration in visioning systems



Precision Joining

- Integration of customized precision joining equipment
- Creating repeatable and consistent processes
- Cutting production costs
- Reducing risk of rejects



Controls Engineering

- Integration of multiple, diverse controls functions
- Right controls systems from single station to entire production line
- Boosting productivity by choosing suitable platform

ASSEMBLY & TEST | KEY TECHNOLOGIES



Error Proofing

- Assembly Verification
- Force Profiling
- Sensor/Vision Application
- Torque Profiling



Calibration

- Fully automatic parts feeding
- Expansion and compression of parts
- Own design of calibration head and tooling



Vision Integration

- LabView® based testing
- Integration of PLC interfaces like field bus and ethernet through LIN-Bus
- Safety integration and intuitive HMI design
- Combination of extensive process and testing know-how



Database Development

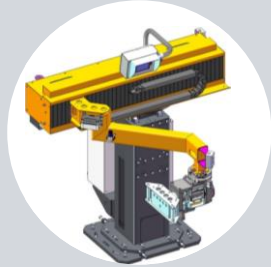
- Own database and viewer
- All common systems possible
- Production data acquisition

ASSEMBLY & TEST | STANDARD PRODUCTS

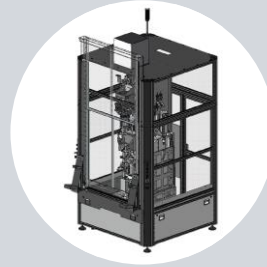
HAHNGROUP
advanced automation



SmartSolutions



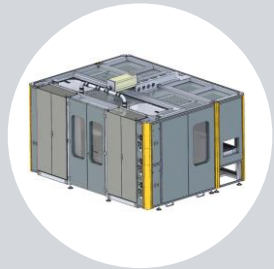
LiftMaster



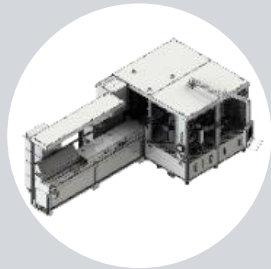
DynaCheck Shock
Absorber



DryFill



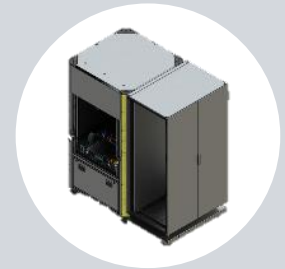
EOLT Turbo Chargers



EOLT Oil Pumps



DynaCheck
(Hydro-) Bushings



EOLT Battery Packs

ASSEMBLY & TEST | STANDARD PRODUCTS

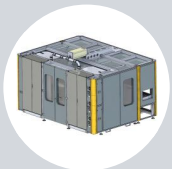
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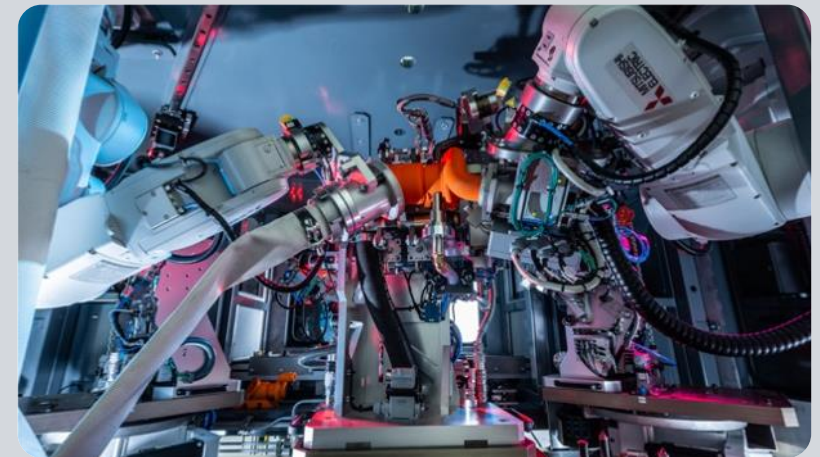
SmartSolutions

- Cold gas test stand for exhaust turbochargers
- Simulation of combustion engine
- Up to two article variants
- Compact size
- Short cycle time



EOLT Turbo Charger

- Standardized assembly solutions
- Three possible versions: Torque, Press, Dispense
- Short delivery times and low price
- Easy to use due to modern and intuitive usage interface of controller

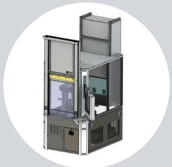


ASSEMBLY & TEST | STANDARD PRODUCTS



DynaCheck Shock Absorber

- Servo hydraulic testing actuator
- Automatic electrical connection
- Evaluation according to DIN and FFT
- Time-synchronous recording of two measured values
- Free configurable test cycle



DynaCheck (Hydro-)Bushings

- Non-destructive 100% testing of 1- and 2-pipe shock absorbers
- Variable positioning with two linear drives
- Real-time capable measured value analysis
- Controlling of the integrated actuators
- Configurable test cycle



ASSEMBLY & TEST | STANDARD PRODUCTS

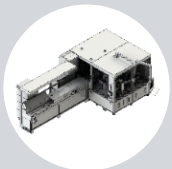
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LiftMaster

- Handling system for specific loading boards at the injection molding machine
- Guided rotary and linear movements into the injection molding machine
- High output, short press opening time due to simultaneous transfer of the parts via loading board
- Simple and intuitive handling by the operator



EOLT Oil Pumps

- Two test stations controlled by the same software
- Controlling of the pump via Bus
- Testing medium is a prescribed oil
- Removal of the oil by blowing and suction



ASSEMBLY & TEST | STANDARD PRODUCTS



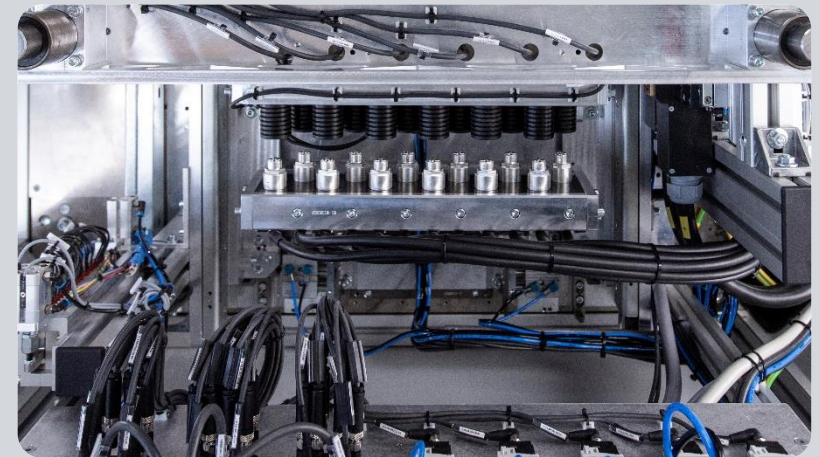
DryFill

- Dosing by volume or mass
- Filling of evacuated recipients and sealing in one step
- Assessment of tightness and vacuum before each filling
- Suction of remaining liquids



EOLT Battery

- Electrical and conditioning tests for batteries
- Customized test solutions
- Flexible testing tasks
- Configurable test parameters
- Full and semi automatic systems for cells, inline modules, battery management units as well as end of line battery systems



ASSEMBLY & TEST | CONTACT



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DIVISION
MATERIAL HANDLING

DIVISION | MATERIAL HANDLING

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300 employees



Up to 7 MEUR
Project Value Span



6 production facilities

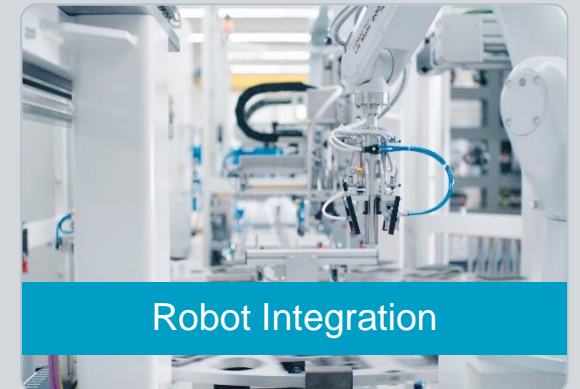


>5.000 installed systems

GeKu, **Waldorf Technik** and **WEMO** form the Material Handling Division within the HAHN Group. With their specialization in automation solutions and robot technology for industrial plastics processing, the three companies complement each other perfectly. The companies in this division offer **high speed automation** with **high cavities** and **short cycle times**, **complex automation** with **high precision** handling as well as **standard robots** for automation around the **injection molding machine**.

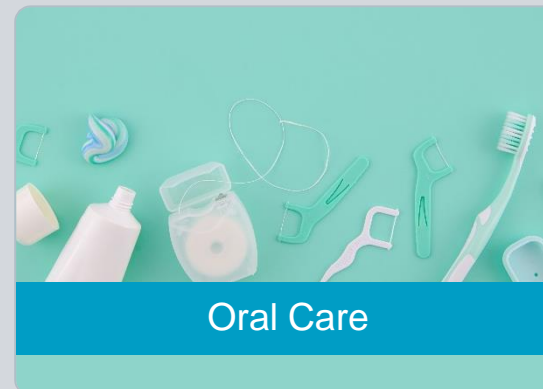
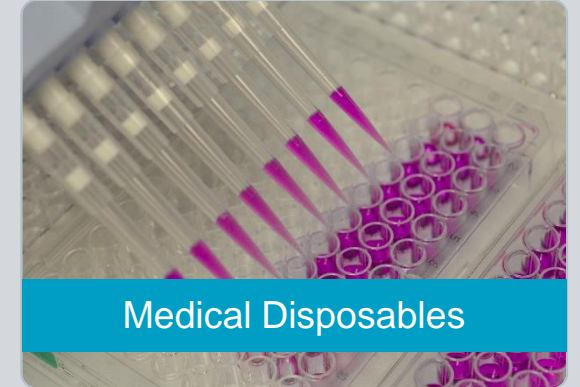
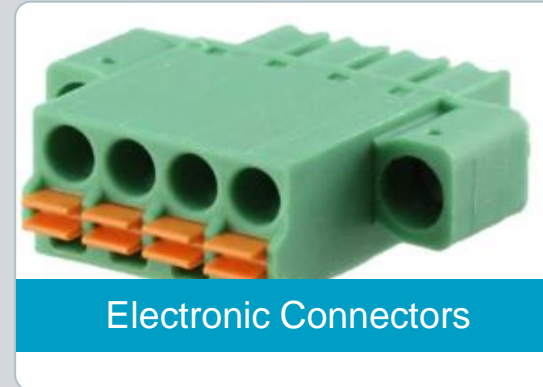
MATERIAL HANDLING | SOLUTION EXAMPLES

HAHNGROUP
advanced automation



MATERIAL HANDLING | PRODUCT EXAMPLES

HAHNGROUP
advanced automation



MATERIAL HANDLING | KEY TECHNOLOGIES



Feeding Systems



VarioTIP® System



Safety Systems



End of Arm Tooling



Take out and
processing



Software
Programming



Testing and Marking



In-Mold Labeling



Assembly
Technologies



Packaging



Barrier Technology



Contact Feeding



Feeding Systems

- Customized feeding systems from small parts up to pre-assembled modules
- In-house production of vibration/step feeding system and other innovative feeding solutions
- Fast and flexible implementations for any solutions



End of Arm Tooling

- Standard gripper catalogue
- Gripper construction kit
- Customized gripper systems



Testing and Marking

- Individual testing and marking solutions depending on type of product and specifications
- Various testing systems such as for geometry, tolerance, force, pressure and more
- Individual marking systems DMC, Centre mark



Packaging

- Solutions for the packaging of articles according to customer-specific requirements
- Handling and packaging
- Pallets, Trays, Tubes, Boxes
- Packed in bulk or in an organized packaging



VarioTIP® System

- Patented system for the automation of pipette tips and diagnostic reaction vessels production
- High productivity with cycle time of less than 4.8 seconds and up to 96 cavities
- Automatic intelligent sorting of the pipette tips in buffer to fill the racks, cavity sorted



Take out and processing

- Fast removal systems with very short mold intrusion times
- Solution with side entry and top entry systems
- Single and tandem linear robot solutions
- Six axis robot solutions on top or side of IMM



In-Mold Labeling

- High flexibility within product types
- Handling for large quantity of products
- Stable processing and high performance
- Easy to operate due to user-friendly design
- Space saving



3D Barrier Technology

- Barrier coating of plastic containers
- Migration barrier between plastics and food
- Prevent ingress of gas, flavor scalping and contamination
- Thickness about a 500th of a human hair
- Recyclable and transparent



Assembly Technologies

- Clipping, plugging, joining, assembly
- Filter assembly for pipettes and test of assembly depth
- Completion of reaction vessels with pipette tips and assembly on carrier
- Inline assembly of pump components and testing of tightness



Safety Systems

- Standard safety system catalogue
- Safety guarding in different method of construction
- Extra equipment for special customized safety system



Software Programming

- Standard PLC software for all robot models
- Visualization / Master PLC control
- Connect system via mobile phone
- Remote systems



Contact Feeding

- Belt feeding over terminal reels
- Flexible linear contact feeding
- Integration of bending/separation processes
- Precise contact supply, groups or single parts
- Insert position depended on cavity mold alignment

MATERIAL HANDLING | STANDARD PRODUCTS

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Linear Picker



3-Axis Robot



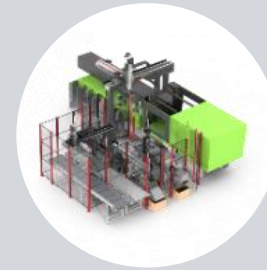
xPacker



Conveyor Belt



6-Axis Robot



Automation Cell

MATERIAL HANDLING | STANDARD PRODUCTS



Linear Picker

- Range of modulated palletizing robots for the handling of boxes and trays from different pallets
- Compact and very flexible in use
- Easy and fast process integration and installation



Conveyor Belt

- Modular automation solutions
- Customizable and easy to update
- Shorter engineering time and fast lead time
- Cost efficiency due to standard modules



MATERIAL HANDLING | STANDARD PRODUCTS



3-Axis Robot

- Stability and high precision movements
- Fixed x-axis for small footprint and very fast handling
- Movable x-axis for more free space and larger end-of-arm tooling
- Powerlink bus system for fast reactions and precise synchronization



6-Axis Robot

Official Launch soon



MATERIAL HANDLING | STANDARD PRODUCTS



xPacker

- Space saving design / Small footprint
- Easy integration inside machine guarding
- No external safety guarding on the floor needed
- Fast and easy installation



Automation Cell

- High load during buffering of parts
- Precise positioning and repetition accuracy of boxes or pallets
- High quality and stability
- Cost efficient solutions



MATERIAL HANDLING | CONTACT



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DIVISION
ROBOTICS

DIVISION | ROBOTICS

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100 employees



10 KEUR - 1.5 MEUR
Project Value Span



8 sales and service hubs



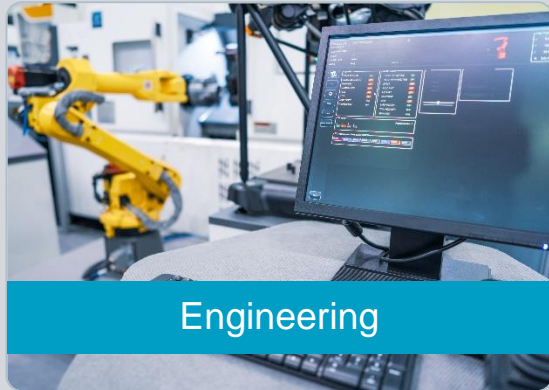
6 production facilities

The different offers of the Robotics division enable **tailor-made automation** and robot solutions for their customers and partners in close cooperation.

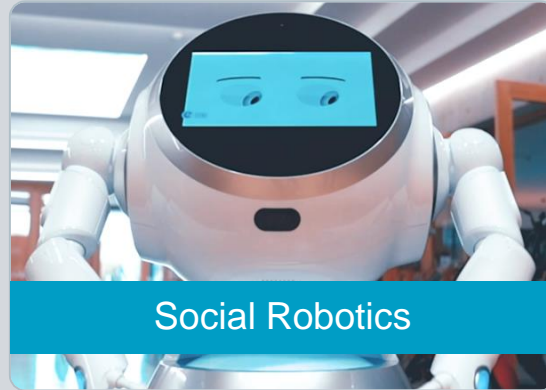
With their **proximity to the customer**, innovative strength and service orientation, the companies of the HAHN Robotics Network actively shape the market.

ROBOTICS | SOLUTION EXAMPLES

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Engineering



Social Robotics



Autonomous Mobile Robots



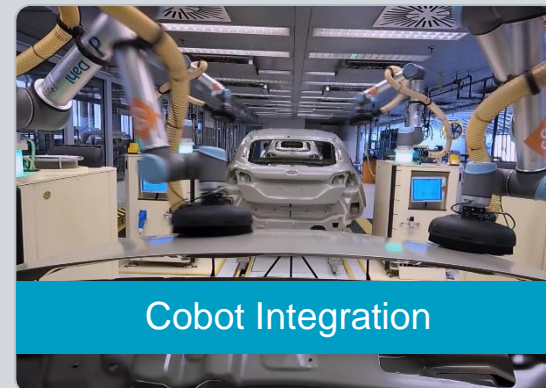
Intralogistics Solutions



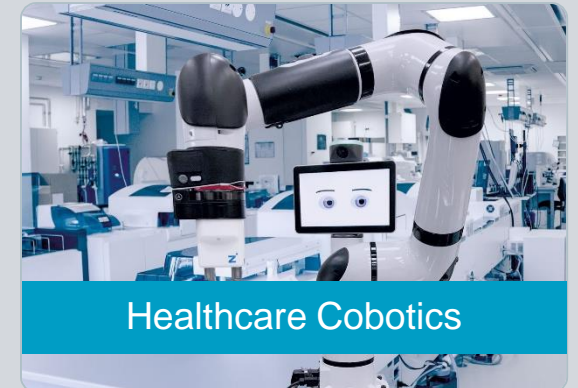
Software Programming



Event Robotics



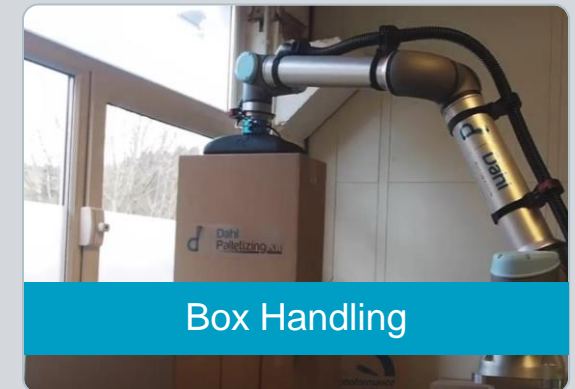
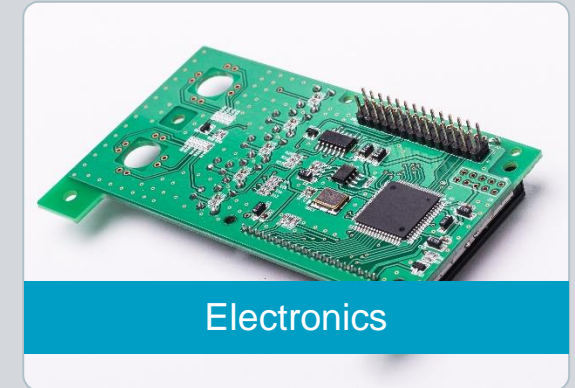
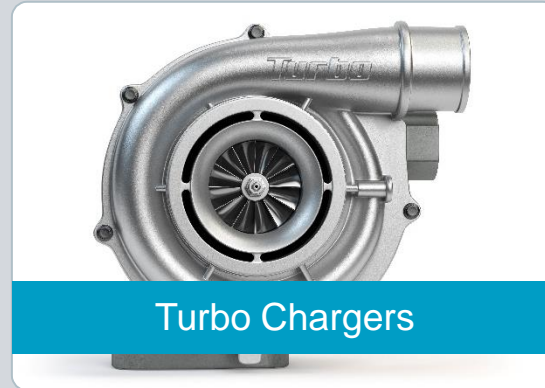
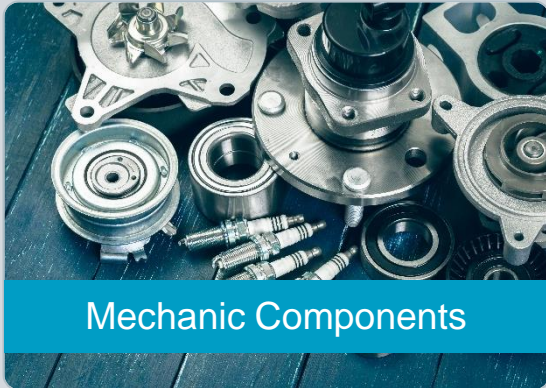
Cobot Integration



Healthcare Robotics

ROBOTICS | PRODUCT EXAMPLES

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ROBOTICS | KEY TECHNOLOGIES



Robot Integration



Cobot Integration



Safety Consulting



AMR Integration



Robot Programming



Robot Integration

- Manufacturer-independent integration of industrial robots
- Integration in existing production processes
- High degree of vertical integration
- Single Sourcing



AMR Integration

- Mobile robots for intralogistics and production logistics (AMR)
- From concept to implementation in the production hall
- Higher operational effectiveness
- Sustainable productivity increases



Cobot Integration

- Manufacturer-independent integration of collaborative robot systems
- Holistic service offer



Robot Programming

- Robot programming and simulations
- Feasibility studies
- Application development
- Individual software solutions



Safety consulting

- Compliance with the legal requirements (EC Machinery Directive) within the EU & other European states (Norway, Switzerland, Liechtenstein)
- CE marked machines / plants
- Safe machine operation
- Scope of services:
 - Risk assessment
 - Operating manual
 - Declaration of conformity
 - Verification / validation of safety functions
- Expansion of the range of in-house solutions of the HAHN Group, based on the large amount of experience with robot applications

ROBOTICS | STANDARD PRODUCTS

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Collaborative Robotics



AMR



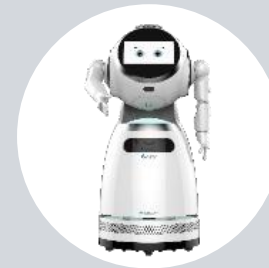
Palletizing



Industrial Robotics



Education Kit



Rental Event &
Service Robots

ROBOTICS | STANDARD PRODUCTS

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7-Axis Robot: Cobot Sawyer

- Train by demonstration
- Flexibility due to easy-to-set landmarks
- High acceptance due to friendly design
- Embedded Cognex camera
- Force Sensing in each axis

Application Areas

- Education
- Test & Inspection
- PCB Handling
- Packaging
- Metal Fabrication
- Loading and Unloading
- CNC Machining



ROBOTICS | STANDARD PRODUCTS

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AMR

- Customized automation of intra- and production logistics
- Higher productivity and operative effectiveness
- Fast and easy commissioning – without changes to the existing infrastructure or workspaces
- Supports internal material flows
- Sensor- and camera technology guarantee employee safety



Palletizing

- Easy to operate, flexible palletizing solution
- Control cabinets, lift kit and cobot are installed a single mobile frame
- Vacuum gripper Dahl VacuGrip VG-3020/6 for up to 9.6 kg boxes
- Software for intuitive programming of individual packaging patterns
- Optional extension with other components such as conveyor belt or vision system

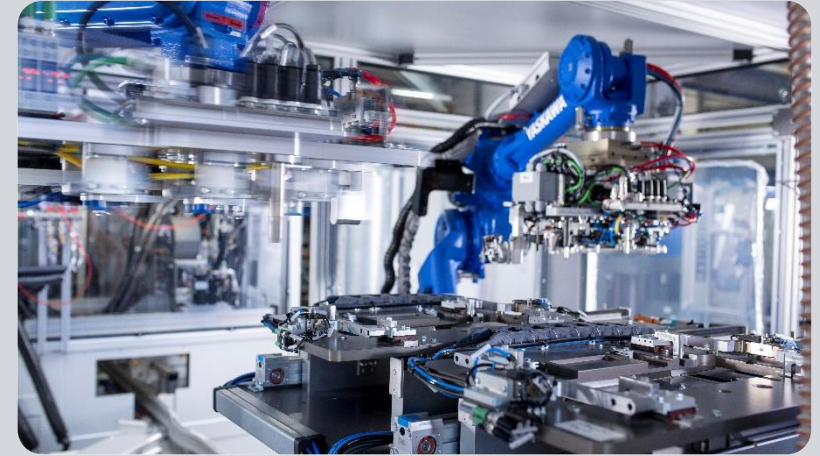


ROBOTICS | STANDARD PRODUCTS



Industrial Robotics

- Manufacturer-independent integration of industrial robots – including in existing or ongoing work processes
- Combination of manufacturing and robot cells allows the development of tailor-made solutions
- In-house development and production of gripper and feeding systems, conveyors and additional equipment for high manufacturing depth



Education Kit

- Enable future users of cobot systems or creative training environment for routine users
- Easy way to get to know technology and operation and simulation of different application areas
- Simple installation & programming



ROBOTICS | STANDARD PRODUCTS



Rental Service/Event Robots

- Cruzr Service Robot
- James Service Robot
- Zora Service Robot
- Cobot Café Rental
- Cocktail Cobot Rental
- Shopping Cart Cleaning Solution Rental

Application Areas

- Events
- Exhibitions
- Concierge
- Retail
- Customer Service
- Museums
- Telepresence
- Healthcare
- Roadshows
- Robot Guerilla Marketing
- Customer Experience



ROBOTICS NETWORK | CONTACT



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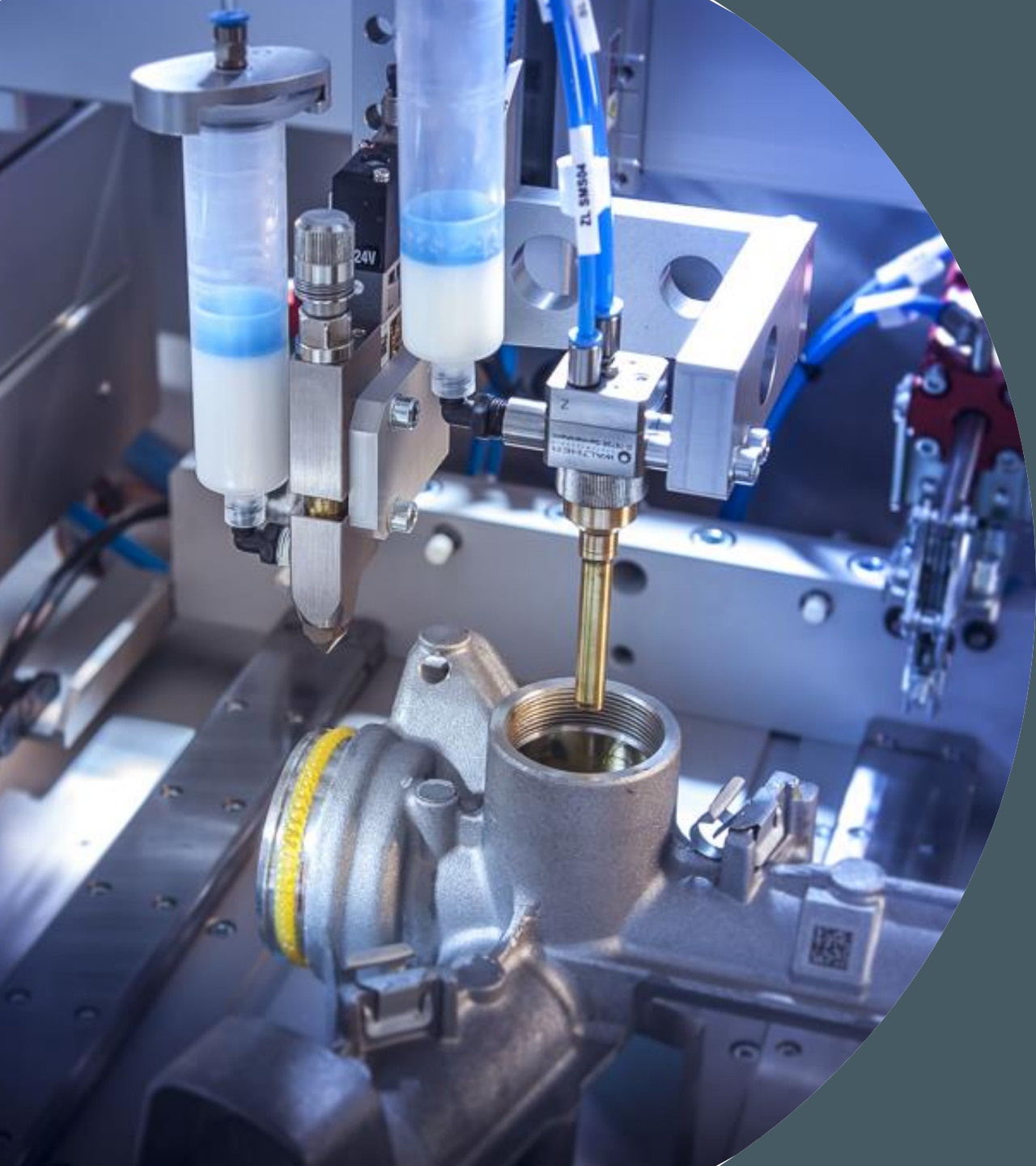


Martin Schmitz
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HAHNGROUP

advanced automation

DIVISION
PROCESS TECHNOLOGIES



DIVISION | PROCESS TECHNOLOGIES



100 employees



> 500 active customers



3 sales and service hubs

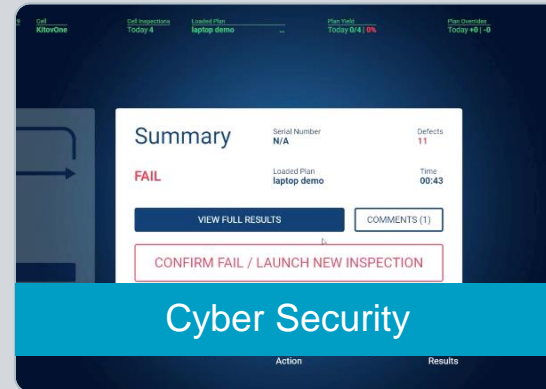


2 locations

HAHN Digital and **Walther Systemtechnik** form the HAHN Group Process Technologies Division. Both companies are experts in the development of **highly innovative, integrated solutions** in their field. Regardless of whether it is about integrating **digital technologies** or **high-precision material application** in production: Both HAHN Digital and Walther Systemtechnik supply their customers with tailor-made products and solutions.

PROCESS TECHNOLOGIES | SOLUTION EXAMPLES

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advanced automation





EVE Vision



EVE Analytics



EVE Protect



EVE Support



EVE Vision

- Smart visual inspection
- Superior detection for reliable and consistent inspection results
- Fast & intuitive setup, that allows a quick creation of new test plans by non experts
- Powerful statistics, which help identifying root causes of production problems



EVE Analytics

- Solution for monitoring production facilities
- Increase machine efficiency
- Reduction of downtime
- Fast responses based on real-time monitoring and individual dashboards
- High data security





EVE Protect

- No integration effort and no device risk with agent-less approach –no code is being installed on the device
- Infinite scaling, platform scans and processes all kinds of devices
- Low investment of resources and no safety experts required due to automatic end-to-end process
- High data security due to local offline supply – no data will leave the company



EVE Support

- Immediate support via augmented reality
- Reduction of downtime
- Guided problem solution for any employee
- Real time fact finding with image transmission
- Hands free operation with smart glasses



Infotainment



Sensors



ECUs



Telematics

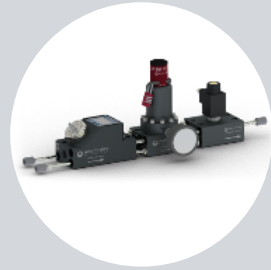


WALTHER SYSTEMTECHNIK | PRODUCTS

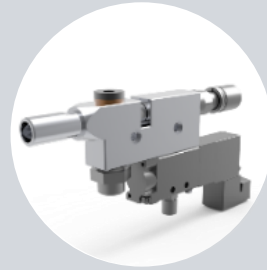
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Supplying & Feeding



Transfer & Treatment



Process & Application

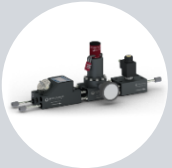


Instrumentation & Control



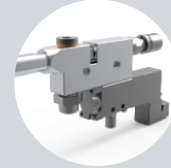
Supplying & Feeding

- Material pressure container
- Small volume conveyor systems
- Pumping systems



Transfer & Treatment

- Material pressure regulator
- Booster pumps
- Filters and filter systems
- Air bubble detection and discharge
- Media switches
- Media storage



Process & Application

Volumetric dosing

- Volume dosing valves (automatic / manual)
- Full jet / exhaust valves

Spray

- Pneumatic and electro-pneumatic spray valves
- Spray valves for manual applications
- Individual nozzle geometries

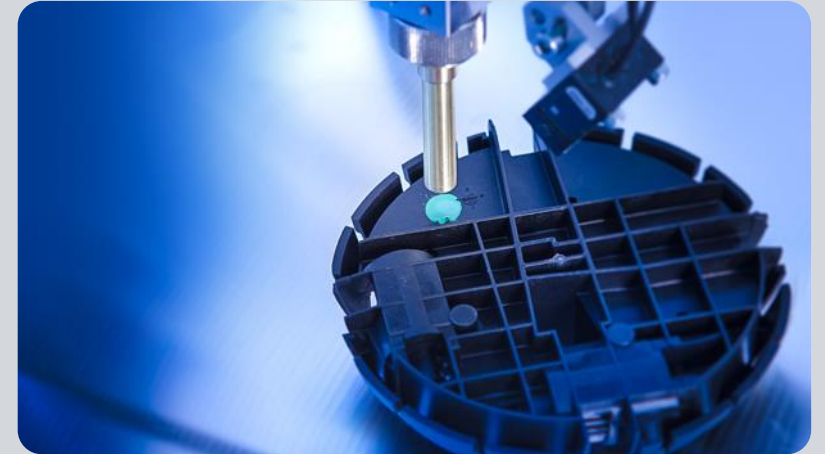
Pulsing

- Electropneumatic pulse valves
- Electric pulse valves for small quantities
- Individual nozzle geometries



Instrumentation & Controls

- Gear volume flow meter
- Logic limit modules
- Pressure sensors
- Controls for pulse valves
- Light barriers
- Raster needle sensors
- Temperature controller
- Control and diagnostic unit



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