



Individual System Solutions

# Vacuum Gripping Systems

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# Schmalz: Vacuum Technology for Intelligent Automation and Ergonomic Handling

**1800**  
**employees**  
working hard for our customers.

**29**  
**locations**  
for outstanding customer service worldwide.

**9**  
**percent**  
of our revenue is invested in innovative ideas and new products.

**590**  
**copyrights**  
are proof of our groundbreaking innovations.



## **Schmalz is one of the Market Leaders in Vacuum Automation and Ergonomic Handling Systems.**

The wide range of products in the Vacuum Automation unit includes individual components such as suction cups and vacuum generators, as well as complete gripping systems and clamping solutions for holding workpieces, for example in CNC machining centers. The Handling Systems unit offers innovative handling solutions with vacuum lifters and crane systems for industrial and handicraft applications.

Our products are used in different applications for example in the logistics industry, the automotive industry, the electronics sector and in furniture production.

With comprehensive consulting, a focus on innovation and first-class quality, Schmalz offers its customers long-lasting benefits. Schmalz's intelligent solutions make production and logistics processes more flexible and efficient, while also preparing them for the increasing trend toward digitalization.

### Vacuum Automation



Components



Systems



Clamping solutions

### Handling Systems



Vacuum lifters and crane systems

# Vacuum Gripping Systems

Schmalz – Your Partner in System Solutions

Schmalz is your competent partner in vacuum system solutions for automation. With first-class products, extensive experience and custom made services, a Schmalz system helps you to minimize costs throughout the entire life cycle – whether you utilize Schmalz for the efficient procurement of individual components or you seek full project management for the creation of turn-key solutions.

## SYSTEM PROCUREMENT WITH “ADDED VALUE”



### Consultation and system design

- Qualified consultation with assistance from an experienced project manager
- Detailed recording of application-specific requirements
- Resource-efficient system design

### Design and development

- One stop shop, your design responsibilities are eliminated
- Efficient vacuum technology is equipped with mechatronic functions

### System design and tests

- Service-friendly design of gripping systems
- Use of high-quality and standardized components
- Certified functional reliability through tests with original customer workpieces

### Procurement and logistics

- Complete and safe delivery by a single partner
- Elimination of time required for procurement of individual components and associated logistics

### Mounting and installation

- Complete on-site mounting including process integration

### Start of operations and training

- Delivery of a fully operational system
- On-site training and documentation for your staff

### Operation and service

- Solutions for simple process monitoring guarantee a smooth operation and high availability
- Fast emergency and spare parts service

## Further Flexible Gripping Systems from Schmalz



### Vacuum Area Gripping Systems

Universal grippers for handling workpieces regardless of size, geometry, material and surface.



### Lightweight Layer Grippers ZLW

The Lightweight Layer Gripper ZLW is the ideal solution for palletizing with smaller robots and cobots.



### Lightweight Gripping Systems SLG

Individually configured and additively manufactured vacuum grippers for use on lightweight robots.

# Vacuum Layer Gripping Systems SPZ

Powerful Solution for a Wide Range of Palletizing Tasks



Vacuum layer gripping system SPZ for handling of buckets

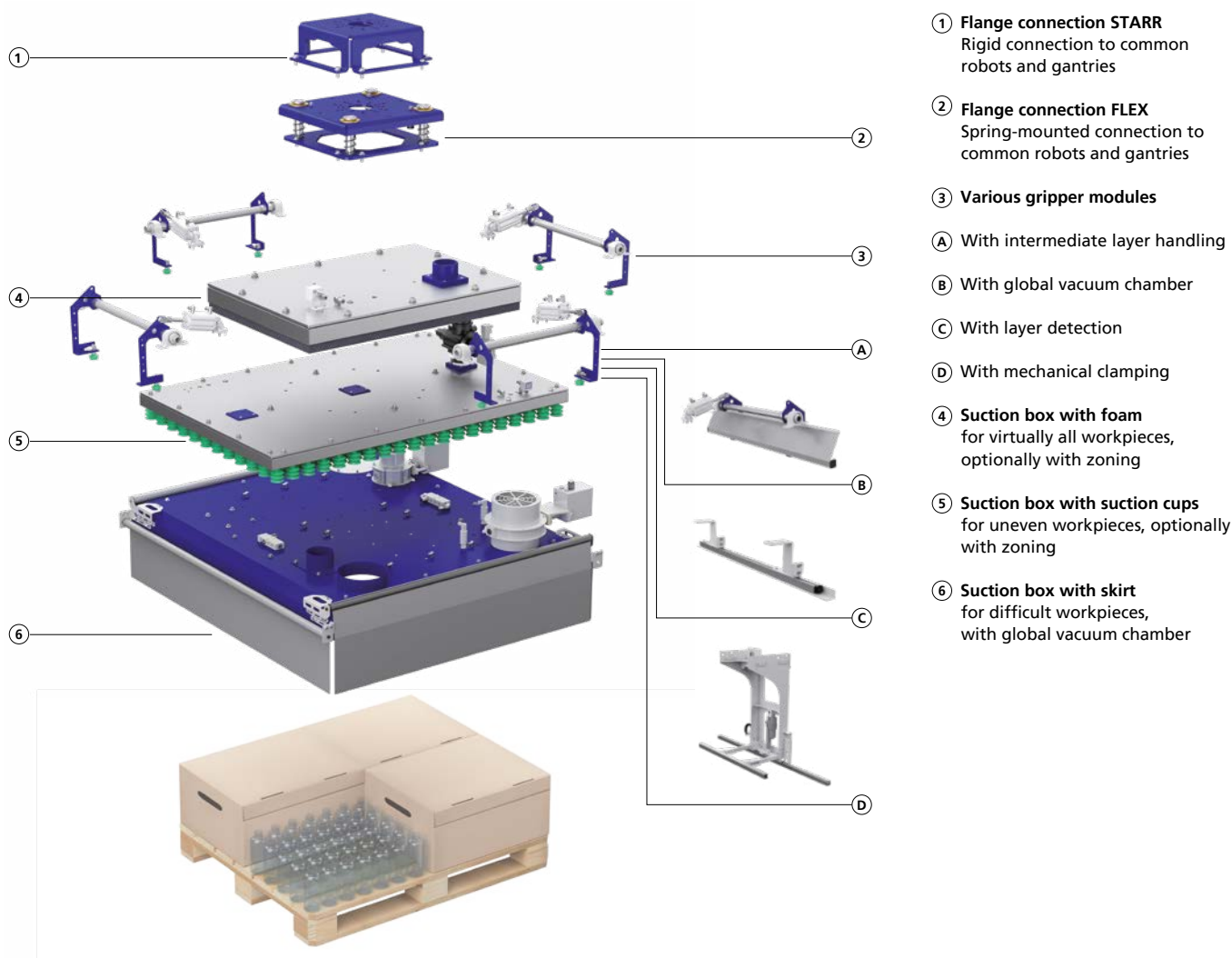
## Application

- Palletizing and de-palletizing various goods
- Use in warehouses and intra-logistics
- Integration in the periphery via mechanical, power and control technology interfaces
- Handling partial pallets and mixed layers

## Product Highlights

- Reliable and damage-free gripping of different layer sizes and layer arrangements
- Intelligent mechanical, power and software interfaces
- Innovative gripping concept with mechanical support for additional holding force

## Design



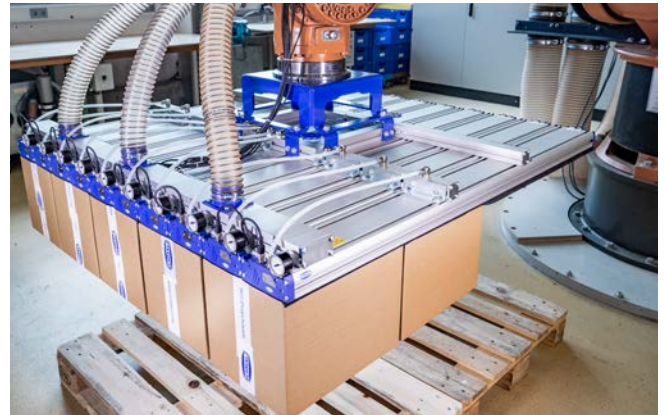
Design of the vacuum layer gripping system SPZ

# Vacuum Layer Gripping Systems SPZ

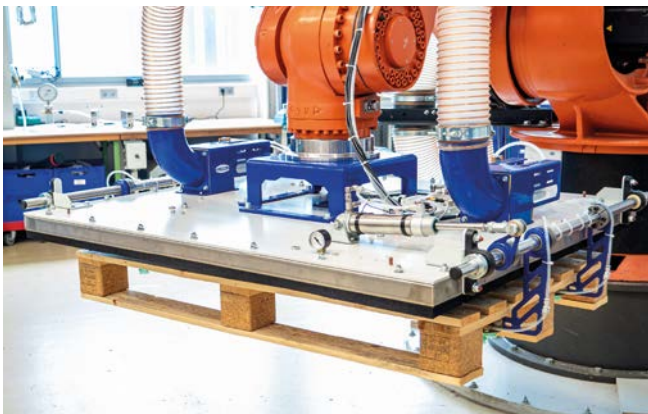
Project Examples from Various Industries



Layer gripping system with suction cups for layer handling of different cardboard boxes



Layer gripping system consisting of blocked area grippers FMP for handling cardboard boxes



Layer gripping system with pallet clamping and intermediate layer handling



Layer gripping system with suction cups for handling unstable sugar packaging



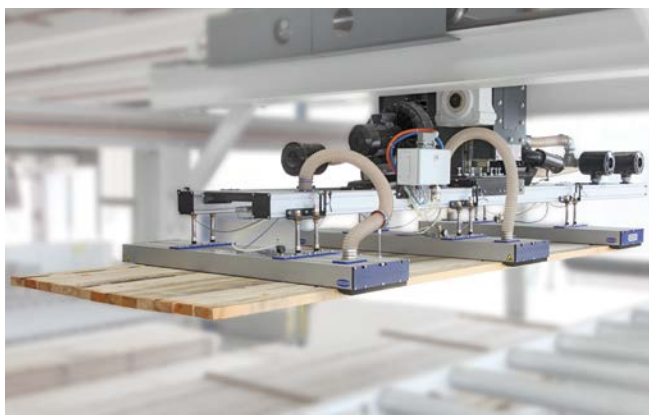
Layer gripping system with pallet clamping and intermediate layer handling for palletizing cans



Layer gripping system for de-stacking layers of workpieces in the nesting production

# Vacuum Suction Spiders SSP

Custom-Made Solutions for End-of-Arm Tooling



Vacuum suction spider SSP for handling of wooden boards

## Application

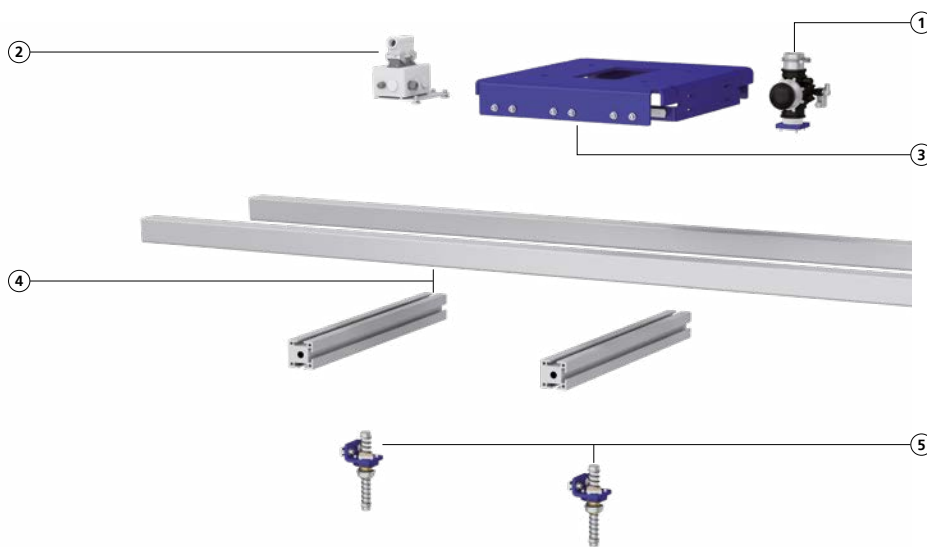
- Automation of manufacturing and assembly processes
- Interlinking of robots in presses and bending centers
- Loading of machine tools, wood working centers, water jet cutters, laser cutters and punching machines
- Handling of car body parts, bricks and boards / panels

## Product Highlights

- Modular system of standardized, optimally coordinated individual components
- Different gripping concepts can be combined
- Low weight thanks to FEM-optimized basic design and consistent lightweight construction

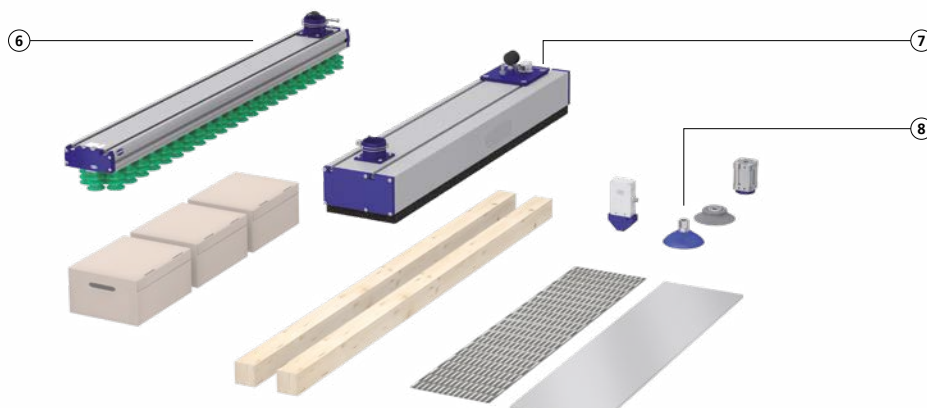
## Design

### Connections, interfaces and distributors



- ① **Vacuum valve**  
Pneumatic interface
- ② **Terminal box**  
Electronic interface
- ③ **Flange connection**  
Mechanical interface for common robots and gantries
- ④ **Mounting sections**  
Used as load beam and vacuum distributor
- ⑤ **Flexible suspension**  
Spring-mounted connection suitable for workpieces with height differences

### Grippers



- ⑥ **Gripping system (FMP/FXP) with suction cups**  
For handling uneven and non-rigid workpieces
- ⑦ **Gripping system (SBX) with foam**  
For handling heavy and rough workpieces
- ⑧ **Grippers with different gripping principles**  
For handling a wide range of workpieces (e.g. magnetic grippers for handling perforated plates or needle grippers for CFRP materials)

Design of the vacuum suction spider SSP

# Vacuum Suction Spiders SSP

Project Examples from Various Industries



Suction spider with suction plates for de-stacking wooden boards



Suction spider with suction plates for handling of porous wood panels



Suction spider with area grippers FMHD for layer by layer handling of rough sawn wooden boards



Suction spider with area grippers FMP for feeding a joinery line



Suction spider with area grippers FMP for handling pipes



Suction spider with adjustable grippers for separating cardboard boxes

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## Handling Systems

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**J. Schmalz GmbH**

Johannes-Schmalz-Str. 1  
 72293 Glatten, Germany  
 T: +49 7443 2403-0  
 schmalz@schmalz.de  
 WWW.SCHMALZ.COM



schmalz.vacuumentechology



schmalz\_group



schmalzmediacenter



schmalz



j-schmalzgbmh



schmalz\_de