Customer-specific Gripping Systems
From the Component to the Solution
Superior Clamping and Gripping

Jens Lehmann stands for precise gripping, and concentrated, safe holding. As a brand ambassador of the SCHUNK team, the No. 1 goalkeeper communicates our global competence leadership for clamping technology and gripping systems. The top performance of SCHUNK and Jens Lehmann are characterized by dynamics, precision, and reliability.

For more information visit our website:
www.gb.schunk.com/Lehmann
Top Performance in the Team

SCHUNK is the world’s No. 1 for clamping technology and gripping systems – from the smallest parallel gripper to the largest chuck jaw program.

In order to boost efficiency, SCHUNK customers have bought more than 2,000,000 precision toolholders, 1,000,000 gripping modules, and 100,000 lathe chucks and stationary workholding systems so far.

This makes us proud and motivates us to attain new top performances.

As a competence leader, we recognize and develop standards with a large potential for the future, which will drive the rapid progress in many industries.

Our customers profit from the expert knowledge, the experience, and the team spirit of more than 2,000 employees in our innovative family-owned company.

The Schunk family wishes you improved end results with our quality products.
Automated handling for the reliable and cost-effective manufacturing of products of all types requires much more from the front-end handling system than just the use of the proper gripper.

Various tasks such as rotating, compensating, joining, measuring, changing, etc. – in short, all functions that cannot be performed by robots, axis systems and grippers – require the use of additional components.

SCHUNK offers the most extensive modular system worldwide with standardized modules and components for your process requirements. The unique portfolio and our development competence enable customer-specific, efficient and reliable handling solutions: Gripping – from powerful to sensitive. Turning – from swiveling to 360°. Processing – from joining to assembly. Moving – from A to B. Changing – automatically or manually.

### Customer-specific Gripping Systems

**SCHUNK Solution Competence**

### Individual

**Your Processes, your Workpieces, our Know-how.**

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### Your Requirements – Our Solution Competence.

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**SCHUNK Competence**

· Gripping
· Rotating
· Holding
· Machining
· Moving
· Changing
As the most innovative market leader in gripping system technology SCHUNK has a unique potential for creating solutions. We are the development partner for diverse industries and we specialize in customer-specific handling applications – from individual gripping modules to complex functional assemblies. Technical creativity, maximum solution competence, and well-founded experience are our success factors in engineering, production, and service. We offer individual solutions. In your industry.

Industry Experience

Our Know-how, Your competitive Edge.

Automotive

Casting and forging

Metal machining

Pharmaceutical and medical technology

Assembly and handling technology

Electronics

Drive technology

Plastics
From Standard Components to Customer-specific Gripping Systems.

More than 30 years of gripping competence form the basis for the world’s most extensive standardized gripping technology portfolio with more than 4,000 components with an average of 2,000 standard and customer-specific gripping systems per year.

Components

Standard

The SCHUNK Gripper
A firm grip on precision!
From a few grams to more than one ton. Pneumatic or electric.
With more than 60 series in different sizes, the world’s most extensive portfolio of gripping modules.

Robot accessories
A perfect connection!
The world’s most extensive product portfolio for mechanical, sensor and power connections of handling modules.

Gripper fingers
Optimal fit!
Extensive and individual for maximum functionality. Finger blanks of steel, aluminum, plastic or customer-specific laser forming – precise centering, compensation and gripping is guaranteed.

Pick & Place units
Incredibly fast!
The most extensive portfolio of modular systems for every pick & place application, as a complete assembly, modular, pneumatic or electric, and with cycle times of up to 110 picks per minute.

Rotary modules
They have a knack for turning!
Limited or continuous – free or cycled. Optionally pneumatic, electric or with an integrated drive. With more than 40 standard components – capable of every rotary movement.

Gripping hands
Gripping almost as perfect as the human hand!
From the multi-section SDH 3-finger gripping hand for form-fit and force-fit gripping of diverse objects through to the first commercially viable sensitive SCHUNK SVA 5-finger hand.

Lightweight arms
Modular flexibility!
Lightweight arms are modular in design and can be adapted for diverse specific applications, e.g. for measuring and testing, modern rehabilitation systems, intralogistics, product transport, fabrication, etc.

Linear modules
Exact movements!
The entire world of linear technology for high-speed automation from a single source. Fast configuration with custom modules or more than 500 standard combinations from the modular system.

Adapter plates
System for a perfect fit!
For the combination of gripping and rotary modules, for the reliable interplay of robot accessory modules or also for individual automated assembly solutions. Saves costly planning and in-house fabrication.

Examples:

Wafer grippers
of laser forming material with the LGP gripper module

Compact clamp
for sheet metalworking, pneumatically operated

Packaging grippers
High-speed grippers in accordance with legal, hygienic, and production specifications
Customer-specific Gripping Systems
SCHUNK End-of-Arm Competence

Gripping Systems

Standard

Standard – Linear gantry LPP
Ready to install, optimally priced and quickly available!
Pneumatic column system with horizontal pneumatic gantry axis and vertical pneumatic compact axis.
With integrated cable track, sensors, and shock absorbers.

Standard – Linear gantry LPE
Ready to install, optimally priced and quickly available!
Electric column systems with horizontal electric toothed belt axis and vertical electric spindle axis.
With servo drives, cable tracks, and integrated sensor systems.

Standard – RPE Room gantry
Ready to install, optimally priced and quickly available!
Horizontal electric toothed belt axis in X direction, horizontal electric toothed belt axis in Y direction and vertical electric spindle axis.
With servo drives, cable tracks, and integrated sensor systems.

Modular assembly automation
Ready to install, optimally priced and quickly available!
More than 10,000 combinations!
The modular system offers custom handling solutions – from individual, multi-axis assembly solutions to complete functional assemblies, pneumatically and electrically driven.

Customer-specific
Solution from several SCHUNK components, including at least one custom development.

Examples:

- Connecting rod handling
- Aluminum foil handling
- Modular and Mobile Gripping Systems
SCHUNK Customer-specific Gripping Systems
Project Management

All inclusive!

SCHUNK customer-specific Gripping Systems. Take Advantage of our Experience.

More than 10,000 implemented solutions speak for themselves.

The analysis of complex processes and the comprehensive analysis of parts and products of our customers leads SCHUNK to develop effective and customer-specific gripping systems. The visualization of automated processes requires maximum precision – we use state-of-the-art technology for 2D and 3D visualizations and 3D simulations. Our components and configurations contain decisive performance potential for the cost effectiveness of your process chain. We exhaust this potential. Entirely for your benefit.

Consistent and comprehensive project management is an important part of the SCHUNK philosophy. Our approach is systematic and individually adapted to your project; each step is traceable and documented.

Consulting  Project planning  Engineering  Implementation  Service
That will pay off for you!

SCHUNK customer-specific Gripping Systems. For your Workpiece, your Handling, and your Industry.

1 contact person for your solution from a single source.

For smooth communications, a personal contact person is available to you from the start of the project until completion. Your contact person is the interface between you and the individuals involved in the project and ensures that information is exchanged smoothly. From planning to continued support after the conclusion of the project, SCHUNK ensures that your project will be handled cooperatively and efficiently.

Your advantage

• More than 30 years of experience with gripping systems
• More than 10,000 gripping systems implemented for diverse industries
• Modular system with perfectly compatible standard components
• An absolutely exact fit due to standard interfaces
• Shorter project cycle times thanks to standardized systems
• Reliable implementation and planning security without additional project costs
• Functional assemblies mounted or ready for use on request
• Time savings due to a perfect solution from a single source

Solution competence

- Standard components
- Custom modified standard components
- Customer-specific components
- Standard gripping systems

Customer added value

Ready-to-install customer-specific gripping systems
Experience the immense diversity
More possibilities, more functionality, higher process reliability. SCHUNK robot accessories include a comprehensive portfolio of modules for mechanical, sensor, and power connections between the effector and the robots. A broad range of quick-change systems, rotary feed-throughs, anti-collision and overload devices, force sensors, compensation units, and insertion units ensure optimum interplay between the robot arm and the end-of-arm effector.

Rotary feed-through
SCHUNK DDF 2 rotary feed-throughs

Compensating
SCHUNK OPR or OPS anti-collision and overload sensors

Changing
SCHUNK SWK quick-change head

Quick-change chuck SWA

Joining and compensating
SCHUNK TCU tolerance compensation unit

Gripping
SCHUNK gripper modules
PGN-plus 2-finger universal gripper with multi-tooth guidance

The illustration shows one example of how SCHUNK components can be combined.
Metal-cutting Industry
Automated removal and loading process.

Task
Automated loading and removal of raw material from a rack by a robot.

SCHUNK solution
The robot removes raw material from an externally accessible rack with a PZN–plus pneumatic centric gripper. After processing in the machine the workpiece is set down by a second PZN–plus centric gripper that was exchanged by means of a SCHUNK SWS quick-change system.
Task
Loading of a vertical machining center with workpieces in a fully automated process.

SCHUNK solution
A robot with a SCHUNK SWS quick-change system loads SCHUNK TANDEM-plus clamping blocks outside of the machining center and loads them into the vertical machining center entirely with a pneumatic SCHUNK PGN-plus 2-finger gripper unit. The clamping devices are loaded almost simultaneously, which means that the machine has to be stopped only very briefly for changing the clamping force blocks.

SCHUNK products
- PGN-plus Universal grippers
- SWS Quick-change system
- Tandem Clamping force block
Automotive Industry
Handling of cast aluminum parts

**Task**
Handling of cast parts in a hot environment. Removal from the casting mold and inspection. Immersion in cooling liquid and stamping or embossing of the serial number.

**SCHUNK solution**
Use of modified SCHUNK PGN–plus 2–finger universal gripper and a SCHUNK PZN–plus 3–finger centric gripper with a protective cover and in a corrosion–protected version in addition to heat–resistant cables and seals. The operation of grippers with sealed air also prevents the penetration of dirt and humidity, which could accumulate in the guidance.
Automotive Industry  
Rim handling

Task  
Loading and unloading of machining centers with unfinished and finished aluminum parts.

SCHUNK solution  
The aluminum blanks of the aluminum rims are machined in several steps. The blanks are gripped from the conveyor belt with modified SCHUNK PFH 2-finger long-stroke grippers and inserted into the machining center. After the initial machining, the finished part is removed and the next blank is immediately inserted. The grippers are additionally equipped with special plastic inserts on the gripper fingers.

SCHUNK products

- PFH  
  2-finger long-stroke gripper

Machining Industry  
Handling of ground parts

Task  
Automated removal of ground parts from a chuck.

SCHUNK solution  
The handling cell is on a track. This cell uses a six-axis Fanuc type M-6iB robot, which removes a ground part from the chuck with a SCHUNK PGN-plus 2-finger gripping unit. Finished parts are placed on a pallet; rough parts are gripped from a pallet.

SCHUNK products

- PGN-plus  
  Universal gripper
Casting Industry
Sorting of pistons

Task
Removal of unsorted pistons from a crate for checking the dimensions on a test bench.

SCHUNK solution
A SCHUNK PGN–plus universal gripper was mounted on the robot arm in combination with an OPR anti-collision sensor. Imaging software is used to determine possible gripping points and the PGN–plus removes the pistons.

Textile Industry
Handling of winding spools

Task
Automated handling of a winding spool for synthetic fibers.

SCHUNK solution
The handling of winding spools for synthetic fibers requires a powerful SCHUNK DDF 2 rotary feed-through with maximum process reliability in the turning procedures. The SCHUNK PGN–plus universal gripper mounted in this combination ensures maximum accuracy in the gripping process due to the unique multi-tooth guidance. Custom manufactured form fingers provide for exact holding of the coil.

SCHUNK products
- PGN-plus Universal grippers
- OPR Anti-collision and overload sensor
- SCHUNK Adapter plate
- DDF 2 Rotary feed-through
- PGN-plus Universal gripper
- SCHUNK Form fingers
SCHUNK Gripping Systems
Axis System Application

Axis System
Handling Solutions

The illustration shows an example of how SCHUNK standard linear module components can be combined with rotary, changing and gripping modules.

With the performance range of linear modules in combination with rotary modules, rotary units, gripping modules, quick-change systems, rotary transfer units, and sensors, SCHUNK opens up new perspectives for optimally priced and value-added automation solutions.

The entire world of linear technology for high-speed automation from a single source. With a compact modular design from the axis to the gripper finger and combined to create a custom axis system handling solution.

Connecting
SCHUNK adapter plate

Rotating
SCHUNK SRH-plus rotary unit

Connecting
SCHUNK adapter plate

Gripping
SCHUNK gripping modules
2-Finger universal gripper
PGN-plus with multi-tooth guidance

Moving
SCHUNK linear modules
X-axis (horizontal)
Beta toothed belt axis
Z-axis (vertical)
Beta spindle axis

Joining and compensating
SCHUNK TCU tolerance compensation unit
Handling and Assembly
Positioning of round parts made of steel.

Task
Small turned parts must be quickly placed in changing positions.

SCHUNK solution
Modular SCHUNK 4-axis gantry with type LDN and LDK servo-electric driven linear axes in combination with a pneumatic SCHUNK PGN-plus 2-finger universal gripper.
Task
Automatic movement of hydraulic brake valves in a test device.

SCHUNK solution
Compact SCHUNK linear modules, including a Beta toothed belt axis (horizontal), and a Beta spindle axis (vertical), are used in combination with a SCHUNK rotary gripping unit consisting of SRU-plus and a pneumatic sealed DPG-plus 2-finger parallel gripper, move the brake valves to various test devices.
Electrical Industry
PCB production

Task
Flexible use of a SCHUNK type ILR 2000 inline router, for cost effective alternating processing of even minimal quantities of different PCB variants.

SCHUNK solution
Handling of diverse PCBs is made possible by the compact SCHUNK WSG servo gripper in combination with SCHUNK LDN and LDK electric linear axes. During the cutting process, the gripper holds and stabilizes the PCBs for low-stress separation of the PCBs. With the SCHUNK ERD rotary module the servo gripper is turned to the required angular position simultaneously with the linear movement.

SCHUNK products
WSG gripper
Servo-electric 2-finger gripper
ERD
Rotary module
LDN linear module
Servo-electric Linear axis
LDK linear module
Servo-electric Short-stroke axis
Automotive Industry
Automated handling

**Task**
Movement of connecting rods by means of a transfer system.

**SCHUNK solution**
On a horizontal SCHUNK linear axis with 8 slides, 8 SCHUNK lifting/rotary and gripping units are mounted, to move the workpieces in a cycle.

**SCHUNK products**

- **X-axis (horizontal)** 2x B140-ZSS
  - Toothed belt axis
  - Linear module

- **Z-axis (vertical)** 8x SLE 32-125
  - Pneumatic linear unit
  - Linear module

- **SRU-plus**
  - Rotary unit

- **PZN-plus**
  - Centric grippers

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Mechanical Engineering
Loading and unloading

**Task**
Automatic loading and unloading of a grinding machine.

**SCHUNK solution**
In this customer-specific solution the horizontal SCHUNK axis is raised and lowered with a SCHUNK rotary and gripping unit. The parts are then moved into the machine housing.

**SCHUNK products**

- **X-axis (horizontal)** 2x B80C-ZSS/OSS
  - Toothed belt axis
  - Linear module

- **Z-axis (vertical)** 8x SLE 32-125
  - Spindle axis
  - Linear module

- **SRU-plus**
  - Rotary unit
**Metal-cutting Industry**

**Assembly and handling**

**Task**
Removal of ground parts from a chuck.

**SCHUNK solution**
SCHUNK HSB linear modules in combination with SCHUNK PGN-plus universal grippers with a BSWS quick-change jaw system remove a ground part from the chuck, and then load the clamping vise with an unfinished part. Finished parts are placed on a pallet; rough parts are gripped from a pallet.

**SCHUNK products**

- X-axis (horizontal) D240-ZSS
  Toothed belt axis
  Linear module

- Z-axis (vertical) B180-SSS
  Spindle axis
  Linear module

- BSWS
  Quick-change jaw system

- PGN-plus
  Universal grippers

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**Mechanical Engineering**

**Loading and unloading**

**Task**
To provide a loading gentry for a machining center.

**SCHUNK solution**
Loading of the machine with unfinished/finished parts is achieved with a SCHUNK pneumatic rotary unit with double grippers. This significantly reduces the cycle time.

**SCHUNK products**

- X-axis (horizontal) D240-ZSS
  Toothed belt axis
  Linear module

- Z-axis (vertical) D240-SSS
  Spindle axis
  Linear module

- OSE
  Rotary unit

- PGN-plus
  Universal grippers
Competent and skilled personnel ensure optimal availability of your SCHUNK products, and make sure that their value will be maintained.

**Your advantage:**
- Fast supply of original spare parts
- Reduction of down-times
- The complete spectrum of components from one source
- Quality and availability that can only be guaranteed by the original manufacturer
- 12-month warranty

**Initial operation**
- Professional assembly
- Fast and trouble-free

**Inspection**
- Inspection is carried out by skilled service engineers
- Avoiding unplanned failures of workholding and toolholding equipment

**Maintenance**
- Regular maintenance carried out by skilled service engineers
- Increasing and ensuring the availability of your workholding and toolholding equipment

**Repairs**
- Short down-times due to fast intervention of the SCHUNK service engineers
- Spare parts and accessories
Training
- Fast and practical training
- Efficient use of your SCHUNK products by training of the operating personnel
- The basis for proper machining of workpieces
- Ensures longevity of your SCHUNK products

Individual service – for better results
- Hotline to our inside technical consultants weekdays from 7 a.m. to 6 p.m.
- Project-oriented and on-site technical advice at your location
- Training on innovations and SCHUNK products – across the world in our local subsidiaries

Online service – for a fast overview
All information in digital form, clearly structured and up-to-date on our website at www.schunk.com
- List of contact persons
- Online product search based on product descriptions
- Product news and trends
- Data sheets
- Order forms for easy and convenient ordering
- Free download area for pages from our product catalogs and technical data, for software and calculation programs for your gripping and rotary modules
- Free 2D/3D CAD design models, provided in a wide range of different CAD formats – for easy integration into your design!
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Spanntechnik | Clamping Technology

- Gesamtprogramm Greifsysteme
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Concentrated, safe holding on the front line.

852 minutes without a goal against him in the Champions League
681 minutes without a goal against him in the national team
2 intercepted penalties in the 2006 World Cup
1 headed goal as a goalie
0 defeats English Soccer Champion

and

More than 2,000,000 sold precision toolholders
About 1,000,000 delivered gripping modules
More than 100,000 lathe chucks and stationary workholding systems are in use worldwide
More than 16,000,000 sold standard chuck jaws
More than 75,000 implemented hydraulic expansion customer-specific solutions

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